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The 4th ISMINA

**THE 4th INTERNATIONAL CONFERENCE
ON PHYSICAL EDUCATION, SPORT AND HEALTH (ISMINA)
AND WORKSHOP**

"Enhancing Sport, Physical Activity, and Health Promotion for a Better Quality of Life"

PROCEEDINGS

APRIL 12th, 2017

**Auditorium of Semarang State University
(UNNES), Indonesia**

APRIL 13rd, 2017

**Laboratory of "Prof. Soegijono" Sports Science Faculty,
Semarang State University (UNNES), Indonesia**

**SPORTS SCIENCE FACULTY
UNIVERSITAS NEGERI SEMARANG**

Hub of Sports and Health Science



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Semarang – Central Java, Indonesia

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UNIVERSITAS NEGERI SEMARANG**

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The Rector's Word



It is my pleasure to welcome all the speakers and participants of the 4th International Conference on Physical Education, Sports and Health (ISMINA) at Universitas Negeri Semarang or UNNES. This remarkable conference is a part of the 52nd Anniversary of Universitas Negeri Semarang. The theme of this event is 'Enhancing sports, physical activities and health promotion for a better quality of life'. The theme itself is in line with UNNES' vision to become a conservation-minded university with international reputation.

Conservation at UNNES is not designed within a restricted sense but it widely covers three pillars: environment, characters and culture. The theme of this conference has covered all three pillars. The health promotion issues represent an effort to build a habitable environment. The enhancement of physical activities has covered the movement to promote sportsmanship. Sportsmanship is very important character for athletes and non-athletes around the world. Maintaining the culture of sports represents UNNES' effort to proliferate cultural conservation.

I believe that we meet here to discuss on crucial matters of humans wellbeing. We are living in an era where technology has been developing in an unprecedented pace. Our lifestyles have been affected heavily and now most of us sit in front of our computers in a lengthy period instead of doing meaningful physical exercise. Pollution and food enhancement chemicals are parts of our daily lives. The risk of people getting serious diseases is increasing and we have to do something about this. This conference is one of our efforts to solve world's problem.

Last but not least, I would like to extend my deepest gratitude to the invited speakers and instructors who have come to this conference to share your important ideas to the world. Your contribution is highly appreciated by UNNES and by all sports and health community members who attend this event. Do not forget to enjoy your time while you are staying in Semarang and especially your visit at Universitas Negeri Semarang.

Sincerely yours,

Prof. Dr. Fathur Rokhman, M.Hum.
Rector of Semarang State University (Unnes)

Preface from Dean of Sports Science Faculty



Beginning on almost 10 years ago, Faculty of Sports Science UNNES, conducted regularly international conference to nurture its academic atmosphere. Today, I am more than delighted to write a preface on this proceedings. The 4th International Conference on Physical Education, Sports and Health (ISMINA) also become our contribution to our beloved university anniversary, Universitas Negeri Semarang. The conference aims to serves as a platform which allows scholars, professionals, researchers and sports technocrats to share and discuss the latest knowledge and findings with the purpose of transforming a revitalization and rethinking in the effort to encourage investment in the program of Physical Education, Sports and Health as well.

Hopefully, all the presented issues can be understood and can be implemented operationally in the development of physical education, sports and health through this scientific meeting forum, involving scientists, stakeholders, and observer of sports and health.

I would like to deliver our highest respect and appreciation to Rector of Unnes, Prof Fatkhur Rokhman MHum, all the keynote speakers, Prof. Wanchai Boonrod, PhD (Dean of faculty of Sports Science, Chulalongkorn University Thailand), Ass. Prof. Koh Koon Teck, PhD (Assistant Head of Graduate Program PESS-NIE NTU Singapore), Dr. Jihane Tawilah (WHO Representative to the Republic of Indonesia) all the steering committee and scientific board member. Also allow me to express my gratitude to the participants and audiences from Indonesia and other foreign countries who are enthusiastic in attending this precious conference. I do hope that all audiences will gain important values and collaborate it into our own fields and make crucial changes in the future. Besides that, I also convey my appreciations to all of organizing committee who has given their outstanding commitment for presenting this international seminar and forum.

Sincerely yours,

Prof. Dr. Tandiy Rahayu, M.Pd.
Dean of Sports Science Faculty, Semarang State University (Unnes)

Preface from Ismina 4 Chairperson



Welcome to the 4th International Conference on Physical Education, Sport, and Health (ISMINA) and Workshop. It is projected to be an international event in physical education, sport, and public health field and aimed to become one of the benchmarks on sport, physical activities, as well as health promotion and education events, especially in Asia or even in international scale. This conference is the 4th series of previous conferences held in 2009, 2011, and 2013 hosted by Universitas Negeri Semarang

This conference is a great opportunity to gather all knowledge and practices on sports, physical activities, as well as health promotion to achieve healthy lives and promote well-being for all people at all ages.

We wish to express our sincere appreciation to all of the honorable Keynote Speakers, Prof. Wanchai Boonrod, PhD (Dean of faculty of Sports Science, Chulalongkorn University Thailand), Ass. Prof. Koh Koon Teck, PhD (Assistant Head of Graduate Program PESS-NIE NTU Singapore), Dr. Jihane Tawilah (WHO Representative to the Republic of Indonesia), Prof. Dr. Tandiyo Rahayu, M.Pd (Dean of Faculty of Sports Science, Universitas Negeri Semarang Indonesia), and all participants for their valuable contributions, and also to the ISMINA 2017 committee for their excellent works in organizing this event.

Thank you for joining us in Semarang on 12th – 13th April 2017. Your presents give contribution to make the ISMINA 2017 an outstanding scientific meeting and an opportunity to prepare experts for present and future. Welcome to ISMINA 2017, welcome to Semarang.

Your faithfully,

Dr. Henny Setyawati, M.Si.
Chair Person of International Conference of ISMINA 2017

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Contents

The Rector’s Word.....	iii
Preface from Dean of Sports Science Faculty	iv
Preface from ISMINA 4 Chairperson.....	v
ISMINA 2017 Steering Committee.....	vii
ISMINA 2017 Scientific Board	viii
Contents	ix
Teaching, Assesment, and Curriculum	1
1. STUDENTS’ INDISCIPLINARY BEHAVIOUR AND THE ALTERNATIVE SOLUTIONS IN LEARNING PROCESS	
<i>M. Rambu P. Wasak dan Jusuf Blegur</i>	3
2. STUDENT AND TEACHER PERCEPTION OF WATER SAFETY MODEL IN AQUATIC LEARNING	
Ermawan Susanto	12
3. DEVELOPING VISUAL-BASED LEARNING MEDIA TO IMPROVE LEARNING OUTCOMES OF PHYSICAL EDUCATION AT THE STUDENT OF EXTRAORDINARY ELEMENTARY SCHOOL OF DEAF	
<i>Dedy Agung Nugroho, Agus Kristiyanto.....</i>	25
4. The Influence of Traditional Approach, Movement Education in Learning of Physical Education, towards Physical Fitness, Problem Solving Capabilities In Elementary School 01,02,03 Kemiri Banyumas Indonesia	
Restian Gigih, Agus Kristiyanto, Muchsin Doewes	38
5. PARAGA GAME AS TRADITIONAL SPORTS FOR BUGIS MAKASSAR TRIBAL COMMUNITIES IN SOUTH SULAWESI STUDY OF PHENOMENOLOGY REVIEWED FROM MOVEMENT SKILL	
Harwandi, Sugiyanto, Muchsin Doewes	47
6. PHYSICAL FITNESS EVALUATION IN MENTAL RETARDATION STUDENTS AT PRIMARY SCHOOL IN PALU CITY	
Addriana Bulu Baan	54
7. THE INCREASE OF STUDENTS’ COURAGE TRHROUGH PLAY APPROACH IN AQUATIC ACTIVITIES LEARNING FOR THE GRADE ONE STUDENTS OF AL-AZHAR ELEMENTARY SCHOOL	
Tangkua, Meidy Albert, Kurniawan, Jian Andri, Winata, Ridwan Andri	64
8. STUDENT PERCEPTION IN PHYSICAL EDUCATION OF ELEMENTARY SCHOOL	
Donny Wira Yudha Kusuma	65
9. POTENTIAL FOR SPORTS PERFORMANCE BASED ON TALENT AND STUDENT INTEREST IN GUNUNGPATI SEMARANG CITY 2016	
Sri Haryono, Syahru Romadhoni	72
10. ANALYSIS OF PHYSICAL EDUCATION AND SPORT HEALTH (PESH) PROGRAM BY USING GOAL-ORIENTED EVALUATION MODEL	
Abi Fajar Fathoni.....	73
11. DEVELOPING SNAKE LADDERS GAME FOR LEARNING MEDIA OF PHYSICAL EDUCATION SPORT AND HEALTH TO ELEMENTARY SCHOOL STUDENTS.	
Marhadi	74
12. CHARACTER VALUES IN PRIMARY SCHOOL STUDENTS OF LABSCHOOL UNNES	
Tommy Soenyoto, Endro Puji Purwono, Agus Raharjo, Billy Castyana	84

13. EFFECT OF COOPERATIVE LEARNING MODEL TYPE TGT(TEAM TOURNAMENT GAMES) MOTIVATION TO LEARN AND MOTOR SKILLS STUDENT DORMITORY CLASS VII (A Case Study of MTs PERSIS Students Tarogong Garut) Azhar Ramadhana Sonjaya	90
14. IMPROVING MOTIVATION AND STUDENT'S ACHIEVEMENT IN LEARNING PHYSICAL EDUCATION THROUGH FORMATIVE ASSESSMENT Elisa Rosliana, Komarudin.....	91
15. BASIC DETERMINANT ON SUB URBAN AREA RELATED WITH POSTPARTUM OBESITY (A Case Study in District Subah, Indonesia) Oktia Woro Kasmini H, Irwan Budiono, Galuh Nita P, Nur Siyam, Visca Anindya F.....	99
16. THE IMPLEMENTATION OF AUDIO-VISUAL MEDIA TO IMPROVE STUDENTS' LEARNING IN BREASTSTROKE SWIMMING ON THE TENTH IMMERSION Andhika Yahya Putra, Siswandari, Sapta Kunta Purnama	107
17. THE DIFFERENT EFFECT OF PLAYING AND TRAINING LEARNING APPROACH ON THE ABILITY OF THE STRADDLE STYLE HIGH JUMP OF THE 5TH GRADE MALE STUDENTS OF DJAMAATUL ICHWAN ELEMENTARY SCHOOL SURAKARTA ACADEMIC YEAR 2013/2014 Alvin Yanuar Rahman, Agus Kristianto, Kiyatno.....	114
18. THE EFFECT OF COOPERATIVE LEARNING MODEL ON INTERACTION SOCIAL BEHAVIOR Didik Subhakti Prawira Raharja.....	122
19. EXAMINING TEACHING COMPETENCIES IN PHYSICAL EDUCATION CLASSES IN INDONESIA AS THE BASIS OF RECONSTRUCTING PETE PROGRAM Agus Mahendra	123
20. ACTIVITIES OF TRADITIONAL GAME BASED NEUROSCIENCE LEARNING AS CHARACTER EDUCATION FOR CHILDREN WITH BEHAVIORAL, EMOTIONAL, AND SOCIAL PROBLEMS "TUNALARAS" Erick Burhaein.....	124
21. INTEREST IN LEARNING STUDENT ACTIVITIES RHYTHMIC IN SEMARANG CITY PRIMARY SCHOOL Donny Anhar Fahmi	133
22. CAN SCIENTIFIC APPROACH IN PHYSICAL EDUCATION IMPROVE CREATIVITY AND PHYSICAL FITNESS OF SENIOR HIGH SCHOOL STUDENTS LIVING ON MOUNTAINOUS AREA? B.Tarigan, Y.Hendrayana, K. E.Wijaya	138
23. PHYSICAL ACTIVITY OF PRIMITIVE SOCIETY IN JAMBI INDONESIA Anggi Aditiawan, Sugiyanto, Siswandari	146
24. GANTAO ART TRADITION IN BIMA REGENCY OBSERVED FROM VALUE OF PHYSICAL EDUCATION AND SPORT Erwin, Sugiyanto, Sapta Kunta Purnama	153
25. DEVELOPMENT PLAY LEARNING MODEL ON PHYSIC EDUCATION CHARACTER BUILDING IN ELEMENTARY SCHOOL GRADE V Waluyo	161
26. PROJECT BASED LEARNING ON BASIC MOTION RHYTHME ACTIVITY LEARNING PROCESS Roas Irsyada.....	169
Sport Paedagogy, Sport Coaching and Training, Sport Psychology	173
1. PHYSICAL ACTIVITY LEVEL OF STUDENTS GRADE V MI DARUL HIKMAH KECAMATAN PURWOKERTO BARAT KABUPATEN BANYUMAS Fitria Dwi Andriyani, Nur Robi'ah Al Adawiyah	175

2.	IMPROVING MOVEMENT SKILL IN SEMARANG CITY PEOPLE WITH “MAN TO MAN” GAMES ON CAR FREE DAY Tri Nurharsono, Moch Fahmi Abdulaziz.....	181
3.	FUNDAMENTAL MOTOR SKILLS OF EARLY CHILDHOOD STUDENTS’ IN PADANG, WEST SUMATERA Romi Mardela	186
4.	THE TALENT TEST IN TAEKWONDO Singgih Hendarto	187
5.	“SWING TRAINER” AS A SWINGING TRAINING AID TOOL ON WOODBALL MALE ATHLETES Anas Kholikul Amin, Muchsin Doewes, Sapta Kunta Purnama	192
6.	COPING WITH FAILURES ON ATHLETES: PSYCHOLOGICAL AND ISLAMIC PERSPECTIVES Anirotul Qoriah.....	199
7.	THE RELATIONSHIP OF INTELLIGENCE QUOTIENT (IQ), EMOTIONAL QUOTIENT (EQ), AND MOTIVATION TOWARDS BASKETBALL SKILLS Hangga Kusuma, Agus Kristiyanto, Kiyatno	207
8.	APPLICATION OF IMAGERY LEARNING MODEL ACHIVEMENT LEARNING BADMINTON STUDENTS SEMESTER VI PENJASKESREK STUDY PROGRAM <i>JPOK FKIP UNS</i> Khalida Nawa Aprilia, Sapta Kunta Purnama	215
9.	DIFFERENCE IN THE EFFECT OF DIRECT INSTRUCTION (DI) AND TEACHING GAME FOR UNDERSTANDING (TGFU) APPROACH TOWARD THE RESULT OF PLAYING BASKETBALL BASED ON THE STUDENT’S INTEREST Joko Setiaji.....	222
10.	DRILL MACHINE “AW_2016” ON VOLLEYBALL’S MOTOR SKILL TRAINING Agung Wahyudi	232
11.	MASSAGE ON LOWER EXTREMITIES BEFORE PRACTICING Wisnu Mahardika	238
12.	THE RELATIONSHIP BETWEEN THE FIGHTING EXPERIENCES WITH THE EMOTIONAL QUOTIENT IN PENCAK SILAT ATHELETES IN SPARRING CATEGORY PPLP CENTRAL JAVA M.M. Endang Sri Retno, M. Irfan Ariyanto.....	244
13.	FUTSAL EVALUATION OF THE ENGINEERING UNIVERSITY TRAINING PROGRAM DIPONEGORO SEMARANG Yudo Tri Atmojo, Agus Kristiyanto, Sapta Kunta Purnama.....	245
14.	STRATEGY BUILD HUMAN-RESOURCE SOLDIER COACHING THROUGH PHYSICAL EXERCISE Rumini	249
15.	PSYCHOLOGICAL STAGES OF SKILLFUL MOTOR BEHAVIOR ACQUISITION BASED ON MAURICE MERLEAU-PONTY’S PHENOMENOLOGY OF THE BODY Made Pramono.....	256
16.	THE DEVELOPMENT MODEL OF THE BASIC TECHNIQUES OF EXERCISE AND PHYSICAL EXERCISE ON FUTSAL PLAYERS LEVEL INTERMEDIATE Bagus Wahyu Prastyo, Sugiyanto, Muchsin Doewes	257
17.	STUDENTS OF FACULTY OF SPORTS SCIENCE UNIVERSITAS NEGERI SURABAYA HAD FAIR CATEGORY ON GYM BALL KNOWLEDGE TEST Kunjung Ashadi, M. Ali Machfud.....	265
18.	INFLUENCE MODEL OF EMOTIONAL INTELLIGENCE AND PHYSICAL EXERCISE OF FOOTBALL SKILLS Asep Angga Permadi.....	273
19.	THE DIFFERENCE OF REPETITIVE AND PROGRESSIVE PART METHODS EFFECTS ON THE PRECISION OF FOOTBALL SHOOTING Umar, Muchsin Doewes, Sapta Kunta Purnama	285

20. THE INFLUENCES OF LEARNING MODELS ON CRITICAL THINKING OF PLAYING FIELD GAME OF PRIMARY SCHOOL STUDENTS Y. Touvan Juni Samodra	286
21. THE INFLUENCE OF MINIATURE PROPS AND IMAGE TOWARD LEARNING OUTCOMES OF GYMNASIAC FLOOR GRADE VIII IN SMP N 1 SURADADI Ranu Baskora Aji Putra, Ahmad Fariz Khaedar	294
22. FRONT-WHEEL-DRIVEN BIKE, IMPROVING ENDURANCE, STRENGTH, AND MOTIVATION FOR BICYCLING Achmad Binadja, Suni Petersen	302
23. EFFORTS TO IMPROVE TECHNICAL SKILLS GYAKU MAWASI GERI WITH MULTILATERAL MOTION TO BEGINNERS KENSHI KEMPO SPORTS OF DOJO KRAMAT JATI Kuswahyudi, Ahmad Arsyad	303
24. PROFILE THE PHYSICAL CONDITION OF JUNIOR WOMEN'S VOLLEYBALL ATHLETES KEDIRI OF 2016 Ardhi Mardiyanto Indra Purnomo, Slamet Junaidi.....	312
25. THE EFFECTIVENESS OF THE MODEL BASIC TENNIS GOENRICH TECHNIQUE EXERCISE TO INCREASED ABILITY TO PLAY TENNIS IN THE PROVINCE OF NORTH SUMATRA Nurkadri.....	320
26. THE DIFFERENCE OF TRAINING EFFECT OF PLYOMETRIC SIDE JUMP SPRINT AND HALF SQUAT TO THE POWER OF LOWER EXTREMITIES (An Experiment in Male-athletes age 14-15 years at Muria Karate Club in Kudus Regency 2016) Rubianto Hadi	321
27. WATER GAMES IN THE SWIMMING LESSON Kaswarganti Rahayu.....	328
28. PSYCHOLOGICAL CAPITAL OF STUDENTS WITH AGES 10-12 YEARS IN BASKETBALL SCHOOL IN KERTAJAYA CLS SURABAYA-EAST JAVA Ritoh Pardomuan.....	335
29. <i>MODEL DEVELOPMENT OF EXERCISE ATTACKING IN PLAYING FOOTBALL SKILL FOR PPLP (A Research Development Model Or R & D)</i> Alex Aldha Yudi	343
30. THE EFFECT OF DIFFERENCES BETWEEN LEARNING APPROACH AND KINESTHETIC PERCEPTION TO ABILITY VOLLEY FOREHAND ON TENNIS Rivan Saghita Pratama, Kumbul Slamet Budiyanto.....	344
31. THE ANALYSIS OF PEDAGOGICAL COMPETENCE OF PHYSICAL EDUCATION, HEALTH, AND SPORT TEACHERS' AT SOUTH ACEH ELEMENTARY SCHOOLS Dadi Dartija.....	351
32. PEDAGOGY COMPETENCE AND TEACHERS UNDERSTANDING TO DEVELOP PE MODEL BASED ON THE CHARACTER Sugeng Purwanto.....	352
33. ANALYSIS CONDITIONS PUSLATCAB PENCAK SILAT SURABAYA ATHLETE CATEGORY FIGHTER Meilisa, Wa Ode Purnomo, Mochamad Dwi Cahyono, Febriyan	363
34. DEVELOPING SEPAKTAKRAW FOR CHILDREN THROUGH KRAWNJANG GAMES TO THE ELEMENTARY SCHOOL STUDENTS IN KEDIRI Abdian Asgi Sukmana	368
35. BADMINTON CONTRIBUTION TO STUDENTS JUNIORS HIGH SCHOOL PHYSICAL FITNESS OF UNGARAN Suratman	378
36. MENTAL ATTITUDE OF SYNCHRONIZED SWIMMING ATHLETES Wasti Danardani	383

37. THE EFFECT OF MULTIPLE-SET TRAINING (CONSECUTIVE MULTIPLE-SET AND CIRCUIT MULTIPLE-SET) PROGRAM ON STRENGTH, POWER AND BODY DIMENSION Donny Ardy Kusuma, Oce Wiriawan	384
38. BASIC SELF-DEFENSE ABILITY OF SPORT AND PHYSICAL EDUCATION STUDENTS IN SURAKARTA IS STILL LOW Agus Mukholid, Dewi Rochsantiningsih, Sugiyanto, M. Furqon Hidayatulloh.....	392
39. POWER BAND TRAINING AIDS TOWARDSTHE STUDY RESULT OF GOLF SKILL Muchamad Ishak	404
40. LEARNING BASKETBALL USING TGT MODEL Silvy Juditya' Ikhlasul Amaluddin Rifai	413
41. AN ANALYSIS OF FIGHTING STYLES OF FLYWEIGHT BOXERS UNDER NEW OFFICIAL RULES Amorntheap Wandee, Benjapon Benjapalakorn	420
42. INVESTIGATION INTO CRITICAL PARAMETERS OF SPECIFIC TRAINING OF HIGH INTENSITY PLYOMETRICS (HIP) OF MALE HIGH JUMPER Kusuma, MNH., Hartmann, U., Niessen, M.....	421
43. ANALYSIS OF PHYSICAL CONDITION OF ATHLETES PORDA BEKASI CITY IN 2016 Bujang, Apta Mylsidayu	434
44. PROFILE OF THE PHYSICAL CONDITION OF THE ATHLETE ATHLETICS KEDIRI Rizki Burstiando	435
45. TECHNICAL SKILLS WOMAN'S BASKETBALL ATHLETES HIGH SCHOOL IN WEST JAVA Alen Rismayadi, Dadan Mulyana	436
46. PHYSICAL FITNESS LEVEL STUDENT EXTRACURRICULAR KARATE AND PENCAK SILAT Muslimin, Pedrian Saputra	449
47. THE EVALUATION OF PHYSICAL FITNESS BEFORE AND AFTER EXERCISING WITH MUAY THAI OF STUDENTS IN KASETSART UNIVERSITY KAMPHAENGSAN CAMPUS Toasak Kawjaratwilai	458
48. EFFECTS OF EXERCISE WITH RAM WAI KRU MUAYTHAI ON PHYSICAL FITNESS AND ENERGY METABOLISM IN THE ELDERLY Porawat Khaeksinthon, Toasak Kawjaratwilai	463
49. FACTORS INFLUENCING THE IMPLEMENTATION LEVEL OF PHYSICAL EDUCATION IN PRIMARY SCHOOLS IN SELANGOR Ani Mazlina Dewi Mohamed, Saidon Amri, Lian-Yee Kok, Borhanuddin Abdullah.....	470
50. PHYSICAL FITNESS OF SOUTH SUMATERA FOOTBALL ATHLETES FOR PON XIX 2016 Iyakrus	477
51. EXCITING HOCKEY COMPETITION FOR CHILDREN Fery Darmanto and Kartika Septianingrum	483
52. IMPROVED ABILITY LONG JUMP SQUAT STYLE WITH THE TRADITIONAL GAME OF JANGKA Boedi Siswanto	489
53. JOURNAL OF PHYSICAL EDUCATION, SPORT, HEALTH AND RECREATIONS Aris Mulyono, Bambang Priyono, Rio Puja Iaksono	496
54. PHYSICAL EDUCATION AS A MENTALLY RETARDED STUDENTS' SELF DEVELOPMENTS Muhamad Bram Riyadi, Sugiyanto, M. Furqon Hidayatullah	504
55. ASSESSMENT OF SERVE AND SMASH OF VOLLEYBALL OF JUNIOR ATHLETES OF YOGYAKARTA SPECIAL REGION Fauzi	514
56. THE INFLUENCE OF EXERCISE TO TOUCH THE TARGET WITH THE INTERVAL METHOD TO DEVELOPMENT OF SPEED REACTION TIME AND ACCURACY LUNGE IN FLORET (Study on fencing club athletes attack Surabaya) Rini Ismalasari, Ari Rusdiyanto.....	527

57. THE EFFECT OF BASEBALL SPORT TOWARDS THE SOCIAL BEHAVIORS OF NEGLECTED CHILDREN AND STREET CHILDREN IN VIO BASEBALL CLUB SURABAYA Sasminta C.Y.H, Anung Priambodo, Farida Nurhayati.....	539
58. THE RELATIONSHIP BETWEEN MENTAL AND EMOTIONAL DISORDERS WITH LEARNING INDEPENDENCE STUDENTS OF PKO FKIP UTP (Correlation Study of Student Participants PKO PPL University of Tunas Pembangunan Surakarta TA. 2015/2016) Teguh Santosa	550
59. SWIMMING LEARNING MODEL USING ROPE AS AID FOR BEGINNERS Meirizal Usra.....	560
60. ANALYSIS THE DEVELOPMENT OF ARCHERY ACHIEVEMENT ON PERPANI (ARCHERY ASSOCIATION OF INDONESIA) KLATEN DISTRICT Noorman Meirsad Punta Wijaya, Agus Kristiyanto, Kiyatno	561
61. THE DIFFERENCE OF LEARNING APPROACH INFLUENCES TOWARDS SHOOTING THREE POINT OF BASKETBALL JUDGING FROM THE BASIC MOTION SKILLS Herlambang Joko Christianto, Muchsin Doewes, Sapta Kunta Purnama	569
62. MENTAL SKILLS PROFILE OF WOMAN WATER POLO ATHLETES OF INDONESIA IN 2016 Juriana , Ariel D.C. Siwabessy	576
63. ATHLETES' SELF-CONFIDENCE IMPROVEMENT Heny Setyawati	583
64. THE EFFECT OF EXERCISE METHOD AND MUSCLE STRENGTH TO SPEED SLEEVE CHEST STYLE POOL 100 METERS Wasis Himawanto, Sugito	587
65. DEVELOPING OF MULTI-FUNCTIONAL BASKETBALL FOR PHYSICAL EDUCATION IN FIFTH GRADER IN CITY OF SEMARANG Ahmad Ulil Albab, Tandiyu Rahayu, Sugiharto.....	588
66. INCREASING THE ABILITY OF TABLE TENNIS SERVING STROKE STUDENTS THROUGH ENVIRONMENTAL APPROACHING METHODS Jonni Siahaan	599
67. THE INFLUENCE OF EXERCISE TO TOUCH THE TARGET WITH THE INTERVAL METHOD TO DEVELOPMENT OF SPEED REACTION TIME AND ACCURACY LUNGE IN FLORET (Study on Fencing Club Athletes Attack Surabaya) Rini Ismalasari, Ari Rusdiyanto.....	607
68. THE DIFFERENCE OF TRAINING EFFECT OF PLYOMETRIC SIDE JUMP SPRINT AND HALF SQUAT TO THE POWER OF LOWER EXTREMITIES (An Experiment in Male-athletes age 14-15 years at Muria Karate Club in Kudus Regency 2016) Mas Haryadi.....	619
69. THE INFLUENCE OF PLYOMETRIC JUMP TO BOX AND KNEE TUCK JUMP TRAINING TOWARD LEG MUSCLES' POWER ON THE XI GRADE TKR STUDENTS AT STATE VOCATIONAL SECONDARY SCHOOL NGADIROJO KECAMATAN NGADIROJO KABUPATEN PACITAN 2016 Agus Pujianto, Wiwik Sundari	627
70. THE EFFECT OF COBWEBS EXERCISE TOWARDS STUDENT AGILITY IN STUDENTS ACTIVITIES CENTER OF FENCING, SEMARANG STATE UNIVERSITY Agus Widodo, Andre Akhiruyanto, Dwi Gansar Santi	634
71. EDUCATIONAL SPORT CARD GAME AS A PROBLEMS SOLUTION OF CHILDREN THAT ADDICTED WITH ONLINE GAMES Luqman Rais Maulana	639
72. EFFECT OF EXERCISE FRONT BOX JUMP AND KNEELING SQUAT JUMP OF MUSCLE STRENGTH BACK, MUSCLE STRENGTH LEGS, AND MUSCLE POWER LEGS. Yanuar Rizky, Dhedhy Yuliawan	643

Sport Physiology, Sport Biomechanics, and Sport Nutrition	645
1. THE CONTRIBUTION OF PHYSICAL FITNESS AND ANXIETY TO THE SLEEP QUALITY OF OLDER PEOPLE (A Correlational Study of Physical Fitness and Anxiety to the Sleep Quality of Older People in Kartasura) Diyono, Muchsin Doewes, Agus Kristiyanto	647
2. EFFECTS OF EXERCISES UNILATERAL AND BILATERAL PLYOMETRIC TO INCREASED SPEED AND EXPLOSIVE POWER OF LEG MUSCLE IN MALE BASKETBALL PLAYERS Lalu Moh Yudha Isnaini.....	652
3. SURVEY LEVEL OF PHYSICAL CONDITION OF STUDENTS PRODI PENJASKESREK STKIP TAMAN SISWA BIMA Irfan, Rabwan Satriawan.....	660
4. BIOMOTOR AND PSYCHOMOTOR DOMINANT FACTORS ANALYSIS DETERMINANTS OF TENNIS GROUNDSTROKE FOREHAND ABILITY ON TENNIS ACHIEVEMENT COACHING OF STUDENTS FKIP UNS Roy Try Putra, Kiyatno, Siswandari	671
5. THE DIFFERENT EFFECT OF SQUATS AND STANDING CALF RAISES WEIGHT TRAINING METHODS ON TRIPLE JUMP ACHIEVEMENT Daryanto, Kiyatno, Sapta Kunta Purnama.....	677
6. CONTRIBUTION OF PHYSICAL ACTIVITY LEVEL AND BODY MASS INDEX ON BLOOD PRESSURE RESPONSIVENESS Farid Rahman, Agus Kristiyanto, Muchsin Doewes.....	683
7. EFFECTS OF S-CURVE RUNS AND SPRINT IN-OUT EXERCISE METHODS AGAINST THE INCREASE OF SPEED IN 100 METERS SPRINT OBSERVED FROM FOOT LENGTH AND HEIGHT RATIOS (An Eksperimental Study Toward The Students Of Chevron Soccer School Pekanbaru) Ridwan Sinurat	684
8. RELATIONSHIP PROTEIN INTAKE TO MUSCLE GRIP STRENGTH OF ATHLETE Wilda Welis, Darni	685
9. INTERVENTION OF MUSCLE RELAXATION EXERCISE TO SWIMMER CONFIDENCE INCREASING Sungkowo	686
10. INTERPERSONAL COMMUNICATION LINK, PERCEPTION KINESTHETIC AND CONSISTENCY MOTION ACHIEVEMENT ARCHERY ATHLETES Ramdan Pelana, Nadya Dwi Oktafiranda	691
11. CIRCUIT TRAINING WITH STATIC AND DYNAMIC CORE STABILIZATION EFFECT ON FLEXIBILITY, BALANCE, ABDOMINAL, BACK, LEGS AND ARMS MUSCLE STRENGTH Fransisca Januarumi, Nining Widyah Kusnanik.....	701
12. DIFFERENCES IN EFFECT INTERVAL TRAINING AND CONTINUOUS TRAINING OF ANTIOXIDANT ENZYME ACTIVITIES AND STATUS OXIDATIVE STRESS YOUNG MEN Moch.Yunus.....	718
13. THE ASSOCIATION OF BODY WEIGHT WITH CHOLESTEROL REDUCTION AFTER BODY LANGUAGE GYMNASIAC FOR 45 MINUTES Yasep Setiakarnawijaya	719
14. EFFECT OF TOTAL BODY WEIGHT RESISTANCE EXERCISE (TRX) ON ARMS MUSCLE POWER Sapto Wibowo, Lucy Widya Fathir	724
15. PROFILE OF PHYSICAL CONDITION: SPEED, ENDURANCE, AGILITY, AND EXPLOSIVE POWER OF 15 YEARS OLD FOOTBALL SCHOOL STUDENTS (SSB) OF ELITE AND NON- ELITE LEVEL IN YOGYAKARTA SPECIAL REGION PROVINCE Sulistiyono	733

16. INVESTIGATION OF BASIC MOTOR SKILLS ACCORDING TO TGMD-2 TEST ON STUDENTS FULL DAY SCHOOL Fajar Ari Widiyatmoko	739
17. SPORT MASSAGE EFFECT ON BLOOD PRESSURE AND PULSE TEST RUN IN 12 MINUTES Arif Setiawan	745
18. THE CONTRIBUTION OF CHEST SIZE, ARM LENGTH, VITAL CAPACITY AND ARM STRENGTH TO THE SWIMMING ACHIEVEMENT IN THE 50M BREASTSTROKE (A Correlational Study of 15-17 Years Old Male Swimmers in East Java) Nuril Lolita Hudayhana, Sugiyanto, Kiyatno.....	756
19. ACUTE EFFECTS OF SHUTTLE REPEATED SPRINTS EXERCISE BETWEEN NORMOBARIC HYPOXIA AND NORMOXIA IN VARSITY FUTSAL PLAYERS: A PILOT STUDY Pattarawut Khaosanit, Kenneth Graham, Wanchai Boonrod.....	761
20. CONSTRUCTIVIST MODEL IN SECOND NUTRITION SCIENCE Hartati, Destriana, Silvi Aryanti.....	762
21. THE BODY COMPOSITION AND SOMATOTYPE CHARACTERISTICS OF UNITS ACTIVITY OF SPORTS COLLEGE MALE AT UNY Eddy Purnomo, Mansur, Eny Hastuty	763
22. THE DIFFERENCES OF THE EFFECTS ON VO ₂ MAX-BASED RECOVERYMETHOD OF POST-ANAEROBIC INTERVAL TRAINING TO LACTICACID LEVELS (Experimental Study of Recovery of Contrast Bath and Pre Neuromuscular FacilitationMethod in Male Students of Basketball Extracurricular SMAN 4 Surakarta) Angga Prastyo Wisnuaji, Muchsin Doewes and Siswandari	772
23. THE EFFECT OF STARFRUIT (<i>AVERRHOA CARAMBOLA</i>) JUICE THERAPY TO A DECREASE IN BLOOD PRESSURE FOR THE ELDERLY HYPERTENSION IN DESA KEDUNGSUREN KECAMATAN KALIWUNGU SELATAN KABUPATEN KENDAL Dwi Retnaningsih, Rista Apriana, Aghni Rahmalika	781
24. RESISTANCE TEST OF AEADES AEGYPTI TO CYPERMETHRIN BY SUSCEPTIBILITY METHOD IN DISTRICT TEMBALANG Widya Hary Cahyati, Septia Rachmawati	788
25. DEVELOPMENT OF “NUTRIATLET” SMARTPHONE APPS-BASED NUTRITIONAL SURVEILLANCE MODEL AND SURVIVAL ANALYSIS OF NUTRITIONAL STATUS IMPROVEMENT THROUGH MEAL PLAN AMONG TAEKWONDO ATHLETES IN PPLP CENTRAL JAVA Irwan Budiono, Hadi Setyo Subiyono, Lukman Fauzi	794
26. APPLICATION OF CONTINUOUS EXERCISE, SPEED PLAY AND RECOVERY TO IMPROVEMENT VO ₂ MAX IN BADMINTON ATHLETES PPLP CENTRAL JAVA 2015 Muhammad Mariyanto.....	804
27. BENEFICIAL HEALTH EFFECT OF AQUAROBICS (Role of Adiponectin On Women With Obesity) Mukarromah Siti Baitul, Hardhono Susanto, Wara Kushartanti, Soegiyanto, Setya Rahayu.....	818
SPORT MANAGEMENT, ADMINISTRATION, AND MANAGEMENT.....	825
1. STATISTICS SKILLS OF MALE ATHLETE VOLLEYBALL TEAM YOGYAKARTA REGION TOWARDS NATIONAL EVEN (PON) 2016 Sujarwo, Budi Aryanto	827
2. THE OPEN SPACE AND PUBLIC PARTICIPATION PART OF SPORT DEVELOPMENT IN WONOGIRI REGENCY Desi Natalia, Sugiyanto, Kiyatno	836

3.	SPORTS HUMAN RESOURCE MANAGEMENT OF SPORT DEVELOPMENT INDEX IN PADANG, WEST SUMATRA (Evaluation Studies of the Availability of Sports Human Resource Management)	
	Katsran Zalaff, M. Furqon Hidayatullah, Agus Kristiyanto.....	845
4.	TRADITIONAL GAMES AS THE NATION'S CULTURAL HERITAGE	
	Gustiana Mega Anggita, Soegiyanto, M. Arif Ali, Billy Castyana	850
5.	WOMEN POSITION OF GENDER ISSUES ON PHYSICAL EDUCATION SENIOR HIGH SCHOOL IN CENTRAL JAVA	
	Dwi Gunadi	857
6.	THE ENHANCEMENT OF FEATURED SPORTSPROCEDURES AND EVALUATIONQUALITY IN LANDAK REGENCY	
	Maharani Fatima Gandasari	863
7.	TREKKING SPORTS DEVELOPMENT MODEL BASED LOCAL WISDOM IN SUPPORT OF SPORTS TOURISM INDUSTRY AT BULELENG BALI	
	Syarif Hidayat.....	864
8.	CAREER ORIENTATION AND EDUCATION BADMINTON ATHLETES CENTRAL JAVA	
	Agus Wiyanto	865
9.	RECRUITMENT AND DEVELOPMENT MODEL OF SPORT VOLUNTEER IN INDONESIA	
	Soedjatmiko.....	875
10.	THE EXISTENCE OF WOODBALL ATHLETES COACHING AT THE STUDENT ACTIVITY UNIT (UKM) SEMARANG STATE UNIVERSITY (UNNES)	
	S. M. Fernanda Iragraha	885
11.	TRADITIONAL SPORT DEVELOPMENT AS TOURISM VILLAGE ATTRACTIONS	
	Ngadiman, B. Suko Wahono	893
12.	TEACHERS COMPETENCE IN ORGANIZING LEARNING ASSESSMENT AND EVALUATION OF PHYSICAL EDUCATION VOCATIONAL HIGH SCHOOL TEACHERS IN KABUPATEN KARAWANG	
	Resty Gustiawati, Rekha Ratri Julianti.....	897
13.	THE CONTRIBUTION OF ORGANIZED LEISURE TOWARD ACHIEVING QUALITY OF LIFE: INDICATORS FROM YOUTH LEISURE SATISFACTION ACROSS SES	
	Mawarni Mohamed, Sufean Hussin, Mohd Salleh Aman.....	904
14.	VALUE OF RECREATIONAL SPORTS ACTIVITY OF URBAN COMMUNITIES	
	Endang Sri Hanani.....	916
15.	THE DEVELOPMENT OF "SPORT ACCESS LEARNING (SAL)" TO PROMOTE SCIENCE AND TECHNOLOGY IN SPORT	
	Wasis D. Dwiyoogo, Puri Selfi Cholifa	922
16.	PE-SWIM APPLICATION ON ANDROID PLATFORM: A SPORT BUSINESS OPPORTUNITY FOR STUDENT	
	Arju Restu Nalia, Martin Sudarmono , Moch. Fahmi Abdulaziz	931
	Health Education and Public Health.....	939
1.	THE EXISTENCE OF HEALTH ACADEMICIANS MAKING COLLEGE HEALTHY, SUPERIOR AND PROSPEROUS (Study of Quality Physical Health for Lecturers and Staff in Semarang State University)	
	Soegiyanto, Ipang Setiawan, Dhimas Bagus Dharmawan	941
2.	ENVIRONMENTAL CONTROL AND BEHAVIOR INCREASING IN FILARIASIS ELIMINATION THROUGH THE IMPLEMENTATION OF "MANDIRI" POCKET BOOK	
	Arum Siwiendrayanti, Eram Tunggul Pawenang, Sofwan Indarjo	950

3.	THE UTILIZATION OF FISH BONES WASTE AS A COAGULANT SUBSTANCE TO EXPEDITE THE DRYING OF WOUNDS	
	Miranda	958
4.	STUDY OF HOME PHYSICAL CONDITION CHARACTERISTICS AND PERSONAL HYGIENE IN THE LEPROSY PATIENT AND SURROUNDING ENVIRONMENT IN WEDING VILLAGE	
	Astri Yunita Prasetyaningtyas, Rudatin Windraswara	966
5.	MERGING ENGLISH INTO SPORT IN AEROBIC EXERCISE BASED ON CONTENT BASED INSTRUCTION. RESEARCH. SPORT SCIENCE DEPARTMENT. SEMARANG STATE UNIVERSITY	
	Fatonah Suraya, Mohammad Arif Ali, Sugiharto	976
6.	CONSTRUCTING PSYCHOLOGICAL TRAINING FOR INDIVIDUAL 100M SPINTER	
	Miftakhul Jannah, Najlatun Naqiyah, Rachman Widohardhono	981



Teaching, Assessment, and Curriculum

STUDENTS' INDISCIPLINARY BEHAVIOUR AND THE ALTERNATIVE SOLUTIONS IN LEARNING PROCESS

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Abstract

This research reported the solutions to students' indiscipline behaviour in teaching and learning process. Researchers used qualitative approach of phenomenological type. Subjects involved in this research were ten male students of Physical Education, Sport, Health, and Recreation study program, Artha Wacana Christian University, Kupang in which all the subjects were determined by purposive sampling technique. The data were collected by participating the observation, interview, and field notes. The result indicated that the alternative solutions to students' indiscipline behaviour in teaching and learning process are: 1) Time management of the level of needs, 2) Teachers and friends become the model, 3) Positive experience transferred, 4) Guiding and counselling, and 5) Educative "punishment".

Keyword: *Indiscipline alternative solutions, students, learning.*

INTRODUCTION

Discipline is a guiding process intending to invest certain behaviour characteristics. Certain habits or shaping human with certain characteristics are particularly to raise mental quality and moral (Mini, 2011:7). Discipline is an obligation because discipline makes students to get used to having an orderly and systematic behaviour as supporting factors of learning success (Smith, 2011:23). One of the basic modal of self-improvement is discipline. Students who are discipline will get used to making a right decision in a competition of their assignments as well as controlling their selves in various circumstances. Discipline itself comprises two forms; negative discipline and positive discipline (Purnama, 2006:101). Negative discipline is a behaviour in which the discipline happens because of necessity due to the fear of getting punishment in contrast to positive discipline, it is a behaviour which emphasizes on self-improvement so that every behaviour and its activity happens consciously, voluntary, and in pleasure.

In this competitive era, discipline plays very important role to human civilization. A demand to become productive in workplace is natural. Governmental and private institutions have been applied various strategies to train discipline (finger print) event sport industries have made discipline as a main parameter to individuals who are looking for works (Kian, Pedersen, Vincent, 2011:126). This matter becomes the concern so that employers can work in optimal as well as productively work to increase competitiveness. In the workplace, people expect to have good quality of work whether individually or in group. This can be embodied in highly discipline behaviour (Aritonang, 2005:14; Maharani & Rahmawati, 2010:201; Harlie, 2010:122; Suswardji, Hasbullah, & Albatros, 2012:977). Highly discipline also becomes a supporting factor of the quality of leadership. A number of leaders are successful by applying character of discipline in every of their work activities and programs (Spears, 2010:28; Riggio, 2013:10). To maintain the quality and the way of work discipline of individual, it is necessary to have the balance among attention, motivation, support, firmness of discipline (Macdonald & Wisdom, 2002:57; You, Humphrey, & Bowden, 2011:44).

Indisciplinary behaviour occurs due to strong and continuous of both internal and external intervention in a very long time. Less of “attention” surroundings whether in written, oral, or parents’, teachers’ and friends’ modeling is the trigger of the bear of students’ indisciplinary behaviour (Susana, Carla, & Celia, 2009:69; Idu & Ojedapo, 2011:792; Bharadwaj, 2012:3). Complexity of indisciplinary behaviour becomes more concern because such behaviour will have an impact on the society, at home, and the students’ future career prospect (Bharadwaj, 2012:9). It means that if an individual does an indisciplinary practice, then such act becomes a direct model to other individuals as the behavioural expansion otherwise. Indisciplinary behaviour also triggers the increase of bad (unpleasant) behaviour and wicked act which are able to worsen the social order of society.

To reform the indisciplinary behaviour, stakeholder should be able to create humanist and democratic climate and approach in his/her social interaction. Concentration of team forming, organization, professional practice, definition and management of violence as the aspect of working on “effects of formation” (Cecile, 2009:104), such as discipline approach to emphasize on the epidemic of indisciplinary behaviour (Lozano & Kizilaslan, 2013:184). Additional efforts that can be used to train the students’ learning discipline are: 1) Teachers’ personality and authority, 2) Self-conscious, 3) Teachers’ guiding, and 4) Harmonic relationship (Ardi, 2012:65-66). Most of the teacher’s time is spent when they interact with the students, whether intra or extra learning, whether in written or orally. The opportunity needs to have meaning and value of education toward the development of discipline behaviour. It is particularly to give a knowledge and understanding of indisciplinary implication in students’ social community as well as their career prospect later so that it becomes new references in students’ cognitive structure in doing indisciplinary practice.

METHOD

This research used qualitative approach of phenomenology. Researchers discussed with the subjects of indisciplinary behaviour by understanding the core experience of their social phenomenology. We examined the issues of students’ indisciplinary behaviour more deeply bridged by observations and questions of the main experience of research subjects. The location of research is sport education, Health and Recreation study program of Artha Wacana Christian University, Kupang. The research subjects involved 10 male students determined by purposive sampling. The data was collected by participation-observation, deep interview, and field note. Further, The data finding was analyzed qualitatively. Process of analyzing the data was done in four steps, that are; data collection, data presentation, data reduction, and data verification. The data analysis was done simultaneously by the process of data collection. Researchers did an analysis in each of research finding in order to give meaning to the solutions of students’ indisciplinary behaviours.

RESULT AND DISCUSSION

Time Management with the Level of Needs

Discipline has close relationship to time and need. If students are able to control the time and need well, then they can use to with the practice of discipline behaviour. The case of indisciplinary occurs in students because of the bad consciousness of the importance of time management and their personal life. The activities they do are not classified based on the level of the needs. Students actually spend their time doing inappropriate activities which can develop their

personal competence (hang out). Scale priority of needs and urgency of activities are not well-organized so that the students' activities become unsystematic. Uncontrolled activities extend to the indisciplinary behaviour manifested in being late to attend the class, ignoring the group-assignment, and ignoring to prepare sets of learning equipment.

Most of students have been succeed to overcome the indisciplinary behaviour by determining the scale of priority with the work agenda. The agenda of work can be stuck in a board or a cork in bedroom so that it can be the controller of their priority in doing activities. This become the real consciousness of the students about time management, as stated by SABN that is "*Learning to change is to try to manage the time by doing the things that should be worked*". Initiative to change is the right early step to live in discipline behaviour. Written agenda is a tactic used to have the balance of managing the time in completing various learning activities. Students begin to understand accurately the assignments which become the priority based on the time difference and role, such as a presenter must notice the time that has been scheduled to deliver a presentation. In this way, students are more responsive to a self-preparation rather than doing any activities if we view from time and role, they are not urgent though.

The pattern of socialization leading to unuseful activities can be minimalized by the well-use of time. This assists the students to do inventory toward the priority of activities such as working on group assignments and doing a presentation simulation of a discussion material and this is the right moment to get used to with discipline. Students with good time management are able to assist themselves to train the discipline behaviour (Fiana, Daharnis, & Ridha, 2013:30) and to overcome academic procrastination (Sandra & Djalali, 2013:217). Time can be measured or controlled wisely, so that the students do not busy themselves with unuseful things based on the level of needs. A pile of assignments during the learning process demands the students to be effective and efficient in using time. Moreover, time management can limit the students to control the intention and behaviour toward the various invasions in the pattern of destructive socialization.

Teachers and Friends Become the Model

The high level of modeling makes the model becomes one of effective ways to overcome indisciplinary behaviour. Students are still dominant in duplicating people surround them. If their friends are discipline, so do the students. Such model can change some of indisciplinary behaviour of students step by step and continuously. This condition is felt and experienced by SABN. s/he explained that s/he is disciplined by "*Following the other people who is considered more discipline and also by making friends with they who are disciplined to get valuable experiences*". SL stated the same that "*Following friends who always obey the rules or are discipline is the best way*".

The environmental selection and social relation are highly influential in students' behaviour. The observation result indicated that a tough, diligent, and disciplined student is present because his/her disciplined community or in other words, s/he is in disciplined environment. They follow all activities obediently, whether the way the think, speak, and behave. In addition, students who behave disciplined tend to 'avoid' the indisciplined students, except that happens due to social setting through group learning distribution from teachers. This may happen because they do not want to be contaminated by the indisciplinary behaviour practiced by a half of students in their learning community. This also occurs and is polarized in teacher model. Students will be disciplined if

they are taught, guided, or accompanied by the disciplined teacher in order to strengthen the model of disciplinary behaviour during and after the learning process.

Teachers' attitude and behaviour contribute to students' disciplined behaviour (Purnama, 2006:109). To a self discipline, it is able to use positive approach that is to give an example (Mini, 2011:8). Example and attention modelled by the teachers in culture of discipline and order is the effective ways to maintain discipline behaviour of the students (Kehily, 2002:137). Attention is directed to the intention of performance and teachers' and students' behaviour by the high discipline. Learning in a disciplined environment promises students to follow a well-ordered learning class and has an impact on learning achievement (Saputro, 2012:78; Nokwanti, 2013:80). Culture of disciplined behaviour can be shaped by starting and ending the class in time, determining the scale of activities which is on the priority, not to postpone works, not to smoke whether in the classroom or out the classroom, participating a various scientific activities as well as collaborating with the students in scientific research. The ways of such examples are adopted by the students from friends and teachers in changing their self-concept and behaviour about the culture of discipline.

Positive Experience Transferred

Both teachers and students have had a number of experiences or references engaging to the practice of discipline in daily life. Those experiences are made into strategy to overcome indisciplinary behaviour. This strategy is implemented when starting and ending a learning activity. based on an observation result, teachers and students often do a such of transferring story of positive experiences in the end of learning process, for instance, telling an experience of "experimental doctor" which contains a meaning of the danger of smoking and alcoholic drinks for human body. Besides, there is an experience about: "A story of someone who is disciplined and indiscipline" which has a meaning of the importance of someone's discipline and tenacity in implementing task and responsibility in many things so that it produces the positive result (Aritonang, 2005:14; Maharani & Rahmawati, 2010:201; Harlie, 2010:122; Suswardji, Hasbullah, & Albatros, 2012:977).

The transfer of positive experiences has a positive effect as well to the students and they feel more relax and stable to listen, observe, and accept those. This gives understanding toward the cases passed through by some people (other students, the teachers their selves, or others) about the importance of discipline. When being interviewed, SBG said that: "Prohibiting, advising, telling positive experience are examples". These positive examples are maximized by the teachers as the efforts of indisciplinary behaviour resuscitation. Because there are still a number of students has bad emotional stability so that the approaches which trigger students' negative emotional reaction require to be noticed so that what becomes the focus of teachers can be well implemented and achieved (a qualified learning).

The support of positive behaviour is able to overcome the indisciplinary behaviour as well as to increase students' academic achievement. The positive support is oriented to: 1) Increase learning method, 2) Formulate expectative behaviour, 3) Increase the involvement of class activities, 4) Strengthen positive performance, and 5) Observation of success through the evaluation of database (Luiselli, Putman, Handler, & Feinberg, 2005:192). Transfer of positive experiences trains the students to find meaning behind stories or illustrations. Meaning of metaphorically model discipline is further interpreted by the expectative behaviour that can be done by the students. This result is

based on the finding of that corrective model, revisionist, and metaphor of discipline can overcome indisciplinary behaviour (Chirasha, 2013:214). This process gives new cognitive references to the students, that discipline behaviour highly support the development of someone's psychology and has had a benefit and overplus obtained if applying the disciplined behaviour in any situation.

Guidance and Counseling

Guidance and counseling have been widely adopted in handling the troubled individuals. This method is adopted by teachers, whether as course coordinator or as academic supervisor. Students will feel comfortable, peaceful, and feel more be respected if the students are called personally to be advised rather than reprimanding them in public (in front of their friends). If this situation occurs (anger), it actually extends the students' indisciplinary behaviour (Sutrisno, 2009:66) and is potential to other troubles, for instance, fighting, arguing, or stopping for school. One of the doers of indisciplinary behaviour, SB said that *"A good approach and asking the problem which happens are done in order to give solution so that the same indisciplinary behaviour is not done again"*.

A thing is felt difficult, if it is started from outside. We often use external intervention this far and the result do not yet reach the maximum. It is said by SDB that *"Guidance activities must be based on one's own will, advice, understanding and encouragement to change"*. Besides, YB also added that *"I prefer to be advised because the advice slowly will change me and I do not like a direct admonish because it is too harsh"*. To overcome indisciplinary behaviour, it is better to give a resuscitation toward indisciplinary actions done by students, whether in short term, middle, and long term through guiding and counseling. In this way, students their selves give the interpretation and analysis toward the behaviours, however, it is still under teachers' supervision and control so that the students change their indisciplinary behaviours.

Guiding and counseling are able to press the epidemic of indisciplinary behavior of students with the use of humanist-solutive (Widodo, 2010:108), to assist students to discipline in learning (Smith, 2011:23). Teachers can apply a concept of freedom which is in well-guided or concept which emphasizes process of guidance and constructive counseling (Imron, 2011:174). This process can involve parents and religious organization (Gitome, Katola, & Nyabwari, 2013:1). Issues of synergy and complexity in coping with indisciplinary becomes the focus and the same attention in which the handling is done step by step to the chance of behaviour. Consequently, students' indisciplinary behaviours do not occur anymore in their social life.

Educative "Punishment"

It must be admitted that even though it is far behind, reward and punishment method is still relevant in this era in learning. Facing excellent students in quantity by the height of heterogeneous makes teachers to experience various complexities, particularly relating to indisciplinary behaviour. Giving a punishment is emphasized more on educative process such as it is oriented in an awareness of and empowerment of students in order to have disciplined behaviour. Learning group (class) which is well organized in presentation method and group discussion requires a stable teamwork and if it does not well run, then it will have an impact on effectivity and efficiency process of learning in order to be able to damage the group discussion. Various ways are used to cope with indisciplinary behaviour of group member, for instance, SL said that *"Giving sanction to them intends to cause them to learn a lesson"*. SABN, further, added that *"Being angry makes us irritated, but remaining to*

admonish kindly. If there is no chance in future and it harms the team, we take them out under the collective agreement”.

Various ways have been implemented by the teachers to overcome students' indisciplinary behaviours. One of those ways used by the teacher is by giving “a punishment” to the students who are absent in learning time in order to give them a resuscitation as well as a meaning of indisciplinary behaviours. The punishment is recommending students to involve their selves in extracurricular, such as attending a seminar, training, research, or becoming a member in a sport competition, etc. Besides, teachers also give “punishment” to the student who does indisciplinary practice by asking them to buy a packet book (smoking or intoxicating) in which the book is used by him/her self. When being interviewed, teacher (JB) stated that *“If a student can buy alcohol drinks or smoke, then s/he has money, so that educative punishment used is by buying a book that will be useful for him/her self later”.*

The application of punishment is to assist the students in being disciplined in learning (Ardi, 2012:61) as well as to improve disciplined behaviours (Indrawati & Maksum, 2013:304). Although punishment is able to overcome problem of discipline, however, punishment should remain to observe the effect of behaviour changing without harming students psychologically such as expulsion (Nakpodia, 2014:144). Punishment given is expected to completely have educative process and meaning so that the punishment does not have negative impact on students' mental and behaviour yet it gives moral and material support implicitly (such as participating in research activity) so that the students are active in learning. Punishments avoided in context of education are striking, exploitation, intimidation, and expulsion. Such punishments can damage social system of tolerance and bother students' pleasure (Efianingrum, 2010:55), such as making the students won't go to school, depression, making them unhappy in learning process, afraid of, lack of self-confidence, and embarrassed (Muhammad, 2009:235).

CONCLUSION AND SUGGESTION

Indisciplinary behaviour is one of many factors that impedes either students' improvement in learning or their other social life. As a teacher, destructive behaviour experienced by the students is better to be minimized for students' self-interest as a part of a fully learning result. Discipline is highly important to the students in undergoing their task and responsibility as a part of self-actualization. Research finding has found that five alternative solution of students' indisciplinary behaviour in learning process as follows: 1) Time management with the level of needs, 2) Teachers and friends become the model, 3) Positive experience transferred, 4) Guidance and counseling, 5) Educative “punishment”. These five process can be undergone whether concurrently or separately. Teachers require to identify students' behaviour preferences. This is done in order that the solutions of indisciplinary behaviours are right on target so that the students can be engaged actively and is totally being discipline either in learning group or in daily life.

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STUDENT AND TEACHER PERCEPTION OF WATER SAFETY MODEL IN AQUATIC LEARNING

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Abstract

The purpose of this study was to obtain a picture of the perception of students and teachers about the safety of the model needs (water safety) in the aquatic learning in school. The study was conducted with a qualitative research design, through focus group discussions, in-depth interviews and non-participant observation. The subject of research to obtain data on the understanding and perception of safety needs in water (water safety) are students and teachers of PE primary school. Validation of the expert by learning aquatic experts. Data analysis using descriptive statistics, t-test, and variance analysis. The results showed: (1) Implementation of four times Focus Group Discussion (FGD) as the basis for preparing the guidebook of Water Safety. Conclusion FGD form important guidelines for safety in the water as a companion book in the implementation of the aquatic learning in school; (2) Sixty percent (60%) of students and teachers perception about safety in the water on aquatic learning is still lacking; (3) Establishment of 28 types of maintenance activities on the water. All 28 types of safety on the water has been identified to be implemented in primary schools. Expected to form in the water safety activities can provide a sense of security and as a preventative measure in aquatic learning; (4) Drafting manual Water Safety that has been validated expert. The book contains about 28 kinds of safety on the water.

Keywords: water safety, aquatic learning, primary school

INTRODUCTION

An accident in the pool can happen to everyone, whether they can swim or not to swim. One type of accidents that often occur in the pool is **drowning** and is one of **the biggest risks** in aquatic activities. Several other risks that may occur include water injury, cramps, respiratory problems, headaches, and fainting. In addition there is also a safety risk to the health risks of student participation in the learning aquatic. Health risks include, among others hypothermia, water poisoning, itching, skin irritation, eye irritation, and possible spread of infectious diseases. This incident is a serious problem that could threaten the health and safety of students. Reduce the possibility of drowning or other water type of injury is a shared responsibility among teachers of physical education, swimming instructors, parents, and lifeguard. However equip themselves with knowledge of the security and rescue capability is a prudent action.

Water accidents such as drowning can be resolved with a minimum standard rescue possessed by each individual. Some cases illustrate the drowning incident caused by weak oversight, negligence swimmers, tools and inadequate facilities, and most importantly because of the failure in first aid for handling emergency cases of accidents in the water. Based on cardiovascular physiology, then when submerged within 5 minutes then it has a high degree of risk of death. Similarly, the time first aid fast and precise, it is helpful to salvation. Currently not many places that are sufficient to teach how children in particular, have knowledge of the security and safety on the water. According to Sawyer (1998: 6), physical education program is one of the media the right to teach kids about safety behavior both in the pool and around the pool. Children can be introduced to the basic rules

about personal safety in the water and basic safety in the water while swimming or during activities outside the classroom.

In line with the scope of the subject matter of Physical Education, Sport and Health (PJOK) in elementary school. There are six main elements, among others: (1) Games and Sports, (2) Development Activities, (2) Test yourself / Gymnastics, (3) Rhythmic activities, (4) **Aquatics (Water Activity)**, (5) Outdoor Education (Outdoor Education), and (6) Health. Aquatic material contains about activities carried out in the pool, such as; water games, **Water Safety**, swimming styles, and development aspects of the relevant knowledge and values contained therein (Competency Standards for Physical Education Elementary School, 2004: 12-15).

Lesson in the curriculum of physical education, scope or aquatic material remains. This suggests that the role of Physical Education is very important, which gives students the opportunity to be directly involved in a variety of learning experiences through physical activity, play and sport. The experience of motion obtained student in Physical Education is an important contributor to the increase in enrollment at the same time is an important contributor to the welfare and health throughout life (Siedentop, 1990; Ratliffe, 1994; Thomas and Laraine, 1994; Stran and Ruder 1996; CDC, 2000). On the one hand, learning aquatic now increasingly in demand broadly at the elementary level. Teachers and students began to take an interest in the aquatic program because this program creates a sense of fun, create a good social atmosphere for child development, build confidence, and produces physical fitness health. Aquatic learning can also reduce the delinquency or reduce the level of activity of the child due to an energy distribution for positive activities. In Indonesia, often spread the news about a child who had an accident in the pool. However, an accident in the pool as it sank and died have not been notified and dealt with properly. Preliminary survey we did showed a 40% incidence of drowning (near drowning), occurred because of the absence or Standard Operational Procedure (SOP) on safety in the water. Based on the spot, 70% of victims drowned occur in public pools. Several public swimming pools, not to have an accident emergency response SOP in the water.

There are some potential dangers that may arise in the pool are among others:

1. **Sink.** Drowning is a major potential danger emerged in the pool. Some pools do not have a clear barrier between the pool and the pool in the shallow.
2. **Slippery Floor.** Some pools are still using a smooth floor, so if in contact with water becomes slippery.
3. **Ceramic Tableware.** The corner edge of the pond or the pond often have broken ceramic, so it can injure visitors.

Know the capabilities and potential hazards are fundamental and earliest to be studied. Both of these points will determine how teachers behave during in the aquatic environment so as to minimize the likelihood of accidents. Studying rescue without knowing the capabilities and potential hazards will actually make ourselves the next victim.

METHOD

The study design using qualitative research. Qualitative research is expected to provide an overview of the perceptions of students and teachers as the manager or PE teacher aquatic program at the school, about the level of safety needs in water (water safety) as well as the direction of the

development of aquatic instructional program they expected. Methods of collecting qualitative data used is the method of triangulation of data consisting of: (1) Focus Group Discussion (FGD) on a group of school students, (2) In-depth interview on PE teacher, (3) Observation of non-participant in the school setting and swimming pool. Data obtained from this study as the results of focus group discussions, observations, interviews, analyzed by researchers, then the results of the analysis in the form of exposure studied the situation described in the form of a narrative description. Sample was taken by purposive sampling in 5 schools (10 PE teacher's) are held regularly aquatic learning.

This qualitative research subjects include students, PE teachers, and principal. The study was conducted in the province by taking a sample of five (5) Primary School. Justifying the selection of the study because the school would have been and still perform the aquatic learning programs regularly. The research instruments used were: (1) To reveal the level of teachers' understanding of the safety program in the water using questionnaires and document analysis, (2) To reveal the pedagogical competence and safety activities in the form of water using observation sheet instruments. Analysis of quantitative data, the data is used to interpret the results of the questionnaire technique. Qualitative data analysis to interpret the data type of the result of observation, and interviews. The steps of the data analysis will be conducted: (1) data reduction; (2) create a display of data; (3) presented the findings, draw conclusions from the implementation of safety programs in water.

The draft forms safety activities in the water (water safety). contain subject matter, among others: (1) Name of maintenance activities in the water; (2) Figure; (3) Interest; (4) Guidelines for the implementation, (5) equipment and facilities used; (6) Potential swimming skills.

RESULTS

In this study, we want to know pedagogical competence of teachers in preparing the RPP aquatic learning in school. The research subjects a number of five teachers. Criteria ability of teachers views of how to pour a safety element in the water within the framework of RPP, among others:

1. Preparation (Learning Objectives, SK, KD, Indicators of Success),
2. Implementation (Introduction, Core Training, Cover), and
3. Evaluation (Assessment of Learning Outcomes).

1. Preparation (Learning Objectives, SK, KD, Indicators of Success),

In this study we want to know elementary PE teacher pedagogical competence in preparing Preparation aquatic learning in which there are elements of learning objectives, standards of competence, basic competence, and indicators of success. The results showed that the average proportion of teachers in preparing lesson plans teaching aquatic, known to have a 80% or 8 teachers who have been carrying out aquatic learning and is an indicator of the Good category. There is a 20% or two teachers who have not been able to prepare lesson plans and learning aquatic an indicator on the category of Less. Therefore, based on the instruments used in this study, it was clear that pedagogical competence PJK teachers in preparing lesson plans on the Preparation stage category Very Good.

When analyzed why teachers have a very good ability in preparing the RPP aquatic learning at the preparation stage because the schools concerned to implement on a regular basis so that the learning aquatic preparation needs RPP becomes a necessity. Factors

infrastructure especially learning the complete pool is another success factor. Another analysis was that the school is limited to the cost to implement

2. Implementation (Introduction, Core Training, Cover)

In this study we want to know PE pedagogical competence of teachers in preparing lesson plans teaching elementary physical education in the implementation of the learning phase of which consists of three steps, namely the learning Introduction, Core Training, and Closing. The results showed that the average proportion of teachers in preparing lesson plans teaching aquatic, known to have a 60% or 6 teachers pay less attention to safety norms in the aquatic learning process. There is a 40% or 4 teachers who are already implementing learning by paying more attention aquatic safety. Therefore, based on the instruments used in this study, it was clear that pedagogical competence PE teachers in preparing lesson plans on the Implementation phase including less category. When analyzed why teachers have less ability in preparing the RPP on the Implementation stage, because more teachers teach basic swimming motion techniques rather than the basic techniques of water safety. This is not in accordance with the rules of safety is the primary objective in the aquatic learning process in primary schools.

2. Evaluation (Assessment of Learning Outcomes).

In this study we want to know pedagogical competence elementary school physical education teachers in preparing lesson plans at this stage of the learning evaluation or assessment of learning outcomes. The results showed that the average proportion of teachers in preparing lesson plans, known to have a 60% or 6 teachers who have not carried out the evaluation of aquatic learning.

DISCUSSION

Therefore, based on the instruments used in this study, it was clear that pedagogical competence of physical education teachers in preparing lesson plans at this stage of evaluation including less category. When analyzed why teachers have less ability in preparing the RPP at the stage of evaluation because more teachers evaluate the sequence of motion or the motor learning swimming skills rather than on factors of safety in the water. This contrasts with the learning objectives that promote aquatic safety factor in the water. Thus of the three stages of learning: Preparation, Implementation, and Evaluation, it is known that on the third stage has not been able to develop a lesson plan teachers learning aquatic particularly on safety factors in the water. The analysis can be broken is for the teachers still do not understand how to convey the material safety in the water on aquatic learning. In other words, the learning process aquatic primary school is not optimal. There are 28 kinds of safety in the form of water complete with systematics as described above. In short title in the form of water safety are as follows:

Table 3. List Event Name of Activity Water Safety Developed

No	Name of Activity	No	Name of Activity
1	Entries/Exits	15	Ular Naga Panjang
2	Sculling/ Body Orientation	16	Komando
3	Strokes	17	Renang Menolong
4	Survival/PFD	18	Mengirim Benda
5	Underwater Skill	19	Menyelam dan Mengejar

No	Name of Activity	No	Name of Activity
6	Rescue Skill	20	Penyelam
7	Bola dan Simpai	21	Perahu Naga
8	Kincir Bola	22	Selancar Air
9	Gelap Total	23	Penyelam Estafet
10	Ambil Koin	24	Pegang Rambut
11	Bugi-Wugi	25	Melarikan Diri
12	Memindahkan Benda	26	Kaki Pencari
13	Menjejak Air	27	Cincin Jatuh
14	Ujung Lingkaran	28	Injakan Kaki

The results of the questionnaire filling is conducted by each expert and teacher obtained on average more than three (3) or into the category ratings "good / right / clear". Thus the product safety in the water can be used in trials. There are 28 types of draft forms in water safety activities that successfully created.

DRAFT FORMS OF WATER SAFETY ACTIVITIES

Entries/ Exits

Entry / exit, can be described as an effort to base the way in and out of the pool properly and safely. This method is the first step before starting a water activity. There are several ways in the swimming pool which is right down the stairs the pool, jump spikes, or jump start. The way out of the pool which is right up the stairs to the pool, climb the side of the pool, or with the help of others. Here's how to enter and exit the pool is right:



Figure 1. How to enter and exit the pool right

Sculling/ body orientation

This means maintaining the body to remain afloat in the water by moving the legs alternately and move your arms for balance. Other languages are treading water or baseball / enggek (: Java). This condition used to defend themselves in the water than using how to swim. At the time of giving aid to the victims drowned, sculling position is needed in order to obtain a comfortable attitude of helpfulness. Here sculling motion picture / body orientation:

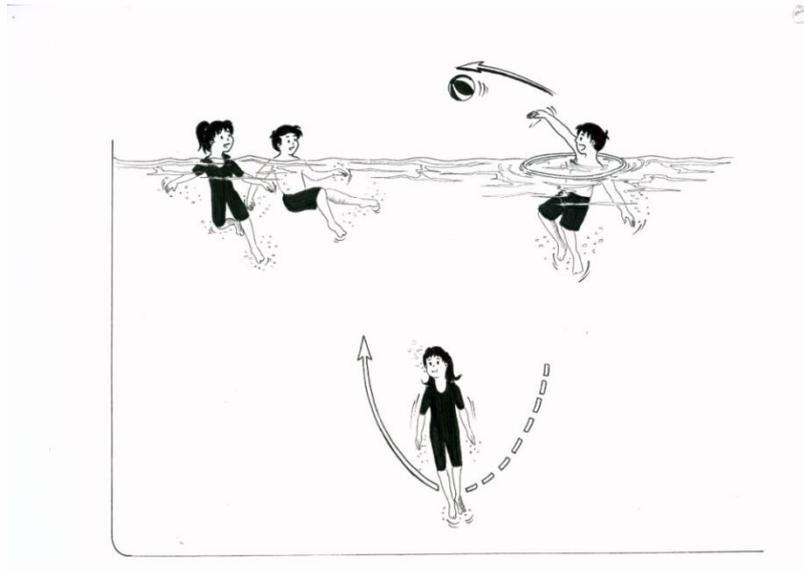


Figure 2. Movement treading water (sculling / body orientation)

Strokes

Punch / strokes is one of the movement refers to the use of the arm or leg as a blow or swimming movements. Strokes in aid to victims of different ways to use. For example, if the handle grip temples drowning victim using the victim, rescuers using arm and leg strokes breaststroke. Here's a picture of a gesture strokes:



Figure 3. Strokes movement freestyle

Survival/ PFD (personal flotation device)

Is the ability to survive in the water in an emergency situation that use relief aid equipment. One of these tools is a popular help life jacket/ life jacket / PFD. Procurement PFD is a must in the safety element in water. Likewise, the way the use of PFD must follow the rules of procedure for the correct usage. Here's a picture of how to survive in the water using a PFD:



Figure 4. Movement to survive into water

Underwater Skills

Is the skill of movement in the water like diving, hold your breath in the water, walking in the water and so on. These skills are required as the basis for the safety of water in case of a drowning victim at the bottom of the water or at the bottom of the pool. These skills can be controlled in line with the mastery of style pool. Here are some pictures underwater movement skills:

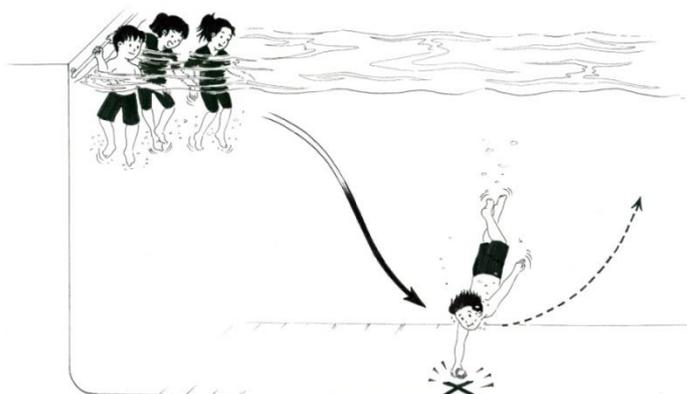


Figure 5. Motion dive pick up objects

Rescue Skills

Is the skill to rescue the victims of an accident in the water. These skills can be divided into rescue skills with tools and skills to save without tools. Rescue skills with tools such as sticks, ropes tied to buoys, buoys, tires, and so forth. Rescue skills without tools such as bringing drowning victims with grip temples, with a handle, with grip chin, and so forth. Here are some images rescue skills by means of:



Figure 6. Movement to save with buoys

Kincir Bola

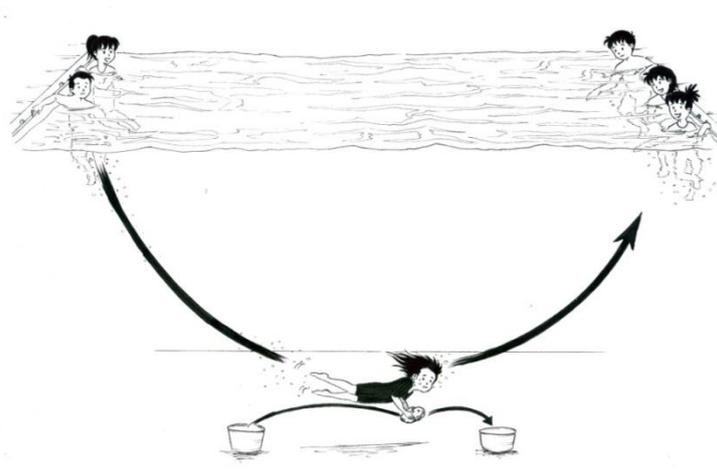


- | | |
|------------------------|---|
| Purpose | : To train kicks (stroke) legs to be strong. |
| Level | : Advanced |
| Equipment | : Ball of 15 cm or a float board. |
| Water depth | : waist. |
| Number of Participants | : small groups throughout the class. |
| The setting | : a single student or alternating with activity other groups. |

How to play :

Students on his back facing up and showed a strong leg kick while crossing the width of the pool, while the ball or float board from one hand to the other hand with the arm fully stretched at the top of the body (see picture).

Pindah Batu



- Objective : To hone the courage to swim in surface and diving while carrying an object.
- Level : Intermediate / Advanced.
- Equipment : Two iron bucket and a clean rock for each team.
- Water depth : In.
- Number of Participants : small groups to the whole class.
- Settings : Each team consists of four to six people with alternate format, cooperation along the pool.

How to play :

Two buckets placed at a distance both approximately 5 meters placed in the bottom of the pool with a stone in the bucket first. When cue began, the first students to dive into the water, swam to the first bucket, collecting bricks, put them into the second bucket, to the surface and swam until the end of the pool. All students repeat all movement until everyone gets a turn. Note: If necessary, swimmers can take the air at the surface of the stone after taking the first bucket.

Menginjak Air



Objective	: To practice and train compactness track-trace water.
Level	: Advanced.
Equipment	: For each group, one stone.
Water depth	: In.
Number of Participants	: The whole class.
Setting	: A team consists of four to five people.

How to play :

Each group go into the water, forming a circle and track-trace water. Furthermore, each student took turns holding the rock with both hands, keeping the wrist remains on the surface of the water, and kept track-trace water. When cue begins the first participant from each group trying to do this for 2 minutes before it passed to the next participant. The value of two points are awarded to each participant who did it. Therefore, if there are four participants in each team, the maximum value is 8 points. Participants who can only do this for one and a half minutes of obtaining a score of 1.5. The winning team is obtaining the highest score

Renang Menolong



Purpose	: To train the use of arms to push.
Level	: Intermediate / Upper.
Equipment	: One sheet of paper for each team.
Water depth	: In.
Number of Participants	: Small groups of up to the entire class.
Setting	: A team consists of six people in formation opposite.

How to play :

Each student each holding a newspaper. When cue began, the first students into the water along with his newspaper, swam towards the second player and give the newspaper the second student, who then swam toward third student, and so on. The main objective of the game is to keep the newspaper in order to remain dry. The first team to finish with dry newspaper is the winner.

Mengirim Benda

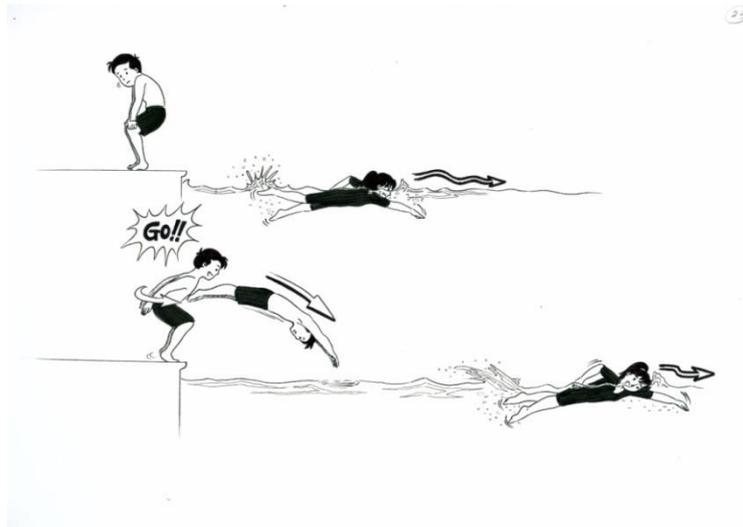


Purpose	: To train and eye-opening dive in the water.
Level	: Beginner
Equipment	: One heavy buckets with coins
Water depth	: Shallow.
Number of Participants	: Small groups of up to the entire class.
Setting	: A team consists of six people.

How to play :

Student teams lined up on one side of the pool. Buckets were placed in the bottom of the pool, with coins of different face on it. The students on the team are numbered one to six. On cue starts, the first students into the water, the dive as soon as possible to the bucket, looking for coins with the lowest nominal, took him to the other side of the pool and climbed to the top. The second student repeat, until the sixth students acquire the coins each. They then put it back into the bucket. The first team to finish is the winner.

Menyelam dan Mengejar



Objective	: To hone the techniques contained in diving competition.
Level	: Intermediate / Advanced.
Equipment	: None.
Water depth	: headshot.
Number of Participants	: Small groups of up to the entire class.
Setting	: Couples across the pond.

How to play:

A pair of students were in the water on one side of the pool, and is ready to cross; others stood up, his back to the water. Teachers gave the command "start" on the students in the water to start swimming, and when they were far enough from the pool wall, the teacher gestured to the other students started to dive and chase the first student. The same process is followed by another couple and then switch roles

CONCLUSION

Based on the research and discussion above and answer the problem formulation are then the results showed that aquatic learning in primary schools has not touched the aspects of safety in the water. thus made draft safety activities in the water and has arranged a number of 28 types of maintenance activities in the water (water safety). Safety in the form of water contains among other things: the name of activity, image, goals, equipment used, the depth of the water, place settings, number of participants, the potential of the developed swimming skills and water safety purposes intended

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**DEVELOPING VISUAL-BASED LEARNING MEDIA
TO IMPROVE LEARNING OUTCOMES OF PHYSICAL EDUCATION AT THE STUDENT
OF EXTRAORDINARY ELEMENTARY SCHOOL OF DEAF**

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Abstract

The background of this research is the result of manipulative based learning throwing and catching ball that has not been good and the learning media is not specifically given to students at third grade *SDLB-B* (deaf) in *Karesidenan Surakarta*. The purpose of this research is to develop appropriate media learning for children with hearing impairment, carrying out product development testing, and carrying out tests to determine the effectivity of product testing the effectiveness visual-based learning media to improve outcomes of manipulatives based learning throwing and catching ball at third grade *SDLB-B SLB Negeri Se-Karesidenan Surakarta*. The method used in this research is "Research and Development" proposed by Borg and Gall, researchers adapted the research procedures into three phases: preliminary, trial products, and test effectiveness product. The results of the preliminary analysis requirements using interviews and observation, many students have not reached the passing grade. The second stage is a test expert with 83.8% votes. The second stage is field testing, with test results of small groups and large groups with both increased learning outcomes and the assessment results are 86.1% and 86%. The third stage is effectiveness test, and the results obtained $t_{table} = 2.37$ and $t_{table} = 1.86$, it can be concluded that there are significant differences between students experimental group and the control group, the experimental group achievement of learning outcomes is better than the control group. The final product is proven effective in improving student learning outcomes at third grade *SDLB-B SLB Negeri Se-Karesidenan Surakarta*.

Keywords: based learning throwing and catching balls manipulatives, visual media based learning, research and development

INTRODUCTION

Physical Education, Sports, and Health is an integral part of the overall education, which aims to develop aspects of physical fitness, motor skills, critical thinking skills, social skills, intellectual activity, emotional stability, moral action, aspects of healthy lifestyles and the introduction of clean environment through physical activity, sport, and health which are planned systematically in order to achieve the national education goals.

Physical education learning activities are not only for normal children, but special needs children also need them. In fact, there are many assumptions that special needs children may not be able to do sports activities. There are many people in Indonesia who assume that disability is negatively appreciated. Special needs children are considered incapable of doing any activities, including exercise. It is often found in physical education learning that children who need special services are often not included in physical education teaching and learning activities.

Sports learning for special needs children certainly have differences with the physical learning for normal children. It can be seen from the term subject which is different. The term physical education for special needs children is "Physical Education and Adaptive Health". Adaptive physical education is a program of teaching and learning activities which is designed specifically for

special needs children who have limitations on the physical condition, mental condition, and social condition in order to involve them actively and achieve the optimal learning outcomes.

The formation of basic movement is one of the objectives to be achieved in learning of adaptive physical education. All children are able to develop and learn many kinds of basic movement including special needs children. Basic movement is a repetition movement that is constantly practiced on the habits and makes it as the basis of their experience and environment.

Manipulative movement is a movement in which something is moved. It is called manipulative because in these skills children have to deal with things outside themselves that have to be manipulated in such a way so it can be formed into a single skill. These skills can be throwing, kicking, catching, stopping the ball and so on, which is the basis of many types of sports.

Based on the preliminary observation which was conducted in June 2016 in SLB Negeri Se-Karesidenan Surakarta, namely grade III of SDLB-B SLB Negeri Surakarta, SLB Negeri Karanganyar, SLB Colomadu Karanganyar, SLB Negeri Sragen, SLB Negeri Sukoharjo, SLB Negeri Boyolali and SLB Negeri Wonogiri, it was aimed to know the value of learning outcomes from manipulative basic movements on those students. The results of observations about the value of learning outcomes from manipulative basic movements that are throwing and catching ball of grade III of SDLB-B SLB Negeri Se-Karesidenan Surakarta showed that the average values were still very low, but it was also found that the availability of learning media in accordance with the characteristics of special needs students (deaf) was still very little.

The use of appropriate learning media is expected to be the solution to improve students' learning outcomes in accordance with the competencies that want to be achieved by the teacher and will be able to meet the learning media in accordance with the characteristics possessed by the students, so the teacher will be easier in giving the materials and explaining the materials to the students.

These products of developing visual-based learning media are in the form of learning videos, pictures of learning stages, cue used in learning, and the learning instruments of manipulative basic movement of throwing and catching ball. By developing these learning products, it is expected to improve learning outcomes of Sekolah Dasar Luar Biasa students of deaf.

Visual-based learning media is considered to be appropriately applied to the learning process of physical education and health in grade III students of SDLB-B Negeri Se-Karesidenan Surakarta, especially in special needs children (deaf) for their excellence in sensory sight, so the children will be easier to get and understand the materials, especially on learning the manipulative basic movements, throwing and catching ball.

From the components above, this research will be studied about the importance of (1) the implementation and development of learning media in accordance with the characteristics of special needs students (deaf) to improve the results of manipulative basic movement (throwing and catching ball), and (2) the effectiveness of visual-based learning media to improve students' learning outcomes about the learning of manipulative basic movement (throwing and catching ball) on special needs students (deaf). The purpose of this study were (1) to determine whether or not the implementation and development of learning media in accordance with the characteristics of special needs students (deaf) can improve the results of manipulative basic movement (throwing and catching ball), and (2) to find out how effective the implementation of visual-based learning media

can improve learning outcomes of manipulative basic movement (throwing and catching ball) on special needs students (deaf).

METHOD

The type of this study is research and development that is being increasingly used in solving practical problems in terms of research, especially research in education and learning. According to Borg & Gall cited Wasis D (2004: 4), research and development is a process used to develop or validate the products that are used in educational learning.

In this study, the model of development used is a model of procedural development, because this model is descriptive, which is a procedure that describes the steps that must be followed in producing the product. According to Wasis D (2004: 6) in each development, we can choose and find the most appropriate step for our research based on the conditions and problems faced.

This research was conducted in June 2016 until December 2016 by involving the physical education teachers and grade III students of SDLB-B SLB Negeri Se-Karesidenan Surakarta in the Academic Year of 2016/2017, which were about 7 physical education teachers and 23 special needs students (deaf).

This study consists of several stages in its implementation. The stages in the study are the most important aspects in the study. The order of the stages in this study is divided into several implementing procedures, that are started by the first stage, producing, implementing and final stage which is also the implementing and finishing stages. The developing procedures used by the researchers can be explained as follows:

1. First Stage (Needs Analysis)

Needs analysis is part of the stages used to determine the products that are developed in obtaining the data by observation and free guided interview to the parents and teachers of physical education in SLB Negeri Se-Karesidenan Surakarta.

2. Second Stage (Product Development)

The first stage is to scientifically examine the material that we use in research and it is the theoretical foundation to develop the product as a result of the research. The theories used are the theories that support the research. The second stage is producing the first product, based on needs analysis and the theoretical studies presented in Chapter II. The selection of these theories is done by researchers in which it is based on logic of empirical thinking.

3. Third Stage (Product Trial)

a. Expert Evaluation

The next stage is the evaluation of experts for the perfection of producing visual-based learning media on special needs children (deaf). The academic experts in this validation of learning media are:

- 1) Prof. Dr. H. M. Furqon Hidayatullah, M.Pd (Postgraduate Director of UNS as well as the lecturer at Faculty of Postgraduate Sport Sciences, UNS Surakarta)
- 2) Priyono, S.Pd, M.Si (the lecturer of Program for Special Education, FKIP UNS Surakarta)

The products are revised according to the feedback from experts for being field-tested further.

b. Field Trials

The field trials consist of a small group and large group of trials, in which both small and large groups consist of 2 (two) research cycles in the learning. The first cycle consists of 2 (two) meetings and the second cycle consists of 1 (one) meeting. The trials of small groups and large groups is intended to find out the improving of student learning outcomes and the questionnaires assessment from students and teachers of physical education in SLB Negeri in Karesidenan Surakarta dealing with the content of learning model. After being tested, it is conducted revision and final trials that are conducted as tested product development.

4. Forth Stage (Product Effectiveness Test)

a. Eksperimenting the Product

Experiments were conducted in grade III of SDLB-B SLB Negeri in Karesidenan Surakarta, to know the level of effectiveness of product development for further utilization. Experimental design used pretest and posttest by group selection from all students of grade III in SDLB-B SLB Negeri Surakarta and SLB Negeri Sukoharjo. Grade III students in SDLB-B SLB Negeri Sukoharjo became the experimental group and grade III students of SDLB-B SLB Negeri Surakarta became the control group. The mechanism of implementation in effectiveness test of the results of product development was done by comparing the two groups then being seen the results and the results of preliminary data and the data of post-treatment assessment.

Data Collection Technique

The data collection techniques used were:

- a. interview,
- b. questionnaire,
- c. test,
- d. observation, and
- e. data collection instrument.

Data Analysis Technique

In this study, there were two techniques in collecting the data. It could be seen from the type of data collected which were qualitative and quantitative approaches.

Analysis of Test Instrument

1. Analysis of Question Validity

Validity is criterion that indicates the level of validity or legality of an instrument.

$$r_{XY} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{\{N \sum X^2 - (\sum X)^2\} \{N \sum Y^2 - (\sum Y)^2\}}}$$

Then the result of r_{XY} which is obtained from the calculation is compared with the table value $r_{product\ moment}$. The value of r_{table} is calculated by a significance level of 5% and N which were appropriate with the number of learners. If $r_{XY} > r_{table}$, it can be stated that the question is valid.

2. Analysis of Question Reliability

Reliability is used to indicate that the instrument can be trusted well to be used as a means of collecting the data as the instrument has been good.

$$r_{11} = \left(\frac{n}{n-1} \right) \left(\frac{S^2 - \sum pq}{S^2} \right)$$

The obtained value of r_{11} is consulted r value in table of product moment with the significance level of 5%. The question is stated as reliable if the value $r_{11} > r$ table.

3. Normality test of frequency distribution

The purpose of normal distribution is the data will follow a normal distribution form in which the data centralise on the average values and median. The formula used is chi kuadrat formula symbolized as χ^2 . The formula is as follows:

$$\chi^2_{arithmetic} = \sum \left(\frac{(O_i - E_i)^2}{E_i} \right)$$

The rule used to determine whether or not a distribution is normal are if the significance value is greater than 0.05 (significance > 0.05), it is normal and if the significance value is less than 0.05 (significance < 0.05), it is stated as abnormal.

4. Data analysis

The technique of analyzing used is percentage descriptive analysis techniques. The data analysis in this approach means that each analysis is adapted to approach used, only to find out the percentage (%) (Sudjana, 1990: 45).

$$P = \frac{x}{x_1} \times 100\%$$

To determine the conclusions that have been reached, it is determined the criteria as in the following table:

Tabel 1. The Presentage of Evaluation Result in Trial Subject

Percentage	Remarks
80% - 100%	Valid/used
60% - 79%	Quite Valid/used
50% - 59%	Less Valid/revised
<50%	Not Valid/revised

(Cited from Maksum, 2009: 57)

5. Homogeneity Test

Homogeneity Test in this research used Fisher test. This fisher test can be used on 2 (two) data groups. The criterion of deciding will be approved if $F_{total} < F_{(0,05)(df)}$. The formula of Fisher is:

$$F_{arithmetic} = \frac{\text{large variances}}{\text{small variances}}$$

Calculating the combined variances of each group of samples:

$$S_x^2 = \sqrt{\frac{n\sum x^2 - (\sum x)^2}{n(n-1)}}$$

The criterion is : Ho will be accepted if $F_{arithmetic} \leq F_{(0,05)(df)}$ and Ho will be rejected if $F_{arithmetic} > F_{(0,05)(df)}$.

6. The data analysis of product experimental test

The data analysis in this study used t-test. T-test was used to test the hypothesis in this study. The rule used to determine the presence or absence of significant influence is when the value $t_{arithmetic} > t_{(0,05)(df)}$ ($t_{arithmetic} > t$ -table), then Ho is rejected and when the value $t_{arithmetic} < t_{(0,05)(df)}$ ($t_{arithmetic} < t$ -table), Ha is accepted. The formula used is:

$$t_{arithmetic} = \frac{x_1 - x_2}{S \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where S is the combined standard deviation, the formula is:

$$S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

In the formula, *t*-test has provision that: $t_{arithmetic} > t_{table}$, significantly different (Ho is rejected) or if $t_{arithmetic} < t_{table}$, significantly similar (Ho is accepted).

RESULTS AND DISCUSSION

The followings are a number of results data in development research:

1. Needs Analysis

From interviews with the teacher of physical education, it had been found that the mastery of manipulative basic movement (throwing and catching ball) was not good enough, and it lacked learning by using media adapted to the characteristics of students as a learning process.

From interviews with parents above, it could be concluded that the acquisition of manipulative basic movement (throwing and catching ball) was not good enough, and it needed improvement as the importance of good and right basic movement for the students development at early age. Moreover, it lacked learning by using media adapted to the characteristics of students as a learning process. The planning of first product in learning of manipulative basic movement (throwing and catching ball) on special needs children (deaf) based on studies which were theoretically formulated in the following formation:

- a. The theory of the adaptive physical education
- b. The theory of physical education for special needs children (deaf)
- c. The theory studies of learning characteristics and strategies on special needs children (deaf)
- d. The general theory of movement development motion
- e. The general theory of the manipulative basic movement
- f. Skills evaluation of manipulative basic movement (throwing and catching ball)

2. Stage 2 Results of Product Trial

a. Experts Evaluation

From the evaluation results of academic expert in physical education teaching media and academic expert in education on special needs children, it was obtained results as follows:

Table 2. The conclusion of quantitative data from expert evaluation

Numb.	Expert	Score	Max. Score	Percentage
1	Academic expert in physical education teaching media	157	185	84,8%
2	Academic expert in education on special needs children (deaf)	145	175	82,8%
Arithmetic		302	360	83,8%

From the table above, it could be interpreted that the design of the product development of visual-based learning media on special needs children (deaf) (grade III students of SDLB-B) could be tested on the next stage, referring to the classification of Maksum (2009).

b. Analysis of Cognitive Test Instrument

Analysis of cognitive test was obtained as the following results through the validity and reliability:

1) Item Validity Analysis

Validity is a criterion that indicates the validity or legality level of an instrument. The validity of this research with a significant level of 0.5% and n = 10. The validity and reliability data of item were presented as follows:

Tabel 3. Item validity in first stage

Numb.	Item	Validity(r_{xy})	R_{table}	Remarks
1	Item 1	0,718421	0,632	Valid
2	Item 2	-0,11974	0,632	Not Valid
3	Item 3	0,478947	0,632	Not Valid
4	Item 4	0,898027	0,632	Valid
5	Item 5	0,538816	0,632	Not Valid

From the validity data in first stage, the data was obtained as above, which showed there were still many items that were not valid because $r_{xy} > r_{table}$ with a significant level of 0.5 and n = 10. Therefore, it should be continued analyzing the validity of these items on the next stage. Here are the data of validity analysis result in stage 2 (two):

Tabel 4. Item validity in second stage

Numb.	Item	Validity(r_{xy})	R_{table}	Remarks
1	Item 1	0,892413	0,632	Valid
2	Item 2	0,69838	0,632	Valid
3	Item 3	0,697518	0,632	Valid
4	Item 4	0,829156	0,632	Valid
5	Item 5	0,678401	0,632	Valid

Then, the result r_{XY} obtained from the calculation as compared with the table value r product moment. The value of r_{table} was calculated with a significance level of 5% and n = 10. If $r_{XY} > r_{table}$, it could be stated that the item was valid. It could be concluded that all the items could be stated as not valid.

Reliability is used to indicate that the instrument can be trusted well to be used as a means of collecting the data as the instrument has been good. This reliability analysis used the formula KR 20. The gained r11 value was consulted the r value in product moment table with a significant level of 5% and n = 10. Thus, it was obtained $r_{table} = 0.632$. The item was stated as reliable if the value $r_{11} > r_{table}$. From the results of reliability analysis, it was obtained $r_{11} = 0,804924$, so that $r_{11} > r_{table}$. So, it could be concluded that the data was reliable.

3. Data of Field Trial Result

a. Trial in Small Group

Small group trial in product development of visual-based learning media in special needs children was held on Monday, September 5 2016 until September 19 2016, within 4 students as the subjects. The subject of this small group trial was grade III students of SDLB-B SLB Negeri Sragen. The implementation took places in school yard of SLB Negeri Sragen.

The research subject of this small group trial was grade III students of SDLB-B SLB Negeri Sragen. This small group trial resulted in the following data:

Table 5. Achievement of Learning Outcomes of Manipulative Basic Movement (Throwing and Catching Ball) on Students After Given the Implementation of Visual-Based Learning Media as Media For Learning (Small Group Trial)

Measured Aspect	Percentage of Attainment		Remarks
	Cycle I	Cycle II	
The result of manipulative basic movement learning (throwing and catching ball)	75%	100%	Being assessed when the learning (observation) is appropriate with the assessment rubric of psychomotor aspects in lesson plan and being adapted to school standard minimum score at 75.

The tables showed that the development of visual-based learning media could improve student learning outcomes. In cycle I the score of the achievements reached 75% and in cycle II, it was increased to 100% in which students passed / student scores were above the minimum score.

Table 6. Conclusion of Quantitative Data in Assessing Questionnaire Trial on Small Group

Numb.	Measured Aspect	Score	Max. Score	Percentage
1	Media assessment by students	93	100	93%
2	Media assessment by teacher of physical education	187	225	83,1%
Arithmetic		280	325	86,1%

Based on the table analysis above, it could be concluded that the visual-based learning media on special needs children met the criteria **Valid**.

b. Trial in Large Group

Large group trial was the next step of this research. Large group trial product development of visual-based learning media on special needs children was held on Monday, October 3 2016 until October 17, 2016 within 9 students as the subjects. Consisting of 2 students of SLB Negeri Karanganyar; 3 students of SLB Colomadu, Karanganyar; 2 students of SLB Boyolali; 2 students of SLB Wonogiri, all the research subjects were grade III students of SDLB-B Negeri in Karesidenan Surakarta (deaf). The implementation was held in each school.

The research subject of this large group trial was grade III students of SDLB-B SLB Negeri Karanganyar, Colomadu, Boyolali, dan Wonogiri. This small group trial resulted in the following data:

Table 7. Achievement of Learning Outcomes of Manipulative Basic Movement (Throwing and Catching Ball) on Students After Given the Implementation of Visual-Based Learning Media as Media For Learning (Large Group Trial)

Measured Aspect	Percentage of Attainment		Remarks
	Cycle I	Cycle II	
The result of manipulative basic movement learning (throwing and catching ball)	66,6%	88,8%	Being assessed when the learning (observation) is appropriate with the assessment rubric of psychomotor aspects in lesson plan and being adapted to school standard minimum score at 75.

The tables showed that the development of visual-based learning media could improve student learning outcomes. In cycle I, the score of the achievements reached 66,6% and in cycle II, it was increased to 88,8% in which students passed / student scores were above the minimum score.

Table 8. Conclusion of Quantitative Data in Assessing Questionnaire Trial on Large Group

Numb.	Measured Aspect	Score	Max. score	Percentage
1	Media assessment by students	216	225	96%
2	Media assessment by teacher of physical education	747	900	83%
Arithmetic		963	1125	86%

Based on the table analysis above, it could be concluded that the visual-based learning media on special needs children met the criteria **Valid**.

4. Results of Stage 3 in Product effectivity Test

Product Effectivity Test in research and development of visual-based learning media on special needs students (deaf) aimed to know the differences of the effect in student learning outcomes in materials of manipulative basic movement (throwing and catching ball).

a. Data Analysis of Product Effectivity Test (Eksperimental Product)

1) Analysis Prerequisites Testing

a) Normality Test of Frequency Distribution of Population

Before conducting analysis, the data needed to be tested their normality distribution. Data normality test in this study used Liliefors. The results of data normality test conducted on each group are as follows:

Table 9. The Result of Data Normality Test

Group	N	M	SB	$X^2_{arithmetic}$	X^2_{table}	α	Remarks
Experimental Group	5	81,4	3,498571	1,692888	3,84	0,5	Normal
Control Group	5	75,4	3,498571	1,692888	3,84	0,5	Normal

Normality test results conducted on the experimental group gained score:

Score $X^2_{arithmetic} = 1,692$ where the value was smaller than the numbers rejection limit at 5% significance level, namely: 3,84. It could be concluded that the data on the experimental group test distributed as **normal**.

Normality test results conducted in the control group was score $X^2_{arithmetic} = 1,692$ where the value was smaller than the numbers rejection limit at 5% significance level, namely: 3,84. It could be concluded that the data on the experimental group test distributed as **normal**.

b) Test of Population Variances Homogeneity

Test of population variances homogeneity was intended to test the variances similarity in the population. Test of population variances homogeneity in this study conducted by Fisher test.

Table 10. Homogeneity Test of Population Variances

Group	dk= n-1	Variances	$F_{total} = \frac{S_x^2}{S_y^2}$	$F_{table} = F_{0,5(0,95)}$	Remarks
Experimental Group	4	$S_x^2 = 17,2$	1.011	6,39	Both variances are homogeneous
Control Group	4	$S_y^2 = 17$			

From the calculation of test data in the experimental group and the control group with a degree (dk) numerator = 4, dan denominator = 4, and the real level $\alpha=0,05$, obtained F table = 6,39. It could be seen that $F_{arithmetic} < F_{table}$, then the second data of variances was homogeneous.

c) Significance test

The process of calculating the results of experiments used the t test (significance test) by using the formula:

$$t_{arithmetic} = \frac{X_1 - X_2}{S \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Product criteria was significant influence if the t distribution list used $1 - \alpha = 0.95$ and n-1 df = 8 obtained score value $t(0,95) = 1.86$. In the criteria on $t_{arithmetic} > t_{table}$ with $\alpha = 0.05$ then H_0 was rejected and H_a was accepted. In the table below, it would be presented the result data of effectivity test in research and development of learning media on deaf students as follows:

Table 11. The Result of Effectivity Test of Experimental Group and Control Group

Group	N	M	Variances	SB	S^2_{pooled}	$T_{arithmetic}$	t_{table}	Remarks
Experimental Group	5	81,2	$S_x^2 = 17,2$	4,14	4,13	2,37	1,86	Significant
Control Group	5	75	$S_y^2 = 17$	4,12				

From the results of the t test of experimental group and the control group significance test, the degree of freedom used the formula $(n_1 + n_2) - 2$ so it obtained $df = (5 + 5) - 2 = 8$. From the $t_{arithmetic}$, it was needed t_{table} table to empirical target 0.5 %, with $t_{table} = 1.86$.

Also, from the comparison $t_{arithmetic} > t_{table}$ then H_0 was rejected, and it could be concluded that there were significant differences between students of experimental group and the one of control group, the experimental group achievement of learning outcomes was better than that of control group (seen from the average value).

CONCLUSION AND SUGGESTION

Based on the results of research and discussion of data research that had been described, it can be stated some important conclusions as follows:

1. The implementation and development of visual-based learning media can improve learning outcomes of manipulative basic movement (throwing and catching ball) on special needs students (deaf). It was obtained based on the findings of the needs analysis, expert validation, and field trial.

a. Needs Analysis

The assessment of theories about the characteristics of special needs children (deaf) showed that completing the needs of visual-based learning media is very appropriate to be applied to facilitate them in learning.

b. The Evaluation of Academic Experts

There were two academic experts in this research and development, namely academic experts of physical education learning media and academic expert in education on special needs children (deaf). The results of the expert evaluation in this study were in the form of qualitative data and quantitative data. It was because in the expert evaluation was used questionnaires mixture.

The results of the evaluation of academic experts in physical education learning media for quantitative data were 84.8% in percentage, whereas those of academic expert in education on special needs children (deaf) were 82.8%. From the results, it can be interpreted that the product development of learning media of manipulative basic movement (throwing and catching ball) on special needs children (deaf) can be continued to the next stage by noticing the advice from experts.

c. Small Group Trial

From the results of this research and development on students who had not yet reached 50% standard minimum score (*KKM*), it can improve students' learning outcomes significantly. It can be seen from the results of treatment with the percentage of 100% and the students reached the standard minimum score. The information in the form of opinion from students and teachers of physical education in a small group test is obtained by using the enclosed questionnaire instrument, so the data is collected in the form of quantitative data. The percentage of small group test from students reached 93% and the percentage from teachers of physical education were 83.1%. It can be concluded that the quantitative assessment from this small group test is 86.1% so that it can be interpreted that the product development of visual-based learning media on special needs children (deaf) can be accepted by students and teachers of physical education and it can be tested on a wider group.

b. Large Group Trial

From the results of this development research on students who had not yet reached 55,56% standard minimum score (*KKM*), it can improve students' learning outcomes significantly. It can be seen from the results of treatment with the percentage of 88,88% and the students reached the standard minimum score. The information in the form of opinion from students and teachers of physical education in a small group test is obtained by using the enclosed questionnaire instrument, so the data is collected in the form of quantitative data. The percentage of small group test from students reached 93% and the percentage from teachers of physical education were 83%. It can be concluded that the quantitative assessment from this small group test is 86%

2. The visual-based learning media is effective to improve learning outcomes of manipulative basic movement (throwing and catching ball) on special needs students (deaf).

There is a better different influence between the test results of group that uses visual-based learning media and the group that does not use visual-based learning media. Based on the results of effectivity test, it its obtained $t_{arithmetic} = 2,37$ dan $t_{table} = 1,86$. When it is obtained

the comparison $t_{\text{arithmetic}} > t_{\text{table}}$ then H_0 is rejected, and it can be concluded that there are significant differences between students of experimental group and control group, the experimental group achievement is better than that of control group (seen from the average value).

After doing this research and development, the researchers give some suggestions to physical education teachers in Sekolah Luar Biasa, to improve the quality of learning by applying a variety of learning media and methods in the teaching and learning process customized to the uniqueness of students characteristics, subjects and teaching materials.

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THE INFLUENCE OF TRADITIONAL APPROACH, MOVEMENT EDUCATION IN LEARNING OF PHYSICAL EDUCATION, TOWARDS PHYSICAL FITNESS, PROBLEM SOLVING CAPABILITIES IN ELEMENTARY SCHOOL 01,02,03 KEMIRI BANYUMAS INDONESIA

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Abstract

Purposes: (1) To know the difference of influences towards physical fitness between students who were taught using movement education approach with ones who were taught using traditional approach as well as the impacts on high class student groups, low class student groups. (2) To know the interaction of physical education learning approach towards physical fitness of student groups. (3) To know which one is the most effective advancement traditional approach or movement education. This research is experimental. The population: students of SD N 01,02,03Kemiri. 160 samples were collected (purposive sampling). Free variables: traditional approach, movement education approach. Bound variables: physical fitness, and problem solving capabilities. Data collection: randomized group pre-test-post-test designs. Data analysis used (ANOVA). Conclusions: (1) There were different impacts between physical fitness of students being taught using movement education approach with students being taught using traditional education with significance value 0.000 is 0.05 of $F=1.491$ as well as differences of impacts on the high class group and low class group with significance value 0.0000 is = 0.05 $F=1.7773$ (3) There were interactions of physical education learning approach towards the physical fitness of a group of students. (4) There were differences of impacts on the problem solving capabilities between students being taught using movement education approach and students being taught using traditional approach. (5) There were interactions of physical education learning approach towards problem solving capabilities. Movement education approach student group was more advanced than traditional approach probability 0.002 from the Table of between subjects effects *Fhitung*.

Keywords: physical fitness, problem solving capabilities

INTRODUCTION

The most important task in carrying out physical education is to help students to be able to undergo a process of growth and optimal development in physical, motor, mental and social. Learning, as written by RusliLutan (2001: 7) is "behavior change as a result of the experience, not because of the influence of heredity or maturity." Changes in the behavior expected of learning are permanently attached. The learning process itself can not be observed directly. However, its appropriateness can only be interpreted based on actual observed behavior.

The behavior changes will occur through a deliberate process of teaching, which was done on purpose, accidental, unintended, even perhaps because someone made learning mistakes. Physical education as an integral part and as an educational tool is much defined by a variety of stresses. Both on the process and on the destination. One of them is quoted by RusliLutan as follows "physical education is an integral part of education through physical activity which aims to improve individual organically, neuromuscular, intellectually, and emotionally." In essence; "Physical education is a process of education via the movement of human (human movement) which can be physical activity, game or sport to achieve educational goals" (RusliLutan: 7: 1995-1996).

Teaching Approach And Style

Learning approach as an attempt of efficiency process that will bridge between goals to learning outcomes. Physical education learning purposes as suggested by Bucher in AdangSuherman (1998: 4) are as follows:

1. Physical development. This objective relates to the ability to perform activities that involve physical forces of various organs of the body of a person (*physical fitness*)
2. Motor development. This objective relates to the ability to move effectively, efficiently, smoothly, beautifully, perfectly (*full skill*)
3. Mental development. This objective relates to the ability to think and interpret the overall knowledge of education.

The type of approach along with simple descriptions of each approach that is widely used, especially in American schools written by AdangSuherman (1998: 5) as follows:

1. *Movement Education.*

The *Education Movement* in Essentially an approach that put more pressure on the mastery of movement skills. The purpose of this approach is primarily to improve the quantity and quality of movement as a skilled, efficient, effective on planned or unplanned situation; improving understanding, and a pleasure to movement either as perpetrators or spectators; improving knowledge and applying knowledge of human movement.

2. *Fitness Approach.*

Fitness Approach is an approach that put more emphasis on increasing mastery of the knowledge, skills and quality of the physical movement of their students.

3. *Academic-Discipline Approach.*

This approach is basically an approach that put more emphasis on the mastery of physical education in depth: how to maintain a healthy lifestyle, fill his spare time, becoming attendants or users of fitness and physical education programs in the community.

5. *Social-Development Model.*

This approach is basically an approach that put more emphasis on the individual and social development of students. One example of this educational models is developed by Donald Hellison (1973,1978,1982) with the term "*teaching responsibility through physical activity*" by applying the concept of "*levels of affective development*".

6. *Sport Education Model.*

This approach is basically an approach that emphasizes more on the maintenance and enhancement of the pure values of competitive sport as is often done outside the school environment.

7. *Adventure-Education Approach.*

This approach is basically an approach that put more emphasis on adventure activities that are full of risks in a more natural environment (e.g., mountain climbing, *cross country*, *camping*).

Teaching style (Problem-solving style)

This style of teaching (*teaching style*) is a ploy to intensify in performing the tasks of teaching. With regard to some of the styles being used, in the practice there is not one style of teaching that is considered to be the most successful, because it depends on the situation. However,

from some of the existing teaching style, the style of problem solving and guided discovery will be discussed because it is very relevant to the teaching of student-centered physical education. The style consists of the inclusion of information in the selection of ideas and responses. The problem must be designed so that the answer is not just one answer. If so, this style has shifted into a style called guided discovery. The problem is designed from easy to difficult. For example, "what is the difference between ball toss results in a state of both feet rest on the floor, with ball toss results in a state of both legs moving. Questions can be more difficult. For example, how is the shape of the advance move of the foot to kick in football so that the ball does not bounce away over the crossbar?

"Problem-solving can be carried out by individuals or groups in the upscale class. The steps are as follow:

1. Presentation of the problem, the teacher presents a problem to students in the form of questions or statements to stimulate thinking. No explanation or demonstration because the solution comes from children.
2. Specify the procedure. The students should think about the procedures required to achieve resolution. If the age of the children was as young as it was at the beginning of class (class 1, 2, or 3), the issues raised are also much simpler.
3. Experimenting and exploring. In the experiment, the students tried several possible ways to solve problems, as well as assess and make a choice. When searching for answers, it is the children who determine the direction of a solution. Meanwhile, teachers have only an advisory role, such as answering questions, help, leave a comment and encourage students. However, the teachers did not reveal the answer. Sufficient time should be designed to find answers. Observe, evaluate and discuss. Each child needs to have the opportunity to put forward answers and observe what other students find. Various kinds of findings can be performed by children as individuals, small groups, a rather large group, or part of class discussions focused on typical solving testing.
4. Smoothing and expansion. After observing the solution proposed by other students, and evaluating the reasons behind the chosen solution, what they are going to do?
5. Each child had the opportunity to redo their movement pattern, combining one idea with another.

Movement Education Model (Movement Education)

Movement education used "problem solving" approach; with an emphasis on exploration, selection and creativity to develop motor skills effectively and efficiently, through understanding / comprehension of the basic principles of human movement. The model was developed by Rudolf Laban, which suggests the existence of four main elements in movement are:

1. Understanding about the body, about what is done by the body or body parts.
2. An understanding of space, of where the body moves.
3. An understanding of the way as to how the body moves.
4. Concerning the relationship, i.e., correlations of body parts, or with other people and other objects.

These four elements in movement education model, is used as the basic framework in shaping the experiences of movement and the expanding and developing children movement quality. Aside

from the elements above, in planning the physical education program, movement education model refers to three movement components namely:

- a. *Locomotor*: the ability to move from one place to another (walk, run, jump, sliding, skipping, and so on).
- b. *Non-locomotor*: movement patterns performed on one spot (swing, reject, pull, bend, stretch, twist, etc.)
- c. *Manipulative*: movement using tools, which involves hand-eye coordination, foot and hand coordination, foot and eye coordination (throwing, catching, hitting, kicking).

Characteristics of movement education model are;

- a. Movement education allows maximum opportunities of activity for the students.
- b. Movement education is centered on children (*child centered*) not on the activity (*activity centered*). This requires teachers to constantly modify and adapt activities to the needs of the children, instead of expecting the children to adapt the activity.
- c. Effective insights are formed directly, and not as a byproduct.
- d. Students are cognitively involved in a more direct way.
- e. The study design is a "pattern of success" (*success structured*).
- f. Students are treated as "decision-makers".
- g. "Guided discovery" and "problem solving" approach or strategy.

In the process of learning by problem-solving, then as a result appeared "personality", creativity, diversity in the scope of the "*general movement*". If the way of guided discovery is "*closed-ended*", i.e., teachers guide students to find something specific, then the problem-solving approach is an "*open ended*" process. Every new and different problem can lead students to various solutions. The problem design: all the issues proposed by the students must be relevant to the subject, the preparedness / maturity of the students and experience, both groups and individuals.

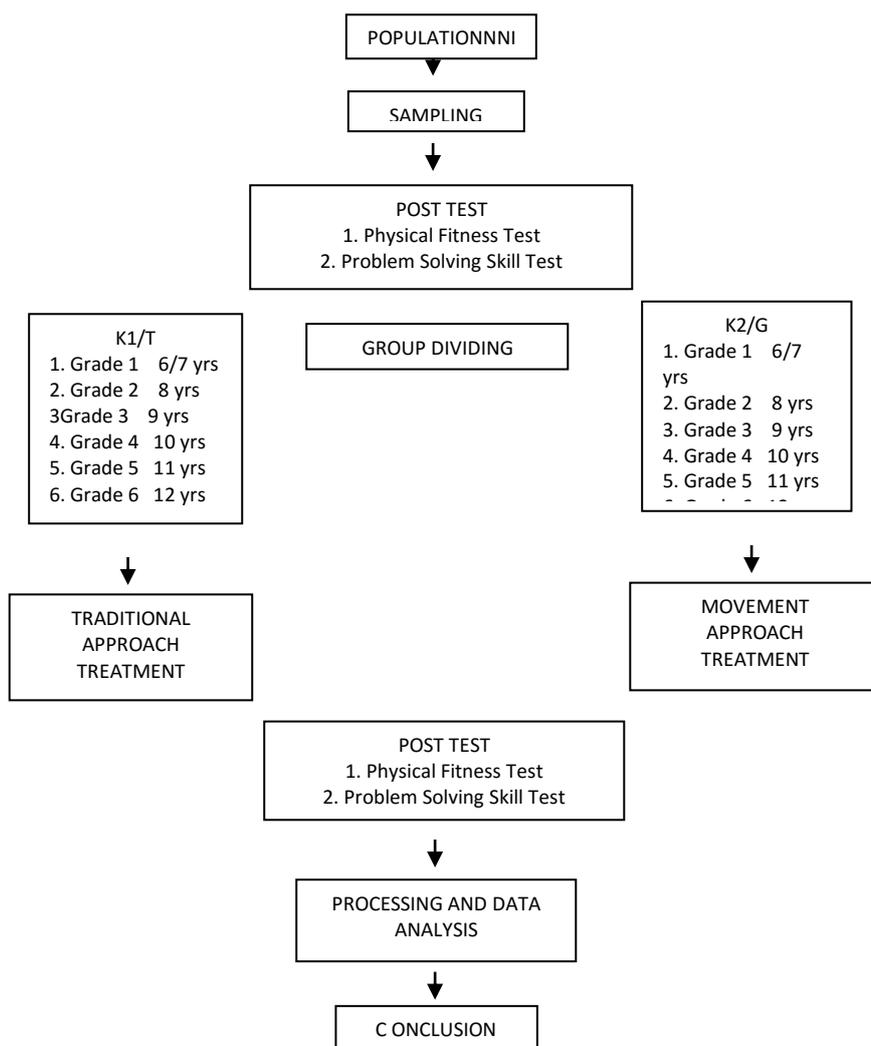
METHOD

This study is a field experiment using the population of SD N 1,2 and 3 students Kemiri Village Sumpiuh Subdistrict from class I to class VI (ages 6 to 12 years) . Since this study emphasizes the action of teachers to student performance in order to improve effectiveness lessons to improve physical fitness level and ability to solve problems, the technique that is used to take a sample of the population is a simple random technique (simple random sampling) by way of conducting pre-test to the entire population. The sample size used in this study were 160 elementary students N 1,2 and 3 Kemiri village Sumpiuh Subdistrict Banyumas Regency which must meet the requirements to meet the goals of the research. The method of data collection in this study is the experimental method with "Randomized group pre-test-post-test design" that began pre-test and ended with post-test with t. factorial design "2 x 2 which can be seen as follows:

Teaching approach V	Movement Education Approach (A1)	Traditional Approach (A2)
Fitness and Problem		
Low Grade (B1) 1,2 dan 3	A1B1 (Y1)	A2B1 (Y3)
High Grade (B2) 4,5 dan 6	A1B2 (Y2)	A2B2 (Y4)

- A1 : Movement Education Approach
- A2 : Traditional Approach
- B1 : High Grade Groups
- B2 : Low Grade Groups

Schematic Design Research



Instruments of Data Collection

To measure the physical fitness level of the students, the physical fitness test tool from the Department of Education and PJKR Jakarta 2004 was used on the students of SD (Elementary School) in Indonesia (aged 6-12 years). 2.1 The type of test that was used for elementary school 1,2 and 3 (low grade) was (1) 30 M sprint, (2) 30 seconds pull up.

1. 2.2 The type of test used for primary school classes 4,5 and 6 (high grade) are: (1) 40 M sprint, (2) 30 seconds pull up, 30 seconds sit up, (4) vertical jump, and (5) 600 M run
2. 2.3 The reliability and validity of Physical Education Test. A series of tests were conducted on elementary school male and female students of 1,2 and 3 have reliability values of 0.81 and 1.06 validity value (Doolitte) Department of Education and PJKR Jakarta (2004).
3. 2.4 In order to measure the student's ability to solve problems, tools such as numerical rating scale was used based on a logical scale according to the judgment (opinion) of experts in the evaluation. Here's an example of the assessment criteria for measuring physical fitness tests for children.

The table above is the criteria example from TKJI value for 60 m run and jump straight for the children according to Pangrazi Robert (2001) which have been adjusted to the culture and the general condition of children in Indonesia.

Age 6 s / d 9 years		Value	Age 10 s / d 12 years	
Male Students	Female Students		Male Students	Female Students
38 cm and above	38 cm and above	5	46 cm and above	42 cm
30-37 cm	30-37 cm	4	38-45 cm	34-41 cm
22-29 cm	22-29 cm	3	31-37cm	28-33 cm
13-21 cm	13-21 cm	2	24-30 cm	21-27 cm
Below 13 cm	Below 13 cm	1	Below 24 cm	Below 21 cm

Age 6 s / d 9 years		Value	Age 10 s / d 12 years	
Male Students	Female Students		Male Students	Female Students
Up to- 5.5 seconds	sd - 5.8 seconds	5	Up to- 6.3 seconds	Sd - 6.7 seconds
5.6 - 6.1 seconds	5.9 - 6.6 seconds	4	6.4 - 6.9 seconds	6.8 - 7.5 seconds
6.2 - 6.9 seconds	6.7 - 7.8 seconds	3	7.0 - 7.7 seconds	7.6 - 8.3 seconds
7.0 - 8.6 seconds	7.9 - 9.2 seconds	2	7.8 - 8.8 seconds	8.4 - 9.6 seconds
8.7 – etc	9.3 –etc	1	8.9 - etc	9.7 - etc

RESULT AND DISCUSSION

Description of the data analysis results of physical fitness tests and problem solving skills are carried out in accordance with the groups being compared, presented in the following table forms. Hypothesis testing using statistical techniques of analysis of variance (ANOVA), which require the analysis requirements testing, the results of the test, requirements analysis, hypothesis testing and discussion of research results, were then presented.

Model	Rankings	mean	Std.deviation	N
Move Education Model	low grade	3.5035	23.64866	40
	High grade	3.7552	27.58851	40
	Total	3.7395	25.78681	80
Traditional Model	low grade	3.3895	28.30326	40
	High grade	3.6895	23.68376	40
	Total	3.9895	25.93024	80

1. First Hypothesis Testing

For the physical fitness test, the results showed a significant difference between the increase in physical fitness treated with movement education approach and traditional approach is $F = 1,491$ with significant value $0,000$ is <0.05 , then the movement education approach and traditional approach have different effects. This means that the null hypothesis (H_0) denied that there is a significant difference between the two treatment groups

2. The second hypothesis testing

For low grade and high grade, the results showed a significant difference between p Increased physical fitness. Troubleshooting $F = 1,773$ with significant value $0,000$ is <0.05 then the level of low grade and high grade has different influences. This means that the null hypothesis (H_0) denied that there is a significant difference.

3. Third Hypothesis Testing

The interaction of major research factor in the form of the interaction of two factors indicate that there is an interaction between pembelajaran and class level approach to physical fitness and the ability to solve problems, from table *Test of between-subjects effects* F_{count} was $1,043$ with a probability of 0.002 is less than 0.05 then it is said that there is an interaction between the two factors research.

Dependent Variable: Nilai

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2036.800 ^a	3	678.933	1.012	.389
Intercept	1.976	1	1.976	2.947	.000
Faktor1	1000.000	1	1000.000	1.491	.004
Faktor2	518.400	1	518.400	1.773	.001
Faktor1 * Faktor2	518.400	1	518.400	1.043	.002
Error	104612.800	156	670.595		
Total	1.987	160			
Corrected Total	106649.600	159			

a. R Squared = .019 (Adjusted R Squared = .000)

CONCLUSION

Conclusions of Physical Fitness Variables

Based on the result of analysis using Anava, it can be concluded as follows:

1. There was a significant difference of effects to the physical fitness of students being taught using educational approach movement with the students being taught using traditional approach. Overall educational approach movement without considering the grade of students

the increase of their physical fitness is better than traditional approach. Evidently the approach to physical education to improve the physical fitness of students regardless of student characteristics.

2. There was a significant difference of effects in the group of students of high grade and low-grade student group. Both treatment groups regardless of their learning approach, high-grade student group gained increased physical fitness is better than low-grade student group. This is true according to the previous assumption has been alleged that a group of high-grade student learning results will differ theoretically lower grade student group.
3. There was an interaction between the learning approaches of physical education to physical fitness with a group of students (maturity of the students). Movement education approach is superior.

Conclusions of troubleshooting variable

Based on the result of analysis by Anava, it can be concluded as follows:

- a. There was a significant difference of effects in the ability to solve problems between the students taught using movement education approach with students being taught using traditional approach. Overall educational approach movement without considering the grade group of students increased ability to solve the problem better than traditional approaches. Evidently movement education approach was more effective to be used in teaching problem-solving skills to improve the physical fitness of students regardless of student characteristics.
- b. There was a significant difference in the group of students of high grade and low-grade student groups. Regardless both treatment groups of their learning approaches, groups of high-grade students gain increased ability to solve problems better than the low-grade student group. This is true according to the previous assumption that has been alleged that a group of high-grade student learning results will differ theoretically lower grade student group.
- c. There was an interaction between the learning approaches of physical education on problem-solving skills with a group of students (maturity of the students). Movement education approach is superior compared to traditional approach therefore there is an increased fitness.

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**PARAGA GAME AS TRADITIONAL SPORTS FOR BUGIS MAKASSAR
TRIBAL COMMUNITIES IN SOUTH SULAWESI
STUDY OF PHENOMENOLOGY REVIEWED
FROM MOVEMENT SKILL**

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Abstract

The current study aims to identify **1)**the developmental history of *Paraga* game in South Sulawesi, **2)**the movement skill aspects. The experiment was conducted in center cultural exhibition that foster and preserve the game located in South Sulawesi. The current study used qualitative descriptive method using the research subject of *Paraga* game as the traditional sport of Bugis Makassar Tribal Communities in South Sulawesi. It contains movement skill aspects in playing *Sepak Raga* attractions. The data were collected by using several techniques such as observation, documentative recording, and interview. The results of *Paraga* game as a traditional sport of Bugis Makassar tribal communities in South Sulawesi study of phenomenology reviewed from movement skill can be concluded as follows: **1)**The history of *Paraga* game of Bugis and Makassar tribal communities in South Sulawesi since past until today has shifted its functions, even among communities in South Sulawesi who had already considered it as traditional sports and cultural heritage which should be well preserved. Once upon a time, there were only certain people of Gowa from aristocratic family who could play the game, but it had been popular and played by the communities as time goes by. Also, it had been often performed in marriage events, and cultural festivals at provincial level and at the international level considered as traditional sports. **2)**Aspects of skill movement including *Bola Raga* when standing a sitting position, and movement skills when lifting the ball over the head with foot but the ball landed on the head without falling to the ground.

Keywords: *Paraga* games, Traditional Sports, and Movement Skills.

INTRODUCTION

Indonesia is rich of cultural diversity. Beautiful strands of culture, ethnicity, tribe and religion has graced the Earth of this archipelago. Every culture, ethnicity, tribe and religion has their own way of expression and disclosure. One of those expressions reflects in the traditional sport which is alive and thriving in each area. Traditional sport is one of the cultural relics of the ancestors that have the sincere and the pattern of local tradition. Indonesia is well-known with its abundance of traditional culture. Definition of traditional sports Mahendra said (1998: 52), is the form of sports growing community. The traditional sport game is a game of community that exists and entrenches in society, grows and develops and orally passed down from generation to generation. Traditional sport is cultural Nations that nearly extinct due to the time's development. This traditional sports game is almost not played anymore by children and adults both in remote areas up in urban areas. In addition, the traditional sports game is the nation's cultural riches assets. Traditional sports must meet two requirements, namely in the form of "sport" and well as "traditional" good is a tradition that has evolved over several generations, as well as in the sense of something that is related to the cultural tradition of a nation more broadly (AA Ardiwinata, et al, 2006). Then, it should be appointed back to show its role in trying to manifest the nation's unity. Therefore, the traditional sport game

needs to get priorities larger from the Central and the regions Government to take part dig, preserve and grow back so that it can be enjoyed by all society in Indonesia. A variety of developments and the preservation efforts of traditional sport game are still not ideal and faced various constraints today, it is because this traditional sport game in this modern era was already abandoned by the younger generation due to a variety of games so advanced, modern and attractive as well as being influenced by the most advanced of culture in society in the modern era. Many people prefer to the games that more sophisticated and automatic as well as digital. The children and youth generation in this country are less inclined to know the traditional sports game. However, we need to know that the traditional sports can be the source of cultural resilience faced the invasion of global culture. Traditional sport game can be used as a shield or nation identity on the stage of globalisation. A traditional sports game that comes from the game of Indonesian's society as a cultural asset of the nation needs to be preserved and developed throughout Indonesia through a skilled power activator. Traditional sport game is one of the elements of the national culture that still alive and thriving in any areas in Indonesia. Then, remain the importance of cultural values, the role of traditional sports in the society doesn't need to doubt anymore (potential in conveying the idea that has a whole human development). Thus the traditional sport game has been able to make a sociocultural life of Indonesian nation; it is becoming so easy to understand that the traditional sports game that develops in these areas is very meaningful in the life of the Indonesian's nation. Traditional sport game also has another dimension, namely the potential to support tourism. The uniqueness of the traditional games can interest many foreign tourists to visit Indonesia. Traditional sport game also has the impact on economic parts, especially for society in those areas where the traditional games sport alive. In addition, traditional sport games also have a positive impact for the realisation of a healthy society, fit and sleek movement. Due to it has a variety of activities and physical movement that supports health. The traditional sport game as the wealth cultural nation assets be a solid and strong foundation in the development of "nation and character" to strengthen the unity of the nation.

One of traditional sport games will be chosen and researched by the author is a traditional sports game that origin from South Sulawesi "Paraga". Paraga is a traditional game which is played by Bugis society at Makassar, South Sulawesi. The Bugis society calls it "Ma'raga" to describe Sepak Raga traditional game that hit using the feet. People of Makassar call it a'raga. This game has high value and art that is combining the art of pencak silat and agility. In the countryside of South Sulawesi, this game still holds out till today Mattulada, (1979). According Mangemba, (1959) "The strong of Paraga game in Bugis Makassar society in South Sulawesi is also caused by philosophical meaning that was taught by the ancestors to their generations, the lesson that had been taught include some aspects of the game which are soaring kick (*massempeq aratiga*) means that as a vigilance that must be owned by the Empire and society against all possibility of danger from the enemy, and kicks a reply (*massempeq mappalece*) means that the conflict should be avoided within the community." The tradition of this Paraga game is a game, sport and art tradition from Bugis Makassar, South Sulawesi. Paraga is different from other traditional sport game, Sepak Takraw, Paraga is performed and played, but there is not scoring here, it is just for attraction to show the skill of the player. Paraga also played in the team with the total member in a team is 6 (six) player. In Paraga, the rattan ball is bounced back using not only the feet but also the head and hands. Then, in Paraga there is something different, *passapu* or the triangle Cap given with the layers of tapioca to be upright, very helpful for

Paraga players while doing Sepak Raga with the head. The players also use their holsters as part of their costumes, to manipulate the ball in Paraga game. There are many varieties from player position to play the ball in Paraga. The position includes standing, sitting, squatting and laying down. Paraga ever played in various formations. One of the formations is the tower formation that is formed from a pile of players standing on the shoulders of other players until the shape of the tower. The Paraga ball is also different with the rattan ball that was often used in Sepak Takraw. One Paraga ball intact has three layers of woven rattan. One layer of webbing takes about 45 minutes of creation. So, it takes about two hours to weave one Paraga ball. Most players can create their own Paraga ball. So, if any part of the ball broke, they can fix it right away. After the Paraga ball was made, this requires special treatment before play. Supposedly, the balls that is used by Paraga players has the special mantras from the teacher or senior players the Paraga players for safety and the cohesiveness of the players is kept while playing the Paraga. The Paraga game is a combination of some elements such as; game, sports, and traditional Arts of Bugis, Makassar which have a value of its own beauty. The art of this sports culture is always played with a musical accompaniment that consists of a drum, gong, puwi-puwi, and calung-calung, such as a musical instrument made from bamboo and it is played by hit it with a piece of wood so that the players stay excited. The Paraga players move bouncing the ball while dancing follows the accompaniment percussion music that was played. In General in Makassar, in various ceremonial or the feast of society, the Paraga game is still held to support the event. The Paraga players are usually the youths who have skill and well trained. They wear traditional clothes consisting of passappu (the headscarf typical of Makassar shaped triangle), armour lid (traditional coats) and lipa sabbe (typical Makassar Holster made of silk fabric); this youth then shows their skill wearing that entire outfit. Until today, the strong of the Islamic pattern still attaches to the attractions of the Paraga game; each time doing the Paraga attractions, the players often said "Lailahailallah" with a regular tone. It is done to keep the concentration in a game with the high level of difficulty. Now the Paraga movement is able to do with the level three of formations, where the movement formed a human stage while continuing to play physical ball up to the players who are at the top has stood in its position. This movement makes now on every show made the audience anxiously and proud when watched the ability of Paraga players who combines art, physical ability and religious overtones. In General in Indonesia, there are various areas that have a culture of sport game that is worth to be eternal and was introduced to foreign countries. For example, in South Sulawesi has a traditional games sport, namely Paraga games, and in Northern Sumatra in the Nias district, there is the tradition of the jump rock (fahombo).

One of the ethnic groups that plays this game was Bugis Makassar community which settled in Gowa and Maros who lived in the city of Makassar, South Sulawesi. The Bugis are the largest ethnic group with a percentage of 41.90% of the total population of South Sulawesi (Suryadinata 2003 in Abdullah et al, 2009: 234). Pelras, (2006: 4) goes on to explain about the Bugis Makassar, Bugis Makassar that everyone actually has a variety of very interesting characteristic. They are a rare instance contained in the archipelago. They were able to establish an entirely kerajaankerajaan not contain Indian influence, and without establishing the city as the center of their activities. Literary Bugis Makassar, whether oral or written, until now still be read and copied back. The combination between oral tradition and literary writing it then produces one of the world's largest literary epics, namely La Galigo longer than Mahabharata. Culture Bugis Makassar often combined with culture, and culture is called Bugis-Makassar (Mattulada in Koentjaraningrat, 1999). The Bugis Makassar is

two Ethnic tribes that are neighbouring it could even say we can't distinguish between the two tribes, but from some aspects of culture, arts and traditions of each tribe have a difference. Moreover, it is very often we hear 'Bugis' and 'Makassar' in the same time, so that there are many people think that the word 'Bugis' and 'Makassar' is a synonym. Then, even the local scientist themselves take a part in eliminating the difference of the two tribes with pronounced and write those two terms be one unity: "Bugis Makassar". This trend is indeed based on the various similarities to their identity as the two neighbouring tribes that transcend tribe and their language. They are, perhaps, two tribes in the archipelago, which is the hierarchy system, are very rigid and cumbersome. It is black and white. The process of acculturation in all aspects of life, including the art of literature, creates a variety of cultural similarities between the two tribes. During the civilisation of those two tribes, there are several characteristics inherent in the human life. One of them is how to keep it hierarchical and modern sighted at the same time, the support for competitive and compromise, uphold the honour but also take care of solidarity. Bravery values, intelligence, adherence to religious teachings, divines in business are variable that drives a dynamic life of Bugis and Makassar society during this time. They are typically having strong characteristic and respect honour, if necessary for the sake of retaining the honour, they are willing to do acts of violence. No matter positive law threatens them. This behaviour is often hidden with the term "Siri". In the life of the Bugis and Makassar society, Siri is a very principled element within them. There is no one else that is most precious values to be defended and preserved upfront Earth other than the Siri. The Siri is their soul, self-esteem, and their dignity as human beings. They think that their life was ended and it is not useful to live longer when their proud and shy broke or broken by someone else. Regardless of the several equations and the strong relationship and put the mutual respect, it is very needed to insist that the Bugis and Makassar keep two different tribes. The Bugis society has a population of more than four million people, inhabiting most of the Mainland and the hills next to the middle and the South. While the Makassar society with a population more than two million people settled at the southern end of the peninsula, spread along the waterfront or in a mountain range. For example, in terms of language, the two parties both Bugis and Makassar cannot understand each other when they interact with each other.

South Sulawesi is a province of Indonesia in the South part of Sulawesi with the Makassar as a capital city it is located at coordinates 0° 12'-8" South latitude and 116°48'-122°36' East longitude. A wide of the area is 45,764.53 km². The province is bordered by Central Sulawesi and West Sulawesi province to the North, the Bay of Bone and the South East Sulawesi in the East, Makassar Strait in a west and the Flores Sea in the South. The area is in South Sulawesi in the Mandar and Toraja. The four tribes had different customs so that each tribe has different ways of life also in the social and cultural aspects.

Movement skill in sport is a movement task optimally in accordance with its ability. One of the things that support the implementation of traditional sport is creation the skills of movement, entertainment, pleasure, and the need for social interaction, sport also has the potential to improve the quality of physical for the culprit, it is very important in the performance tradition of sport game, keep in mind that a mastery of skill and techniques in sports game is very necessary for the player for the sake of continuity and smoothness in the play a movement that fits properly. According Sugiyanto (2015: 28), Skills movement (motor skills) is a quality level of mastery in doing activities where the body movement coordination of multiple parts of the body or the whole body to function

properly. Someone said to have a skilled movement when a person is able to do the movements correctly, kofisien, and effectively said to be true if the implementation of appropriate movement mechanical principles in the system of gestures. Efficient movement is a movement that implementation can achieve the best possible results with the use of force as small as possible. While said to be effective upon execution of movements in accordance with the desire with the objectives to be achieved in the motion. Movement skill is one of the most important things in sports, because without a good movement and perfect skill, then the person is not able to carry out the good movements in carrying out activity related to exercise. Therefore the movement skill is needed and was very instrumental in working out. Skill is the illustration of movement skill of someone who showed the improvement of a movement. Movement skill is the change of skills acquired through a planned movement learning program, a systematic and sustainable way. The main purpose of the movement improves learning skills. People are judged as someone who has a skill if they skilled to do something specific with the good move. The term movement skills (motor skills) conceptually can be interpreted in two ways. First, the skills are seen as a task or work (tasks), and the second skill is seen as adequate for the performance skills (level of performance proficiency) that can distinguish high and low skill level. In order for the purpose of learning and skills of movement achieved well, then any person should have good movement skills elements, which include: (1) the elements of physical capabilities that include: strength, endurance, agility and a sharpness of senses, (2) the element of mental abilities.

Based on the background that has been expressed above, the author wants to do a study, entitled "Paraga game as traditional sports for bugis makassar tribal communities in south sulawesi study of phenomenology reviewed from movement skill".

METHOD

The location of this research is the studio of cultures that nurture and perpetuate the game of Paraga, in South Sulawesi.

This research uses descriptive qualitative. The qualitative method is a research procedure that produces data descriptive in a form of words both written and oral from a community group behaviour observed. The subject in this study is all potential seen in the Paraga game as traditional sports for bugis makassar tribal communities in south sulawesi study of phenomenology reviewed from movement skill. The object of the research is done in the studio of cultures that nurture and perpetuate the game of Paraga residing in South Sulawesi, as in a society that recognized as experts or sources of information about the history of the show, the society who play Paraga performances itself, and some audience who watched the performances of Paraga. A data collection technique in this research was done by three stages that are observation, interview and documentation.

RESULTS AND DISCUSSION

1) Identify the history of the development Paraga game at the Bugis and Makassar society in South Sulawesi.

Since ancient times up to now Paraga experience some shift of functions, even among the society of South Sulawesi have already considered this game as traditional sports and is a cultural heritage that should be preserved. Historically, lontara this game is shown as a media event for the inauguration of the Kings (somba), in Gowa Kingdoms to entertain the kingdom's guests. It is

said that the first sport played ball at the moment of the game was invented and performed by "To manurung" is a ball sport derived from heaven, and made from gold (raga bulaeng). As the development of this game in society of South Sulawesi, based on stories passed down through generations in Kaemba Maros society, that in Kaemba village found a Paraga village that was Ujung bulo is a village which was once visited by the King (karaeng) from the Kingdom of Gowa, which spread Islam and introduced the traditional musical instruments like drum (ganrang) and gong, which makes the performance of Paraga was no longer shown with movements as usual, but is now accompanied by traditional instruments. Then since that time, it ensured that Paraga was made as the medium to spread Islam in Kaemba. Some experts contend that the traditional sports football is a forerunner to the birth of the sport of sepak takraw. Due to in a Malay historical records, during the reign of Sultan Mansur Shah Ibni the deceased Sultan Muzaffar Shah (1459-1468) in line with its development in the 1940 's, the pattern of this game changed by using nets and regulation numbers. This sport evolved in Asia, it was up to in the Philippines known as Sipa, and then in Burma it is known as Chinlone, and Laos Kator and in Thailand known as Takraw. In the past only certain people of a noble family of the Kingdom of Gowa can play this game, but over the time the Paraga game has been popular and played among society of South Sulawesi. Moreover it is often displayed as a custom in traditional wedding event, and contested in cultural festival either in provincial level and international level that the position as a traditional sport.

2) Identify the aspects of movement skill in the Paraga game.

Some aspects of movement skills that must be mastered by the Paraga players is movement skills to played the ball in standing or sitting position, movement skill at the time in stacked position when form of formation, movement skill at the time of play the ball with hands, and movement skill when lifting the ball up the head using feet and the ball stay at the head without falling to the ground.

CONCLUSION AND SUGGESTION

Based on the findings of field data and theoretic discussion, the conclusions of this study are:

- 1) The development history of Paraga game which was already considered as the traditional sport in Bugis Makassar society in South Sulawesi. Since ancient times up to now a very rapid progression both in terms of implementation and the transition of function. Due to this game is only shown as a media in the inaugural King (somba) in the Kingdom of Gowa, to entertain important guests of the Kingdom, but over the time the community of South Sulawesi made Paraga game as a culture heritage then this game often performed at cultural festivals, traditional custom wedding in the community of Bugis Makassar, and moreover this game also contested in South Sulawesi province level and at the international level in the position as a traditional sport.
- 2) Some aspects of movement skill that must be mastered by the which are movement skills aspects of juggling the ball in all position such as; standing, sitting, and even when the position of player are above the shoulders of the another player. Then, another movement skill that must be mastered is movement when playing the ball with their feet, elbows, and hands. Then movement skills that must be mastered is the skill of the movement is the skill to form the last formation and the player do the formations of the composition and the top three and the player in the top formation do the ball juggling, then lift the ball of the foot to the directed physical head with both the physical and the ball landed in the head without falling to the ground.

SUGGESTION

Based on the conclusions that have been described above, then the suggestion from writers are:

- 1) Department of youth and sports is expected to be a little more notice and consider to develop and always make the event or activity, contested the traditional sport game especially Paraga game in South Sulawesi.
- 2) The Department of culture and tourism of South Sulawesi is expected to pay attention, manage, and develop the traditional sports especially Paraga in South Sulawesi.
- 3) The Government of the province of South Sulawesi is expected to give a contribution in the form of funds to renovate the new Paraga Studios in South Sulawesi and help several studios to educate the future generation of Paraga player.
- 4) The Paraga game is made as icons or ways by the local government in South Sulawesi province that has a wealth of culture and customs to attract foreign tourists to pay a visit to South Sulawesi.
- 5) An appeal to the community of South Sulawesi to always keep the Paraga game, because this game is not cultural relics items should be preserved so that the game continues to exist and is not lost over time.

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PHYSICAL FITNESS EVALUATION IN MENTAL RETARDATION STUDENTS AT PRIMARY SCHOOL IN PALU CITY

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Abstract

The study entitled Physical Fitness Evaluation in Mental Retardation Students at Palu city. The aim of this Research is to find out the level of physical fitness students in mental retardation at Palu city. The method in this research is descriptive research method with the test TKJI (Tes Kebugaran Jasmani Indonesia) . The population of this research is the whole of Students in mental retardation at Palu city. The technique of sampling in this research is purposive sampling. The number of samples in the study amounted to 97 students. The result of this research by using a descriptive percentage calculation which description in the level of physical fitness as follows: was in very good category (0%), only 7% was at good, 31,96% was in average, 50,52% was at less, and 11.34% for the less. In conclusion the level of physical fitness of students in mental retardation on the less categories.

Keywords: Evaluation, Physical Fitness, Mental Retardation students.

INTRODUCTION

Every citizens has the right to obtain education including special needs. National education aims to develop the intellectual life of the nation and the whole Indonesia human, the human of faith and pious to God Almighty and the lofty ethical knowledge and skills, physical and spiritual health, a steady and independent personality and sense of responsibility of civic and nationality. In the legislation of the Republic of Indonesia about the national education system the number 20 in the 2003 article 5 paragraph 1 stated that "every people has the same rights to acquire quality education". In the second paragraph stated that "citizens who have abnormalities of physical, emotional, mental, intellectual, social and/or eligible for special education.

The education for children need of special education requires a separate service patterns especially for kids mental retardation intellectual capabilities are tailored to that under average. Physical Education learning is specially designed to the disability and needs characteristics of the learners. Physical fitness instruction through Adaptive physical activity one to improve the basic motion skills learners at elementary school mental retardation (BSNP, 2006:130).

Husdarta (2010:142) States that physical education is essentially an integral part of the education system as a whole. The aim of physical education of sports and the health of not only developing the physical realm, but also develop the physical aspects of health, fitness, critical thinking skills, social skills, emotional stability, reasoning and moral action through physical activity and sports activities. An adaptive physical education purpose to encourage the growth of physical, psychic development, motor skills, as well as to stimulate the brain to increase mental retardation children's knowledge and their thought. Physical growth and development of students' skills in investigating or forensic puan variety of games and sports, can be enhanced through rules of physical activity. This could be done through a motion activity in adaptive physical education learning.

Adaptive physical education has adapted to the conditions and in special need so that it can apply to students in mental retardation because the child has the same rights with other normal students in acquiring an education and learning every level of education. Granting a motion learning opportunities against mental retardation through Adaptive physical education from an early age to keep and develop the physical condition and the environment is very important, because it will be useful for the development of a normal adult skills, as well as for mental development.

Mental retardation is an abnormality in the growth and development of the intellectual mental (mental retardation) since in the womb or infancy and children caused by biological or organic functional factors. The children of mental retardation is a children in need special lack or limitations in terms of mental intellectual property, under the normal average, so the difficulty experienced in academic assignments, communication, and social events, therefore requiring special education services.

Mental retardation children experiencing cognitive function disorders caused due to their mental retardation IQ level is very low. The cause of low IQ is slow stimuli and acceptance rate and difficult to installing. When the children have slow in receiving the stimulus will take a long time to do a reaction or response to new situations, limitations in the mastery the language and less to consider social development included in the activities of the motion. Somantri (2007:108) showed that the level of physical fitness that had a huge mental retardation children's mental abilities at the age of 2 years to 12 years less in the category was once a normal child while on the less categories. Further, in research conducted by Westendrop, M, at al (2012:1) that children have mild mental retardation score significantly lower on almost all items of a specific motor skills, and also skills against the control object when compared with peers of non mental retardation. Low levels of physical fitness and mental retardation children motion will have an impact on his health so vulnerable to diseases. When we want to find out the level of success of an education can be known through the evaluation, as it was said Beltasar Tarigan (2000:67) "how far the goal was reached or how the learning progress of the students may be disclosed and presented through measurement and evaluation". While Brian (1999:17) state that "evaluation in the learning process is to get accurate data about the level of achievement of the objectives of learning by students so that they can have follow-ups". One goal of the Adaptive physical fitness for children in mental retardation is improving physical fitness.

Based on the opinions above it can be concluded that any learning requires evaluation to find out the results of a study itself, physical education was no exception. Then the writer doing research on the evaluation of the Physical Fitness of students in mental retardation in Palu city. Based on the background of the problem, then the problem in this research is how the level of physical fitness of mental retardation students' at primary school in Palu city. The purpose of the research is to find out the level of physical fitness of students in mental retardation students' at primary school in Palu City. The Aim Of Research 1) to be a reference and consideration for teachers in the implementation of learning Adaptive physical education in primary school in Palu city, 2) As a reference in an attempt to improve physical fitness is an outstanding primary school students in Palu city, and 3) To be a consideration for students in mental retardation to do physical activity and keep eating patterns.

Definition of Evaluation

The evaluation can not be separated from the education including physical education. The evaluation conducted by the physical education teacher as one way to monitor the development of learning and knowing how far the objectives can be achieved by teaching the students. In constitution number 20/2003 on the national education system Chapter I article 1 paragraph 21 explained that the evaluation of the education is an activity control, guarantee, and the determination of the quality of education in each component education on every line, level, and type of education as a form of accountability for the organization of education.

Suharsimi (2009:17) explained that the evaluation attempts to find out the effectiveness of the program's component in support the achievement of the objectives in the program. When the results of the study (learning program hope) is not satisfied, can be sought where lies the less or component which is working yet. Suharsimi (2012:4) explained that the evaluation in the learning process is carried out by teachers, therefore should be provided on how to make science a good evaluation. That teachers are able to measure whether students have already mastered the science that he/she had learned in accordance with the purposes for which it was formulated.

Evaluation of the importance given to all learning programs that are already running include physical education in all schools to know the achievement level of learning objectives. The objectives of physical education is to improve students' physical fitness, so it needs to be evaluated to measure the achievement of the objectives for physical education.

The Definition of Physical Fitness

Physical fitness is the ability or the ability of a person to complete a physical tasks without experiencing excessive fatigue and have the ability to do other work. Giriwijoyo (2007:20) states that "a person owned Fitness will give an impact on a person's performance and will also give positive support to productivity work or study. Tarigan (2009:28) also states that "Physical Fitness is the ability to perform daily activities with passion and full consciousness, which is done without experiencing fatigue also avoid the disease less motion, so that they can enjoy life with a good and unpretentious".

Nurhasan (1999:34) "Physical Fitness is a healthy dynamic that can cope with the physical demands of in carrying out daily living tasks with always have a capability to do physical activities have been recovered as well as extra next day to the other tasks."

Physical fitness is a person who has a functional capabilities in the face of the work over and over again without causing fatigue means, they must be aware of the requirement to have physical fitness. Physical fitness criteria which have structural and functional nature such as: 1) *Anatomical Fitness*, and 2) *Physiological fitness*.

The Components Of Physical Fitness

1. Muscular strength

Power is the ability of muscles in holding the load to the maximum (Nurhasan, 2005:3). While according to Suharjana (2008:7) "muscle strength is the ability of a bunch of muscles against the load in an effort". Based on the opinions above the muscle strength is the ability of a muscle or group of muscles at a maximum contraction to fight the loads in a particular activity.

2. Muscular endurance

Muscular endurance is the ability of a bunch of muscle contraction in performing continuously in a relatively long with sub maximum load (Nurhasan, 2005:3). This is in line with the Bempa (Suharjana, 2008:32) that, muscular endurance namely the ability to use their muscles to perform continuous muscle contraction on a relatively long period of time with a specific load. Muscular endurance is the ability of a muscle or group of muscles to do the motion or contractions repeatedly or continuously on the load sub maximum in a relatively long time.

3. Cardiovascular endurance

According to Rusli Lutan (2002:40) "cardiovascular endurance is a measure of the ability of the heart to pump oxygen-rich blood to other body parts and the ability to adapt and recover from physical activity". According to Djoko Alarm Irianto (2004:4) "cardiovascular endurance is the ability of the heart to supply oxygen to working muscles in a long period of time". From the above it can be concluded that the durability of cardiovascular endurance is the ability of the working heart muscles and lungs in supplying oxygen throughout the body in a relatively long time.

4. Flexibility

Suharjana (2008:7) "flexibility is the ability of the joints to move freely". From the above it can be concluded that flexibility is the ability to perform the movement in space of motion of the joints to move freely which is influenced by the elasticity of the muscles, tendon, and ligaments.

5. Body composition

Body composition can be said to be a comparison of weight or body fat percentage body fat stated (Suharjana, 2008:7). Body composition is the relative proportion of fatty tissue and fat-free network. While according to Lan Kravitz (2001:7) body composition is the percentage of body fat than lean body weight (muscle, bone, cartilage, vital organs). Based on the opinion of the above it can be concluded that body composition is the percentage of body fat than lean weight expressed in percentage of body fat.

6. Speed

According to Nurhasan (2005:3) "speed is the ability of a person in the crossroads in time as soon as possible". Similar opinions are said by Suharjana (2008:7) "speed is the ability to traverse a certain distance in the short time".

7. Power

Power is the result of a combination of speed and power. According to Suharjana (2008:3) explains that "yield is a combination of strength and speed that are the basis of every activity". Nurhasan (2005:3) speed is a person's ability in the crossroads in time as soon as possible. Based on the opinion of the above it can be concluded that the definition of power is the ability of a muscle to do business with a relatively fast.

8. Balance

Balance is a person's ability to control the parts of the body to maintain a position (Nurhasan, 2005:3). While Suharjana (2008:7) "body balance is the ability to maintain a fixed posture or movement while performing at the time of standing". Based on some of the opinions above it can be concluded that the definition of balance is the ability of the body in an attempt to keep the Agency in a position of balance in both the silent position or in a position to move.

9. Coordination

Suharjana (2008:7) States that "the coordination is a mix of several elements of the motion by way of reducing the risk to get maximum results and efficiency". Nurhasan (2005:3) says that "coordination is the ability of a person to incorporate a wide range of motion into a meaningful motion." Based on the opinion above conclusion that can be drawn is the coordination is a blend of elements of the movement into one movement that means to obtain maximum results.

10. Agility

Agility is the ability to quickly change the direction of the body or parts of the body without experiencing disruption in the balance (education and culture, 1997:6). Other accounts state that agility is the ability of a person to change the motion of all directions (Nurhasan, 2005:3). Based on some of the opinions above it can be concluded that the agility is the ability of a muscle or group of muscles of the body in changing direction in quickly and precisely.

Adaptive Physical Education

Fundamentally Adaptive physical education physical education is the same as usual. Wawan s. Suherman (2001:25) states, physical educational proses to encouraging, guiding, developing and fostering the ability of physical and spiritual health as well as students and their life in environment in order to grow harmoniously and optimistic, so being able to carry out tasks for himself and the nation development. Adaptive physical education is a system of delivery service that is comprehensif and is designed to discover, find and solve problems in psychomotor domain for the children in need special.

Psychomotor Problems as a result of limited to sensomotoric, limitations in the ability to learn. Most of students in speciall needs problematic in social interaction and behavior. Then it can be ascertained that the role of Adaptive physical education for students in speciall needs very large and be able to develop, corrects abnormalities and limitations. Depdiknas (2006:127) of physical education was the media to encourage the growth of physical, psychic development, motor skills, knowledge and reasoning. Penghayatan values (attitudes, mental, emotional, spiritual, social and sportive), as well as healthy living patterns of conditioning that it rises to stimulate the growth and development of kualitasfisik and psychic balance.

Tarigan (2000:10), stated that the aim of physical education and health for the children in need special adaptive is to enhance the growth and development of physical skills of motion, social, and intellectual. In addition, the process of education it is important to instill values and positive attitudes towards limited ability both in terms of physical or mental illness so that they are able to socialize with the environment and has the confidence and self esteem. While according to Furqon in Sukardin (2006; 5) benefits of physical education for the children in need special is (1) can help recognize less and directs it at individuals or related institutions; (2) can gives happiness to children with special needs, gives the fun playing experience; (3) can help students achieve the skills and physical exercises in accordance with its limitations; (4) can gives many opportunities to learn skills that correspond with people who have the disorder to achieve success; (5) physical education can be accounted for by a more productive life for children with special needs by developing the necessary physical qualities to meet the demands of everyday life.

Mental Retardation Children

The term of mental retardation is often also referred to as mental retardation or mental inhibitions (handicap mentally). Yudi Hendra (2007:34) States that the word's equivalent has been established by the Government to refer to intellectual disability is mental retardation. Child mental retardation globally is the child who has the intelligence of below average that occur when the period of growth and has adaptive assessment of the barriers. According to Adam Pramono and Qari'ah Hamid (2012:37) States, mental retardation lapses grew deladis pyrotechnics, while the growing swell of events itself is the most important process and essential on the child. The American Association On Mental Deliciency (AAMD) in Mumpuniarti (2007:13) says that the classification of mental retardation is lightweight with an IQ ranging from 50-70, mental retardation is being with an IQ ranging from 30 – 50 and heavy and very heavy mental retardation IQ range < 30. Mumpuniarti (2000:11) says that mental retardation is the individual who is mentally retarded with intelligence functions are indicated below average and inability in adjustment behavior, this occurs at the time of development, namely the condition is real mental retardation in children, and that condition that requires specific treatment to be able to develop themselves.

The ability of each child's own mental retardation varies, so there is a classification of mental retardation children's ability to distinguish itself. Based on the low level of high intelligence as measured by using a Wescheler scale (WISC) and the Stanford Binet test in Aqila Smart (2012:50-51), mental retardation can be classified into four groups:

1. The lightweight Category (Moron or Debil)

On the category of lightweight, has an IQ of 50-55 to 70. Based on tests of Binet IQ of his ability shows the number 68-52, whereas with WISC test, the ability of his IQ 69-55. Typically, these children have difficulty in learning. He more often live than class riding class.

2. Middle Categories (Imbesil)

Usually has an IQ of 35-40 to 50-55. According to Binet IQ test results of his 51-36, while test WISC 54-40. Often found in people with brain damage and other illnesses. There is a possibility of sufferers also experience nerve dysfunction that plagued the the skill of his motoric. In this type, sufferers can be detected at birth because at the time of its sufferers experience a delay in verbal and social skills.

3. Weight Category (Severe)

This category has an IQ of 20-25 to 35-45. According to Binet IQ test results of her 32-20, while according to WISC test his IQ, 39-25. Sufferers have a physical abnormality bawan and control remote motor is limited.

4. Very weight category (Profound)

In this category of sufferers have a very low IQ. According to the results of the IQ scale sufferers under 19, while according to WISC test his IQ below 24. Many sufferers who have physical disabilities and nerve damage.

Every child in need has different characteristics so that Kemis & Ati Rosnawati (2013:17-18) states, children's mental retardation characteristics, namely: (a) Low in terms of learning new things, (b) Difficulties in generalized and learn new things, (c) Lacking of the communicative ability in mental retardation, physical Disability (d) The development of motion, (e) Lacking in the ability to help oneself, (f) Behaviour and interaction, (g) Less reasonable behaviour over time.

The characteristics child's mental retardation can be viewed in terms of:

1. Physical

The characteristics of mental retardation 1) Almost the same as a normal child, 2) Motor slow Maturity, 3) Coordination less motion, 4) Mental retardation children's weight can be seen.

2. Intellectual property

According to Somantri (2012:105) that the intelligency is a complex function that can be defined as the ability to learn the information and skills conform to dansituasi issues-a new life situation, learning from past experiences, abstract thinking, creative, critically assess, avoid mistakes, overcome difficulties, and and the ability to plan for the future. The intellectual level are: 1) Difficult in the academic learning 2) Mild mental retardation children's education, the ability of most high up to the normal child is 12 years of age with an IQ between 50 – 70 3) Mental retardation children's ability of learning are the highest level of normal children aged 7, 8 years IQ between 30 – 50 4) Children of their learning ability weight mental retardation up to the normal child age 3-4 years, with an IQ of 30 down. Seen from the intellectual level of mental retardation has a kekuarangan that makes cannot be studied in accordance with the normal pembelajaran apalagi in terms of abstract thinking.

3. Social and Emotional

Social characteristics of emotions, namely: 1) Hang out with younger children, 2) reclusive, 3) Easily to influenced, 4) Less dynamic, 5) Less consideration, 6) lack of concentration, 7) Easily influenced, 8) Can't lead himself as well as others.

METHOD

Research Design

Based on the above problems, this type of research can be classified in a descriptive research. A descriptive Research is study of the issues in the community as well as the procedures applicable in the community as well as particular situations including the activities, attitudes, views and the processes that are taking place as well as the influences of the phenomenon. According to Suryabrata (2012:75) "a descriptive research is to make in a systematic, factual, and accurate about the facts and the nature of the population or specific areas. The approach used in this study is a qualitative approach, since observing people in their lives, how they interact with one another, their language, and their ideas about its surroundings.

Population and Sample

The population in this research is all student mental retardation in the Palu city. The technique of sampling in this research is purposive sampling. The number of samples in the study amounted to 97 students consists of 68 students are men and 29 students are girl.

Technique of Data Collection

The technique of data collection in this research is the use of Indonesia physical fitness test . These kinds of tests, a 40-metres in run, 30 seconds for Pull up, for 30 seconds of Sit up, Vertical Jump, 600-meters in run.

Technique of Data Analysis

Processing of data in this study using a percentage test

$$P = \frac{F}{N} \times 100\%$$

P = The number presentae

F = The frequency that is being sought after presentaseny

N = The number of individuals (Anas Sudijono, 2012:43)

RESULT AND DISCUSSION

Based on the analysis of the description survey in physical fitness level students in mental retardation at elementary school Palu city, the data showed that in the very good category is 0 students, good is 6, being students 31, less students 49, very less 11 students. It can be seen a test of his presentation in the table 1.

Table 1. Description Data results of students in physical Fitness Test percentage of Palu city

No.	The number of students	%	Classification
1	-	-	Very Good
2	6	6.19	Good
3	31	31.96	Is being
4	49	50.52	Less
5	11	11.34	Very Less

The results of such research are analyzed using descriptive percentage calculations that physical fitness level with the following description: located on the category best 0%, are on a good 6th category, 19%, the category in being 31,96%, the category less 50,52%, and very less category 11.34%.

The objectives of physical education is to improve the students' physical fitness. Adaptive physical education objectives as well as objectives of physical education to the non mental retardation. In realize the goal of physical education for the children in mental retardation, then Prof. Arma Abdoellah, M.Sc. in a book titled "Adaptive physical education" elaborated the aims of Adaptive physical biennial donations to children in need special, as follows:

1. To help students correct the conditions that can be corrected.
2. To help students protect themselves from any conditions that aggravate the situation through physical education.
3. To provide an opportunity in students learn about and participate in various kinds of sport and physical activity as recreation.
4. To help students understand the limitations of physical ability and mental state.
5. To help students perform social adjustment and develop a feeling of having self esteem.
6. To assist students in developing the knowledge and appreciation of good body mechanics.
7. To help students understand and appreciate the kinds of exercise that can be of interest as the audience.

Syarifuddin and he then in Sriwidati and Murtadlo (2007:4) suggested that: the Adaptive physical education is a process of educating through motion activity for the pace of growth and development of either physical or psychic in order optimisation of the entire potential ability, physical skills tailored to the abilities and limitations of older, wit, freshness of the physical, social,

cultural, emotional and sense of beauty in order to achieve the educational objectives, namely the formation of the whole person. Through physical activity in Adaptive physical education can improve the physical fitness of students. Physical Fitness was very influential to the learners at the time of learning. (Giriwijoyo, 2007:20) "Fitness is owned by someone would give an impact on a person's performance and will also give positive support to productivity work or study.

To find out whether or not the purpose has been reached it is necessary evaluation by conducting a physical fitness test. This encourages researchers to conduct research on physical fitness level evaluation in students physical mental retardation at elementary school the city of Palu. Ralph Tyler (1950) in Suharsimi (2012:3) defines the evaluation of education as a process of collecting data to determine the extent to which, in terms of what, and how educational goals already achieved. If not, how would that have not and why. Next in Debdiknas (2003:6) expressed that the purpose of the evaluation is to (a) to see the Productivity and effectiveness of teaching and learning, (b) repair activities of the teachers, (c) improve, refine and develop the program teaching training, (d) knowing the difficulties faced by students during the learning activity and find the way out, e) put students in situations appropriate learning ability.

Based on the results of data analysis and data processing of physical fitness test on mental retardation students at elementary school in Palu city, obtained results that students have mental retardation of physical fitness level shows that in the category of very good 0 students, good 31, 6 in being students students, less of 49 students, very less 11 students. If analyzed by using the calculation of the percentage with the result percentage of students who are very good categories of 0%, on a good category 19%, being category 31,96%, category less 50,52%, and very less category 11.34%.

The results of a survey about students ' physical fitness of mental retardation mental show that the level of physical fitness of the students in mental retardation on the category less. This can be influenced by several factors including: nutrient patterns, motion, diet, weight loss, parenting parents.

CONCLUSION AND SUGGESTION

Based on the discussion and analysis of the data, it can be inferred that physical fitness level of mental retardation students at elementary school in Palu city are in the category of less.

In the implementation of Adaptive physical education need be no modifications both in terms of location, rules, games as well as the facilities and infrastructure which can make students happy, so they want to move or play. Physical fitness of students needs to be improved through the interesting Adaptive physical fitness so that students interested in working out.

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THE INCREASE OF STUDENTS' COURAGE THROUGH PLAY APPROACH IN AQUATIC ACTIVITIES LEARNING FOR THE GRADE ONE STUDENTS OF AL-AZHAR ELEMENTARY SCHOOL

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Abstract

The problems of this research were that the students were not dared to take part in aquatic activities. This study aimed at improving the students' courage in aquatic activities through play approach to the grade one students of Elementary School (SD) Al Azhar Palembang. This research was a classroom action research which consisted of two cycles. The subjects were the grade one students of SD Al-Azhar Palembang is 36 students. The study was conducted from October to November 2016. The instruments of this study were teacher observation, student observation, the students' courage observation, documentation, and interviews. The results showed that the descriptive qualitative data analysis through play approach can increase the students' courage in aquatic activities of the grade one students of SD Al-Azhar Palembang. Based on data from the observation of the students' courage in the first cycle of the first meeting, the score was 71.55% and in the second meeting, the score was 78.94%, while in the second cycle courage of students in the first meeting, the score was 83.66% and in the second meeting, the score was 90.22%. There is an increase of 19% compared to the data before being given the action. At the end of the second cycle courage, the score of 90.22% of the students' courage have already exceeded the criteria of very good score in SD Al-Azhar Palembang.

Keywords: Courage, Play Approach, Aquatic Activities

STUDENT PERCEPTION IN PHYSICAL EDUCATION OF ELEMENTARY SCHOOL

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Abstract

The main aims of the research were to: 1) explore student perceptions of the implementation physical education lessons, 2) Explores the understanding of students about the physical education, 3) Explores the role of students towards the construction planning of studying the subject of physical education. This research is a quantitative descriptive exploratory approach by public and private elementary school population in Semarang. The samples using purposive proportional stratified random sampling, and obtained a number of 32 elementary school that is representative in Semarang (16 primary schools and 16 private primary schools) data collection technique used with approach self-inventory, using a questionnaire, and sample that it used as much as 1068 respondents. The results of the analysis of problem formulation : 1) the perception of students toward physical education lesson consists of four indicators of the analysis results by 75% good criterion 2) the role of students contribution lesson plan consists of five indicators of the results of analysis of 77% qualify as good, and 3) an understanding of students the subjects physical education lessons consisting of three indicators of the results of analysis of 73% good criterion.

Keywords: *physical, perception, understanding*

INTRODUCTION

Physical education (PE) subject in Indonesia gets position less good, some considered unimportant. There was even a suggestion to remove PE in elementary school subjects (Kurnia Sari Aziza, 2013), there are some schools that replaces the task of PE teachers with other subjects teachers, and consider PE as a lesson tiring and can reduce the concentration in another lessons. Most PE teachers still equate PE with sports that would spoil the sense of physical education itself (AH Mahmud, 2000; Soewondo MS, 2011; Agilia J, 2012).

In fact, many researchers are proving the benefits of PE for students, among others: physical education can reduce the risk of chronic diseases later (Sallis & Owen, 1999; Bailey, 1999; Malina & Bouchard, 1991; Freedman et al., 2001), has positive effect on cognition and academic of learners (Shephard, 1997; Hills, 1998; Etnier et al., 1997), improving mental health (Sallis & Owen, 1999; Mutrie and Parfitt, 1998).

Jalaluddin Rahmat (2003) expressed his opinion that the perception is the experience of objects, events or relationships obtained by concluding information and interpret the message. Furthermore, there are four determining factors relating to a person's perception of individuals, namely, physical and social environments, structural material, the need and purpose of life, the experience of the past.

There are several studies that showed the viewpoint of learners towards learning PE, one of the most comprehensive studies is the study of Luke (1991), who interviewed students about their attitudes in PE. Questions about what they liked and disliked in the implementation of PE, and found that the activities in the lesson, the tools used, and the skill is most important influence in the

implementation it. While the habit of teachers, students' competency and victory or defeat is the reason most influential past.

Asri Budiningsih C (2011: 160) writes that many factors causing low quality of education, including learning activities that are less responsive to the plurality of individuals and the environment where the student resides. By designing learning appropriate to the character of the learner as a subject of study so hopefully learning more meaningful and useful for learners. Citing opinion Waldi in Asri (2011), the important thing to understand with regard to students or participants learn as individuals are human beings who have a history, creatures with unique characteristics (individuality), always in need of socialization among them.

Physical education sport and health is an integral part of the overall education, which aims to develop aspects of physical fitness, motor skills, skills of critical thinking, social skills, reasoning, emotional stability, moral action, aspects of a healthy lifestyle and the introduction of clean environment through activities, physical exercise and health are planned systematically selected in order to achieve national education goals (Depdiknas, 2006). Physical education should contribute to the objectives of the national curriculum to help young people become: successful learners, who enjoy learning, make progress and achieve confident individuals who can live safe, healthy living and make ends meet, responsible citizens who contribute positive for the community (Harvey, G. & Gareth, L., 2009). Pangrazi (2004) states that PE is the stage of general education programs that contributes to the overall growth and development in children, particularly through the experience of the movement.

Students' perception of PE next is to implement these lessons, they feel the change in the seven components (fat body, coordination, endurance, flexibility, physical activity, the competence of the sport, and strength), as well as the appearance and health (Jeffrey, et al, 2010 ; Dort, Evaul, & Swalm, 1996; Stiehl & Parker, 2007; Finkenberg, Shows, & DiNucci, 1994).

Much of the research that examines the physical education taken from the perception of the public, stakeholders and schools, and give a positive result, but in reality they considered physical education lesson is a second subjects. Hence the need for studies focused on the perception of students towards these subjects.

The problems that are taken in this study were: (1) What are the perceptions of students towards learning physical education related to fitness and sports activities, (2) how students' perceptions of the effectiveness of teaching physical education to contribute to the level of fitness and sports activities. With the aim to determine the students 'perception of teaching physical education related to fitness and sports activities, and knowing the students' perception of the effectiveness of teaching physical education to contribute to the level of fitness and sports activities

METHOD

The model used in this research is descriptive quantitative intended to collect information on the status of symptoms that is, which is the state according to what their symptoms at the time of the study. This study uses exploratory approach. Sampling by using *proportional random sampling*, sample in this study were students in grade 5 in elementary school, Private Christian, and Islamic Elementary School with the number of 48 schools (1440 students). Variables observed / measured in this study is the perception, role, and understanding of learners in the classroom implementation of Physical Education and Health which includes twelve (12) indicators, among others: (1) the views of

learners; (2) the attitude of students; (3) expectations of learners; (4) the readiness of students; (5) students as subjects of education; (6) learners in determining learning outcomes; (7) students have the freedom to determine how to learn; (8) students learn subjects that met the needs of learning; (9) learners are interactive educational part; (10) determine the nature of the training content; (11) know the purpose of the lesson; (12) knows the importance of the subject matter.

Data collection techniques using *self-inventory* approach, its means that the data obtained from the individual on an individual basis, because most know the state of each and determine the ability, declaring an individual as well as appreciation according to what it is. Questionnaire was used to collecting data. Structure enclosed questionnaire is to use a scale of answers, using a Likert scale used to measure attitudes. The number of statements in the questionnaire used as a research instrument 144 statements, which represent the 12 indicators. Data analysis using descriptive analysis percentage, and variable coefficients with qualitative index variation formula (IQV).

Table 1. Questionnaire Indicators

No.	Variables Observed	Indicators
1	Students perception of PE	The views of learners Students attitude in PE expectations of learners Readiness learners
2	Role of Students Against Construction PE Lesson Planning	Learner as the subject of education Learners participate in determining learning hasi students have the freedom to determine how to learn students learn subjects that met the needs of learning Learners are part of an educational interactive
3	Comprehension of Students Against PE Operation	Knowing the nature of the content lesson Knowing the learning goals Knowing the importance of the subject matter

RESULTS AND DISCUSSION

Microsoft excel 97-2003 and SPSS version 18 was used to find the percentage and variable coefficients IQV. The problems of this research there are three, namely: 1) Determine the perceptions of learners in the conduct of PE subjects, 2) Determine the role of learners towards PE learning construction planning, and 3) Know the students understanding of the PE. The results are:

Table 2. Result of perception, role, and understanding of learners in the classroom implementation of Physical Education

No.	Variables Observed	Indicators	%	Criteria
1	Students perception of PE	The views of learners	73	good
		Students attitude in PE	78	good
		expectations of learners	77	good
		Readiness learners	73	good
2	Role of Students Against Construction PE Lesson Planning	Learner as the subject of education	72	good
		Learners participate in determining learning hasi	82	Very good
		students have the freedom to determine how to learn	74	good
		students learn subjects that met the needs of learning	81	good

		Learners are part of an educational interactive	77	good
3	Comprehension of Students Against PE Operation	Knowing the nature of the content lesson	65	good
		Knowing the learning goals	78	good
		Knowing the importance of the subject matter	73	good

The results of the data analysis: (1) perception of students against organizing PE subjects, the formulation consists of 3 indicators and consists of nine sub-indicators, the results if the respondent data on the perception of students toward PE outcome indicators and sub-indicators with the result of *good* character, except in sub-indicators awareness in the following PE study that results analysis 83% categorized as *excellent*.

(2) The role of learners towards the construction of the learning PE plan, the issues have 5 (five) indicators and each indicator has two sub-indicators, the results of the analysis of the percentage of problem formulation to reach 75% included in both categories, on indicators of students as subjects of study results of the analysis the percentage reached 72% sign both categories, the indicator learners in determining the learning outcomes of the analysis results of the two sub-indicators learners know the instruments and the learners know the instrument ratings reached 82% categorized as *very good*, the indicators learners have the freedom to determine how to learn, which consists of 2 sub indicators yield analysis by 74% in the category of either.

(3) Students understanding of the operation of PE consist of 3 (three) indicators which contains 8 (eight) sub-indicators, if the data from all of the sub-indicators categorized as *good*. The following is shown in Table above on the results if the data is the percentage of all indicators and sub-indicators.

Table 3. The Coefficient of Variable IQV

Respondent		Variables Observed (the coefficient of variable IQV)		
		A	B	C
Status	State school	0,85	0,86	0,87
	Private school	0,70	0,86	0,9
Sex	male	0,86	0,86	0,87
	female	0,85	0,86	0,86

Note: A: Students perception of PE; B: Role of Students against Construction PE Lesson Planning; C: Comprehension of Students against PE Operation.

Result data if looking for value IQV in (1) student perception of PE, state schools is higher than the private schools, male is higher than women's groups. (2) Coefficient of variability in the formulation of the role of learners towards the construction of the learning plan based on the Status of the results PE state schools and private primary schools has the same result (0.86), for data processing based on the sex of male and female groups has the same result (0.85). (3) Comprehension of Students against PE Operation Result that state school group reached 0.9 and private school reach 0.9. Based on gender groups of male (0,87) and female 0,86.

CONCLUSION

The conclusion that can be drawn from the data if the respondent is the perception of students toward PJOK qualifies as good with the range of 72% - 77%, except in sub-indicators "Awareness in the following study PE" with a percentage of 83% in the excellent category with results hence the perception of learners in 32 (Thirty-two) elementary school in the city of Semarang on learning PE in school is categorized as good, for if the data IQV state school higher than private schools, between the sexes among men is higher than women group. Learning plan PE learners in 32 (Thirty-two) elementary school in the city of Semarang, that inside has played well in the construction of the learning plan PE, with a percentage of 71% - 79%, except for the item "Learners will determine learning outcomes" by category very good (82%). Results of data if IQV role of learners in the learning plan PE construction for public and private elementary group there was no difference with the results of 0.86, for those gender groups there were no differences that result with the result of 0.86. Comprehension of Students Against Operation PE in 32 (Thirty-two) elementary school in Semarang have a good understanding of learning PE, namely through understanding the nature of the training content, understand the learning objectives and understand the importance of the subject matter PE. Only on the analysis of the results of the sub-indicators out of the principles of the implementation of the subject matter, the understanding of learners achieving 59% qualifies as pretty good. Results of data if IQV role of learners in the learning plan construction PE for private schools is higher than state school, for those gender groups, men's groups (0,87) and women's result (0,86).

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POTENTIAL FOR SPORTS PERFORMANCE BASED ON TALENT AND STUDENT INTEREST IN GUNUNGPATI SEMARANG CITY 2016

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Abstract

The purpose of this study is to describe sport potential of Junior High School Students in District Gunungpati Semarang based on talent and interest in the sporting achievements of students in coaching sports achievements.

This study uses survey testing, which includes tests Sport Search to obtain data about the physical characteristics (height, weight and arm length range), physiological (organ function in accordance with the sports that interest students), and interviews to obtain information about the student's interest towards the type of exercise in relation to students' interests and talents in sports. The research sample totaled 282 students with purposive sampling technique.

The results of this research are: 1) The potential of the corresponding (25.51%), 2) the potential lack of suitable (22.63%), and 3) the potential is not appropriate (51.85%).

The conclusions of this research are: 1) To promote sports for junior high school students in the District Gunungpati Semarang in order to achieve optimal achievement and toward fostering a more effective, should be directed at the sports: volleyball, football, sprinting, badminton, karate, futsal, basketball, long jump, table tennis, gymnastics, and swimming, and 2) Students who have a less appropriate level of conformity between a hobby and a potential to improve the physical abilities needed in the sport, so there is a match between a hobby and their potential.

Keywords: Potential, Achievements, Interests and Student Sports Talents

ANALYSIS OF PHYSICAL EDUCATION AND SPORT HEALTH (PESH) PROGRAM BY USING GOAL-ORIENTED EVALUATION MODEL

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Abstract

Physical education and sports health is an integral part of the national education which aims to improve the health of students. However, there are teachers who do not carry out the measurement of physical fitness level students and evaluate student understanding about health. While the evaluation is a tool to measure how the program's success in achieving the stated goals. The purpose of writing this article is to investigate the implementation of the program of physical education and sports health in Indonesia. The author examines various referral sources that include curriculum, educational tools, teacher books, research, and other relevant sources. The result is known only 6.77% of teachers do a cognitive evaluation. Small percentage, if given the core competencies of the curriculum one students is able to describe a healthy diet, nutritious and balanced as well as the effects on health. Later known also about the use of physical fitness tests by teachers, 10% always, 10% often, 27% sometimes, 17% never, 37% unknown. Therefore, the advice given to the relevant parties in order to review about the purpose and how to evaluate the process of physical education and sport health as appropriate. So as to do repairs on the learning process of physical education and sport health in order to achieve the desired goal.

Keyword: analysis, PESH program, goal-oriented evaluation

DEVELOPING SNAKE LADDERS GAME FOR LEARNING MEDIA OF PHYSICAL EDUCATION SPORT AND HEALTH TO ELEMENTARY SCHOOL STUDENTS

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Abstract

The goal of this developing research were: 1) Generate a snake ladders game which appropriate for the learning media of physical education sport and health to elementary school students. 2) Determine the effectiveness of snake ladders game that was developed for learning of physical education sport and health to elementary school students. The developing research model which used was procedural development. The procedure used consists of five main stages: 1) analyzing the product to be developed, 2) developing the initial product model for elementary school students, 3) validating by experts, 4) applying field trials and 5) revising the product. Subjects used were the IV grade students of State Elementary School 3 Palu, State Elementary School Model Madani and State Elementary School 7 Taipa, amounting to 78 students consisting of 33 men and 45 women students. The data used were qualitative and quantitative data. Technical analysis was the percentage used to analyze and assess the level of assessment of the subjects in the feasibility, quality and product acceptance. The study produced a model for learning physical education sport and health of snake ladders in elementary school students in Palu City, with developing the infrastructure that includes an extensive games 4 meters x 3,4 meters with the number of boxes of 30 pieces, each box has an area of 0,6 square meters. The dice is made of foam, plastic and cloth cube with sides of 0,2 meters. Inside the box there are numbers and images of right foot, left foot, ladders and snakes. By the time players threw the dice and saw acquired number then the player must perform step with one foot, jumped with two feet as much as the number of steps or crawled by following the shape of a snake that is appropriate to the image. The player was declared as the winner when he/she was able to reach 30 with a picture trophy. Number of player for one round was between 4 to 6 players. Where these results were packaged in a book and VCD learning. Based on the research results could be summarized as follows: 1) The form of this snake ladders game development was appropriate with the learning media of physical education sport and health to elementary school students, 2) snake ladders game was also very effective for learning media of physical education sport and health. Teachers of physical education sport and health were advised to use this game model as an alternative way to deliver games learning lesson for elementary school students. The product of this game can be harnessed for the media to learn the motion for elementary school students. The results of this research can be used as a base for relevant research in the future.

Keywords: snake ladders game, media, physical education sport and health

INTRODUCTION

The purpose of Physical Education Sport and Health (penjasorkes) basically is the process of education through physical activity and at the same time the education process to increase ability (Adang Suherman, 2000:22). Pangrazi (2004:4) states that penjasorkes is the phase of general education program that contributes to the overall growth and development in children, especially through the experience of the movement. This is a learning program that provides the attention on all the domains of learning, namely: (1) psychomotoric aspects, (2) cognitive and (3) affective.

The scope of subject penjasorkes includes game and sport, development activity, aerobic activity, rhythmic activity, water activity, and education outside the school. Game and sport include

traditional sport, games, skills lokomotor-nonlokomotor, and manipulative, athletic, kasti, rounders, kippers, soccer, basketball, volleyball, table tennis, tennis, badminton, and martial arts and other activities (Depdiknas, 2006:703).

Learning game has many types but the tendency was not carried out by teacher penjasorkes due to various reasons. Based on the survey and the initial interview conducted on the fifth-ninth of September 2016 in State Elementary Schools Model Madani, State Elementary School 3 Palu, State Elementary School 15 Palu, Elementary School Inpres of Tipo, Elementary School Inpres Of 7 Labuan Baru Palu city to know application of teaching penjasorkes especially in learning the game. Following the results of the survey and interview done in various Elementary school in Palu city were State Elementary School Model Madani, State Elementary School 3 Palu, State Elementary School 15 Palu, State Elementary School Inpres Tipo and State Elementary School Inpres 7 Labuan Baru that learning game was done was still limited, this can be seen on the game material was taught. The material was taught include soccer, volleyball, kasti and hadang, its pain points in addition to the facilities and infrastructure that less support was also due to the lack of innovation teachers in making learning media, learning objectives were still focusing on the strength on certain parts of the body, therefore there is a need for innovation games where the game will be able to improve the experience of movement of students and the game can be used as a learning media penjasorkes is effective in elementary school level.

Elementary school students in the grade four that the average age of ten years is the transition period from motoric development coarse to good motoric, at the times the students were hoped to get more experience of movement through learning the game. The form of the game was expected easily to be understood by the students and ever done previously when playing at house or school, the students are easily understand the game that was given and has spirit to complete the game. The form of the game can adjust also with the existing infrastructure and helps penjasorkes teacher for more varied in giving game material. The game in the learning process also requires a media or tools that support the teaching learning activities, using media is expected to be able to stimulate aspects of the development of children optimally. One of the game needs trying to be taught is a snake and ladders game.

According to Sriningsih (2009:98) explained that the snake and ladders game can be given to children five-six years old in order to stimulate the various development aspect such as cognitive, language and social. Language skill which can be stimulated through this game for example vocabulary up and down, go back to the top to bottom and etc. Social skill is trained in this game in which the willingness to follow and obey the rule of the game, playing in turns. The stimulated penjasorkes cognitive skill are able to state some basic movement and various games in the branch of the sport. So it can be concluded that snake and ladders game is a board game played by two or more people using dice and pawns as players. To Create a pleasant conditions for the children and the snake and ladders game techniques can be developed to help control of children toward the aspects of development, especially on the material development of the ability to motion of the children.

The game has been played the children now, but it has not yet been made as learning media penjasorkes by teachers. The design of the model of teaching snakes for Elementary School students how to modify the means and the rule of the game is one effort form so that students can follow the

learning activities with happy and can provide innovation for penjasorkes teachers to teach the snake and ladders game as a game materials.

The purpose of this research include; 1) to produce forms of snake and ladders game that is appropriate for the learning media penjasorkes for elementary school students, 2) to know the effectiveness of the snake and ladders game developed for the learning penjasorkes. Through this development research is expected to produce a product in the form of the development model of the game that is modified in accordance with the learning process of elementary school students so that they can realize the active learning, innovative, creative and effective and enjoyable and can cover learning aspects (cognition, affective and psychomotor), it also can increase the students intrest to the penjasorkes learning and help penjasorkes teachers for more innovative in presenting a game material. The development of the game can be played in the field that is not too extensive and should not use the field hard or grass but adjust the existence of infrastructure in schools. School has hard yard as a local company dealing in ceramics, plaster or asphalt, snake and ladders game can be made with painted on he floor according to the lesmen need.

METHOD

Research and development called as research based development (*research-based development*). In this research that development model used is the procedural development model, because this model is a descriptive, which is a procedure that describes the steps should be followed in the produce of the product.

Prosedur is used in the development of the game for teaching elementary school students penjasorkes covers five main stages namely; 1)Analysis products will be developed, including: a) bibliographical studies examine the concept of the snake and ladders game, the development and characteristics children of elementary school especially motoric development, b) survey about snake and ladders game, students ever play this game, c) studying of the snake and ladders game in general to know the characteristics of this game. 2) Developing early products snake and ladders game for elementary school students, including: a) analysis of purpose and character of product, b) analysis of student characters, c) deciding the purpose and form of the game, d) assigning organisation strategy and learning. 3) Expert validation results from the development of the product was the first done validity test involving three of the experts consisting of two of the experts penjasorkes (Usman Appe, M.Pd and Hendrik Mentara, M.Pd) and 1 of the experts modify game materials (Teguh Hariyadi, M.Pd), this validation was meant to anticipate the errors on the user (students). 4) field try out; a) test small group, b) test large groups. 5) the revision of the product.

The design of this try out will be done two stages such as: 1) test small group, 2) test large groups. As the representation of the try out of small group using 24 students in one class. Large group tests use the fourth grade students from the three schools as much as 78 students that consists of 33 the men students and 45 women students . The subject of the try out is the target of users of the product, are the fourth grade students from State Elementary School Model Madani, State Elementary School 3 Palu and State Elementary School 7 Taipa Palu City.

The Data used in this research was data qualitative and quantitative. Qualitative data was obtained from the results of the interview in the form of an opinion from the experts penjasorkes and resource permens orally and in writing as a constructive inputs for the revision of the product. Qualitative data was obtained from the results of the effectiveness development of the

snake and ladders game. The instrument was used in product development in the form of questionnaire and field observation. Questionnaire was used for striving after the information systematically and focused from the experts and resource persons.

Data analysis technique was used in this research was test one factor of Anova analysis if data distributed normal, but if data was not distributed normal so used the alternate test non parametrik namely *wilcoxon tests*. Description of the data about the interest or the students interest to the snake and ladders game divided into three categories, were low (score < $\bar{X} - SD$), middle ($\bar{X} - SD < \text{score} < \bar{X} + SD$), and high (score $\bar{X} + SD$) (Azwar, 2003:108).

RESULTS AND DISCUSSIONS

Results

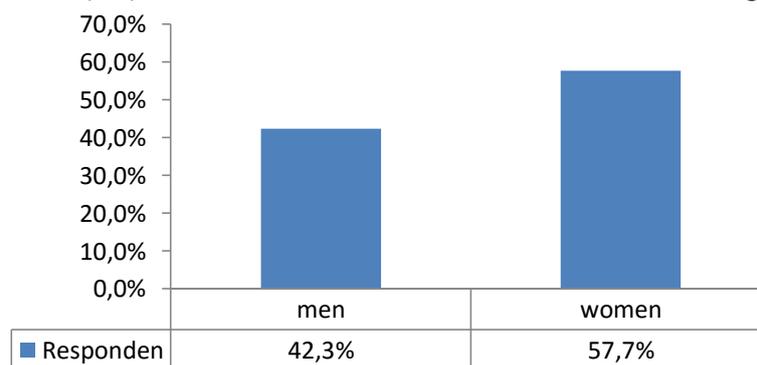
This research was conducted at State Elementary School Model Madani, State Elementary School 3 Palu and State Elementary School 7 Taipa. The process of taking data during 21 days began on the tenth of October, 2016 in the three schools. The new model in learning penjasorkes especially snake and ladders game were with the change to the rule of the game and modifying the facilities and infrastructure. The distribution of respondents based on **gender** can be seen in the table below:

Table 1. The Distribution of Respondents Based on Gender

No	Gender	The number of	%
1	The Men	33	42,3
2	The Women	45	57,7
The Total		78	100,0

Source: Result of the Research (2016)

Based on the table above can be known that the most of respondents are women amounting by 57.7% (45) and 42,3% (33) men. For more details can be seen on the following graph.



Graph 1. Gender of Respondents on The Student of Elementary School

(Source: Result of the Research, 2016)

The distribution of respondent based on **age** can be seen the following table.

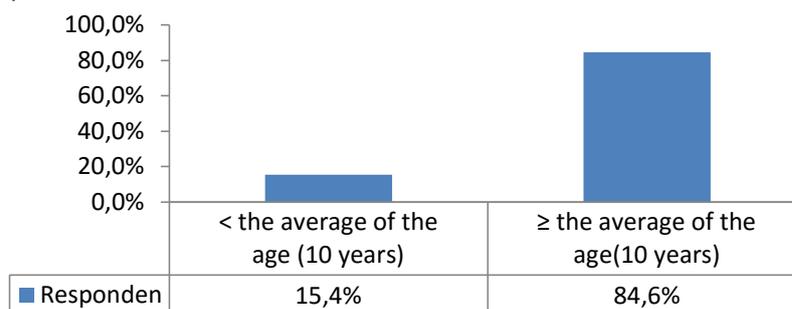
Table 2. The Distribution of Respondents Based on Age

No	Age	The number of	%
1	< the average of the age (10 years)	12	15,4
2	Age Average (10 years)	66	84,6
The Total		78	100,0

Source: Results of the Research (2016)

The average age of respondents in this research is 9.9 years rounded 13 years. Based on the table above can be seen, that the most of respondents are more or the same with the average age

of 84,6% (66 people) and 15.4% (12) is less than the age of the average. For more details can be seen on the following graph.



Graph 2. The Age of Respondents at The Student of Elementary School
(Source: Result of the Research, 2016)

Development product of snake and ladders game of State Elementary School Model Madani, State Elementary School 3 Palu and State Elementary School 7 Taipa done by giving materials snake and ladders game on penjasorkes learning Elementary School student. The material in learning physical education especially snake and ladders game by modifying on the facility and infrastructure or the rule of the game.

The expert validation can help in the development process for the specified form of snake and ladders game for student of elementary school. The experts in this research were experts penjasorkes Usman Appe, M.Pd and Hendrik Mentara, M.Pd and One of the experts modify game material was Teguh Hariyadi, M.Pd.

The indicator snake and ladders game asked to some of the experts in the snake and ladders game include compliance and ease of product, the benefits of the product and the purpose of the product. The Data quality of the game reveal using the scale of the questionnaire with the number of items was as much as 15 items that have the highest score 4 and the lowest score 1. In order to express the illustration of the quality of the snake and ladders game as a whole can be seen by using calculation as follows.

High : total score Mean + SD

Being : Mean - SD < total score < Mean + SD

Low : total score < Mean - SD (Azwar, 2003: 108).

Based on the category above, the proof the illustration about the quality of the snake and ladders game according to three of the experts in detail can be seen in the following table:

Table 3. The Distribution of Quality of Game According to the Experts

No	The quality of the Game	The number of	%
1	Less Good	2	13.3
2	Good	13	86,7
3	Very Good	0	0.0
The Total		15	100,0

Source: Result of the Research (2016)

Based on the table above, it can be concluded that from 15 items questions that covers the compliance indicator and ease of product, the benefits of the product and the purpose of the product, according to some of the experts in the game most of the model of the snake and ladders game have quality in the less good category as much as 13.3% (2 questions), categories good 86,7%

(13 questions) and very good category of 0.0%. So it can be concluded that the snake and ladders game according to several indicators that is made in the category of good, amounting 86,7%.

The result of the validation expert on the development of the game in penjasorkes elementary school students is as follows:

Table 4. The Result of the Validation Experts

No	The aspects were Validated	Comments and general suggestions		
		The experts I	The experts II	The experts III
1	The field (media of snake and ladders game)	The size of the side of each box was widened again, so it would be easy for students to move.	The size of the field could be expanded again in order that it was not hard for students	The gift of better color was preferred student of elementary school so that the students will be interested in playing.
2	Cube	The size of the dice could be enlarged again. Making material was more secure	Making materials should be made easily and made. The size of the small circles in the dice could be zoomed	The weight of the dice was not too heavy when it was thrown by the students, paying attention to the comfort and security of the students when playing.
3	The form of a picture	Image of the snake was not lurid because this game for students elementary school, making as well as possible.	Picture of the snake could be added to be three or four according to the number of ladder	The number form must be clear and the size of the number was not too different.
4	Game Rule	Given the limit time when playing so that students could be shared in the game.	The number of players must be adjusted with the size of the field. Rule of the Game was still confusing, need to be simplified again	Rule would become more clear when socialized to students, what ever is difference from the actual game and modification.

Small group test were done at State Elementary School Model Madani which numbered 24 students, during test small groups, the material development of the snake and ladders game was not running well. This may be due to the students still feel confused and fear to step when playing, this was due to the rules of the game that had been modified in order that they need time to adjustment, the students were still confused with the foot on the right or left of the two feet on each of the box. After several times the game or given instruction so they could do the game happily, happy without fear was wrong step again. Women Students did not want to play with men students because women students felt fear to be cheated and shame if they played with men students.

The effectiveness of development of the snake and ladders game when test the small group was marked with the increasing indicator of heart rate compared when the survey for the first time and the intensity of student playing also become improve that was marked with the men students or women play a game of the snake and ladder development. Increasing their pulse average of 70,49% from their pulse maximum.

The revision of this stage was based on the result of the field observation when testing small groups and entered the experts snake and ladders game. Changing product development of the model of snake and ladder was located on the infrastructure such as field will be used for playing, game rule and gaming equipment used.

Test large groups that field try out conducted in three elementary schools state in Palu City, they were State Elementary School Model Madani, State Elementary School 3 Palu and State Elementary School 7 Taipa numbered 78 students consisted of 33 men students and 45 women students. State Elementary school Model Madani with the number of 24 students, State Elementary School 3 Palu with 24 students and State Elementary School 7 Taipa with number of 30 students. The Large group try out was running well especially State Elementary School Model Madani. This was due to the fact that they have ever played this game previously, different from the two other elementary schools where at the beginning of the try out they had not been able to play well, after given the gains and the result of the product improvement by game experts so the obstacle could be addressed and the students could do happily.

The effectiveness of the model modifications snake and ladders game, indicator which shows the effectiveness of the model modifications snake and ladders game can be seen as follows:

a) The heart rate of respondents

Based on the survey which was done only able to raise the heart rate until it reaches the average 46.18 pulse per minute. When the age of the average State Elementary School Model Madani, State Elementary School 3 Palu and State Elementary School 7 Taipa were between 9-11 years so the maximum heart rate of $220 - 10 = 210$ pulse per minute.

Based on the results of the research has been done that heart rate of respondents before playing was to have the value of the average 97,0608, minimum value was 66, maximum value was 144. While for the average value of heart rate after playing the snakes and ladders was 145,0226 with minimum value was 78, and its maximum value was 174. Seen from the average before doing the snakes and ladders was lower than after doing the snake and ladders game. Until the rising the heart rate after doing snake and ladders game was 66,48 % of maximum heart rate.

b) Test Normality

Test normality conducted with the aim to see normality of distribution of the variable data research. The result of the test table of normality data using *One-Sample Kolmogorov-Smirnov Test* that the processing done with the help of the computer. The rule that was used to know the normal or not the distribution of the data if the value of $p > 0.05$ then the spread of the data berdistribusi normal, if $p < 0.05$ so the spread of the data was unnormal contributed.

Test result of variable normality showed the spread of the data was not contributed normal. This could be seen from the beginning variables pulse and the last pulse that has the significance of 0,025 and 0.15 where $p < 0.05$. Then to know the effectiveness of the model modifications of snake and ladders game, then it was done *wilcoxon tests*. *Wilcoxon tests* was used to know whether there was a difference between their pulse students before snake and ladders game with their pulse students after the snake and ladders game.

Based on the test statistic showed results of *Wilcoxon test*. With test wilcoxon obtained the value of the significance of 0,000 ($p < 0.05$). Thus it could be concluded that there was difference heart rate sample before doing the snake and ladders game with widened the heart after doing snake and ladders game.

DISCUSSION

The development model of the game was designed for the purpose of enabling all students in accordance with the roles played in sports education so it gave more learning time for each student.

The development model of the snake and ladders game was effective and efficient for the learning process penjasorkes student elementary school as follows:

The player was stated as the winner if you were able to reach the number 30 cup picture. The number of players in playing between 4 to 6 players. The result of this game was packaged in a book and vcd learning. There were several facilities and equipment that has been developed follows:

a) The Field

Wide game of 4 meters x 3.4 meters with the number of the box (30 pieces), each box have a large box 0.6 square meters. The field could be used on the floor of the plaster, ceramics, asphalt even the grass. The field form of snake and ladders game also could be drawn or painted directly on the plaster field or ceramic so that it could be used whenever students.

b) Dice

Dice was made from a combination of foam, sterofom and lakban, a dice with sides 0.2 meters from each side was given a small circle that consists of 1 circle 2 circle and so on until there were 6 circle in one side.

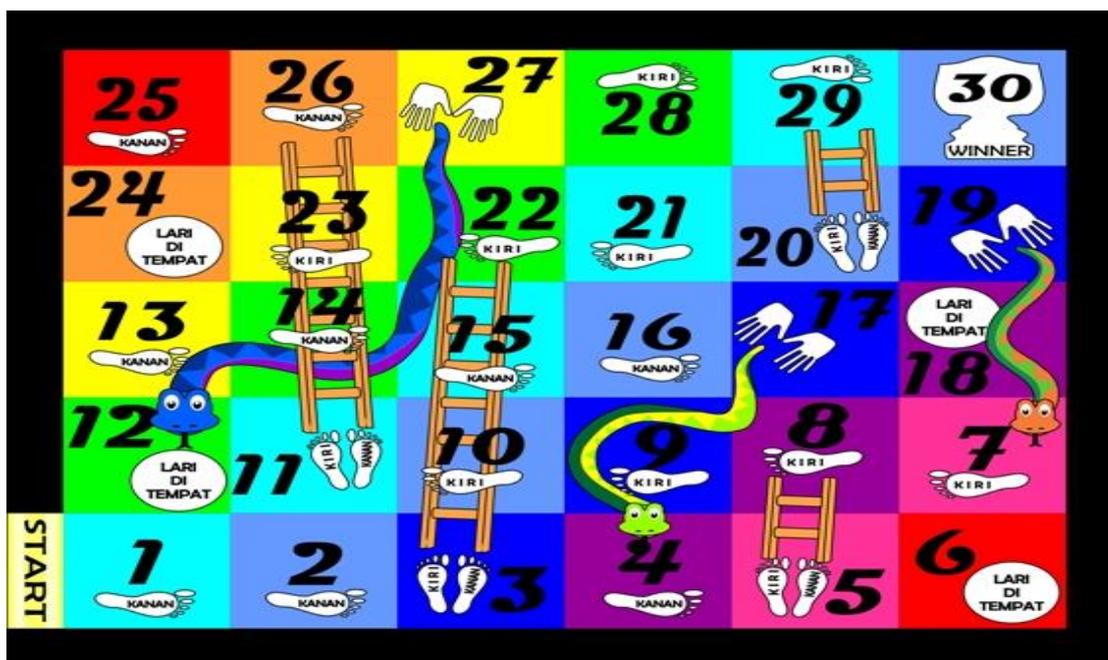
c) The picture form

In the box there were number and the image of the soles of the right feet, left feet, snakes and ladders. When the player throwed dice and visible numbers are granted then the player must perform the step with one foot, jump two feet as much as the number of snake and ladder or creeping follow the form of the serpent based on the picture.

d) Game Rules

- (1) Players started the game from the start line or number box number one
- (2) the player diddrawing to determine the player who will throw dice first and so on.
- (3) the player was only allowed to step as far as the numbers out on the dice
- (4) the player was only allowed to throw dice in one time chance
- (5) the player can pass from number to number with the following command or instructions, whether using jump one feet by using the right or left foot, jumping with both feet or creeping follow the form of the serpent, jumping with both feet follow the stairs and running in place.
- (6) The Winner was the player that reach into thethirtieth box, but if in the thirtieth minutes no player that came in the 30 box so it was determined by the way the players had reached box in the greatest number or at the furthest.

The model of the snake and ladders game in its development experience changes, improvement and revision. The revision was done based on the input and evaluation of the experts penjasorkes. This research involved two experts penjasorkes and one expert modification game. After done some revision of the good products product revision one and two so model snake and ladders game as learning media penjasorkes of elementary school studentas follows:



Picture 1. Snake and Ladders Game

There are several advantages in the snake and ladders game developed as follows:

- a) Tool and equipment the game are easy to be made and adjust with the characteristics of the students
- b) The rule of the game encourage all students to be active in playing.
- c) The product of these games can be played by the men students and womens of elementary school.
- d) This research encourages students to develop the movement skill, attitude and knowledge to solve the problems in achieving the purpose individually or the team.
- e) The research products provide direct experience on the students to the techniques and strategies to play snakes and ladder.

Some limitations in the snake and ladders game developed as games in learning penjasorkes, limitations areas follows:

- a) The development of the game time is relatively short because adjust with the clock time of lesmens penjasorkes.
- b) The field that is used was too simple because it only used the field as size as badminton field or takraw.
- c) The number of the box that is thirty box still considered less to competition a team.

CONCLUSION AND SUGGESTION

Conclusion

Based on the result of research and discussion so it could be drawn conclusions namely; 1) the form of the development of the game was appropriate for learning media penjasorkes in elementary school covers facilities (means and infrastructure) and playing equipment and the rule of the game. The existence of the game was expected to play in the learning penjasorkes to be more exciting and interesting. 2) the development of the snake and ladders game was very effective for learning penjasorkes, it could be shown with data research that widened the heart of an average of

students got increasing after doing a snake and ladders game of 66,48% of maximum heart rate, it showed that the snake and ladders game could improve students fitness so it was effective for learning.

Suggestion

The development of the game is a product that has been produced from this research and can be used in penjasorkes and as an alternative for the delivery of learning materials games for elementary school students by penjasorkes teachers. suggestions that can be presented with the necessity of the utilization of products namely: 1) this game products can be used for learning media movement for elementary school students both men students and women students, 2) product can be utilized in all categories of schools either superior schools, state schools or private schools, 3) utilization of gaming products should still refers to the purpose of the penjasorkes learning, 4) for further research in order to develop more rules, the number of the box and the number of players.

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CHARACTER VALUES IN PRIMARY SCHOOL STUDENTS OF LABSCHOOL UNNES

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Abstract

Emerging problems in society such as corruption, sexual crimes, vandalism, mass brawl become a popular topic of discussion in the mass media and seminars. Since 2010 has been the introduction and implementation of character education is expected to have implemented by all educational units, the researchers wanted to see the description and evaluate the implementation of character education in the educational unit. This research is a descriptive quantitative that use questionnaire survey method held in SD Labschool Unnes in July 2016. The population numbered 214 students. Sampling obtained using purposive sampling with criteria of grade four students, Five and Six totaling 111 students. The results this research showed as many as seven students have very good or by category 6.3%, 28 students fit in good category or 25.2%, 39 students get category good enough or by 35.1%, 31 students in the unfavorable category or 27.9%, and 6 students are in the category of very less or by 5.4%. Based on the analysis refers to the results of research can be explained that the application of the values of character education in primary schools Labschool Unnes in the category good enough. This is influenced by several reasons including, the influence of internal factors of students, a factor of the effect of school administrators, headmaster and teachers, as well as the influence of environmental factors.

Keywords: Character Education, Education Unit, Students

INTRODUCTION

The issue of culture and national character has become the public spotlight. Issues which emerged in the society such as: corruption, sex offenses, vandalism, mass brawl, consumptive economic life, and unproductive political life became a main topic of discussion in the media, seminars, and on various occasions. Alternative that are often raised to overcome, or at least reduce those problems is through education.

Education is considered as an alternative preventative because education will build a better future generation. As an alternative preventative, education is expected to improve the quality of the nation's youth in various aspects that can minimize and mitigate the causes of cultural and nation character issues. Education has a role in building the nation's character (character building).

Megawangi as leader of character education in Indonesia call it with 9 Pillars of character education, namely: (1) the love of God and truth; (2) responsibility, discipline, and self-reliance; (3) trust and honesty; (4) respectful and polite; (5) love compassion, concern, and cooperation; (6) self-reliant, creative, work hard, and never give up; (7) justice and leadership; (8) good and humble; and (9) tolerance, love peace and unity (Ummi, 2011). Character education which developed and has

been socialized by *Pusat Kurikulum dan Perbukuan* contains 18 character values, but this 18 values is not "Fixed price", these values can be developed in accordance with the characteristics of the area/unit of education.

With the introduction of the implementation of character education since 2010 and expected to have been implemented by all educational units, the investigator in accordance with the duties and the function will see the description and evaluate the implementation of character education in the educational unit with a cultural background that is multicultural, multiethnic and multi-religious. This study is expected to give an idea of the extent of the application of the values character education in the education unit, which is expected from this research activity there is availability of map document profile character values in the education unit.

METHOD

Type and Research Design

This research is a descriptive quantitative research that is about; application of values character education in primary schools Labschool. In this study, the researchers simply wanted to investigate the description of application of the values of character education in primary school Labschool in the learning process in the school. The method used in this study is survey method using a questionnaire that was designed by the researchers to obtain real data. The collected data then analyzed using the formula categorization (Sudijana 2011: 239) and further to determine the values of character education students.

Population and Sample

The population in this study is overall students of Unnes Labschool Elementary School totaling 214 students. Given the population in this study are included in large quantities, then not all of these populations sampled or became the subject. Only a portion of the population sampled. Next, the sampling technique in this research is using purposive sampling techniques with the criteria for elementary school students Labschool Unnes upper class or grade student Four, Five and Six totaling 111 students.

Research Variables were Formulated Operationally

The variables in this study is a single variable, namely the values of character education of Labschool Unnes elementary school students.

Research Instruments and Data Data collection technique

Instruments and data collection techniques in this study using a questionnaire. The research was carried by step of distributing questionnaires to every student and then the students were instructed to fill in the questionnaire or answer questions according to the instructions.

Data Processing and Data Analysis Techniques

Once all the required data collected, the next step is analyze the data using the following steps:

1. Summing scores of each student from each of the questions obtained from each item questionnaire questions on the application of the values of character education in Elementary School Labschool of each student.
2. Each number on each question item is summed then consulted with the assessment norms table values of character education.

Table Character Education Assessment Norms (Anas: 2011: 329).

Interval Score	Category
$M + 1,5SD < X$	Excellent
$M + 0,5SD < X < M + 1,5SD$	Good
$M - 0,5SD < X < M + 0,5SD$	Good Enough
$M - 1,5SD < X < M - 0,5SD$	Unfavorable
$X < M - 1,5SD$	Very Less

As a percentage of each assessment norms by the formula:

$$\frac{f}{N} \times 100\%$$

Explanation:

F : frequency

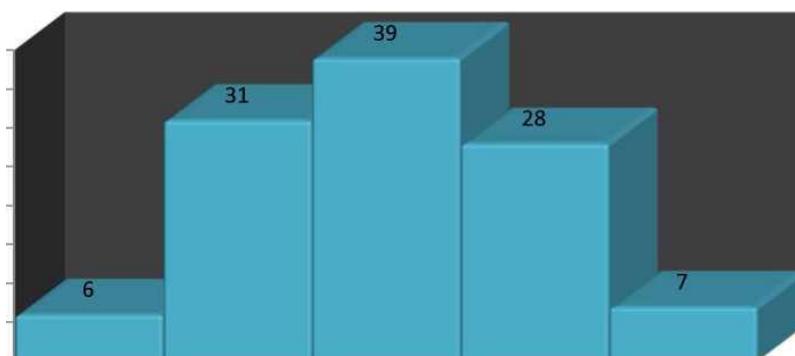
N : number of subjects

RESULTS AND DISCUSSION

Research Result

The table below shows that the extent of the application of the values of character education in primary school Labschool Unnes which has excellent category as much as 7 students or 6.3%, good categories were 28 students or 25.2%, good enough category as 39 students, or by 35.1%, the unfavorable category as many as 31 students or 27.9%, and the students in the category is very less as 6 students, or 5.4%.

No	Values	Category	Quantity	Percentage
1	$281 < X$	Excellent	7	6.3
2	$259 < X < 281$	Good	28	25.2
3	$237 < X < 259$	Good Enough	39	35.1
4	$215 < X < 237$	Unfavorable	31	27.9
5	$X < 215$	Very Less	6	5.4
Total			111	100 %



Very Less Unfavorable Good Enough Good Excellent

Bar chart Application Values Character Education in Elementary Labschool of Unnes

DISCUSSION

Based on the analysis of the research results can be explained that the application of the values of character education in primary schools Labschool Unnes in the category good enough. This is influenced by several reasons including, namely, the influence of internal factors of students, the influence of school administrators, principals and teachers, as well as the influence of environmental factors.

factor of students

Students or children are social beings, so that all forms of activity that are interacting with other people may not be controlled, so as to affect in terms of the application of the values of character education, in addition, it is also in the process of filling the questionnaire likely students are less serious that affected the results.

factor of Teacher

In the process of teaching and learning, a teacher has a very important task. In the process of learning by teacher to the students regarding the inculcation of values of character education in the observation and research done on teachers in this interview using a questionnaire, in which the results are very positive. When compared with the results obtained from the student to the contrary, it is back again on factors of students, which students in this case are the children who have the origin nature of play and it can provide diverse influences on students' character.

So that needs to be considered, especially by teachers in consultation with the parents to give attention to a child about the child's character. So that in practice many activities students can do will make the physical condition is dynamic so the results may not be appropriate as expected, but researchers have been trying to get the maximum results and in truth.

factor of Principal

The principal is functional staff of teachers who were given task to lead a school where organized learning process, or where there is interaction between the teacher who gave lessons and students as recipients of the lesson. From this the principal's role is as a leader in education units to perform tasks and management of education unit that he leads in his school environment.

Principal is a very influential person in the effort to inculcate the values of character education in schools. Because of principal is the leader role that provides facilities to the teachers to be more active in learning, in this case principal cannot be separated in terms of providing opportunities and facilities for teachers to attend training and professional development of potential teachers. With the hope that teachers will be able to provide learning by combining inculcation the values of character education to students

factor of environment

Support from the school environment also encourages success in growing efforts values of character education to students. A school will create conducive environment if the surrounding environment participated and keep the atmosphere and comfort so that teaching and learning can be done well. The availability of various facilities and infrastructure will support the learning process as the efforts in the inculcation of the values of character education for elementary school students of Labschool Unnes.

Research conducted using the instrument of environmental observation of physical development of the values of character education in elementary schools Labschool Unnes can be explained that the school environment that consists of several aspects studied, covering the school

environment in the classroom / laboratory, outside the classroom, library, teachers, cultural educational unit, can be said to be good, it is evidenced by the results of the research questionnaire largely unanswered by the availability completeness of facilities and infrastructure, as well as the efforts of teachers to support the achievement of inculcation of the values of character education for students.

Administrators of Labschool of Unnes

Results of the research conducted using a questionnaire aimed at managers of Labschool Unnes of some of the questions and statements on the interview directly, that the implementation of character education for students is already sought by the manager, which was delivered to the principal continues to teachers to be delivered to students with expectations of interest in application of the values of character education can be achieved.

CONCLUSIONS AND RECOMMENDATIONS

Overall application of the values of character education in primary schools Labschool Unnes have a good enough category, it cannot be separated from the efforts of some of the schools involved in learning and implementing character education, among others: teachers, principals, school administrators or foundation, and school environmental factors that contribute to support the application of the values of character education.

Although in this study has managed to find out the extent of the application of the values of character education for elementary school students Labschool Unnes of course have the weaknesses and limitations, although it has been attempted to be done optimally control and as objective as possible. The weaknesses and limitations need to be put forward for consideration in interpreting the results achieved. Some of the limitations found in this study, namely:

1. Researchers cannot control whether students sampled in activities outside of school can affect implementation of character education students.
2. This study only discusses the extent to which the application of the values of character education for elementary school students Labschool Unnes upscale.
3. The absence of further monitoring after the study, so that the effect is only temporary.

Based on the conclusion, suggestions can be submitted include:

1. For Teachers
Expected to be more optimize lesson hours and learning lessons that support the implementation of character education for students so that the relatively short lesson hours can provide benefits and goals can be achieved.
2. For the Headmaster
It is expected to be able to provide counseling and facilitate teachers in dissemination of the values of character education for their students. In this case, by providing facilities such as training and upgrading related to character education.
3. The business Labschool Elementary Unnes
Managers are expected to improve the quality of teachers through training, counseling or education to a higher level. Thus, educators and employees in Primary School of Labschool Semarang State University will be better for academic and non-academic progress achievement.
4. For Students

Expected for students to pay more attention to the material presented by the teacher so that what was said can be understood and provide new knowledge for students. The knowledge that has been held can be realized in the form of an attitude that reflects the love of the homeland, honesty, obey school regulations or the environment in which students live, and attitudes included in the 18 lattice character education instrument.

5. For Schools

Expected that the school to improve facilities and infrastructure in order to become decent learning materials. Thus, the students feel comfortable and safe during the learning process takes place. For school, the waste separation organic, inorganic, and glass so that the waste can be recycled into items that can be utilized more valuable and can be used to learning media.

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**EFFECT OF COOPERATIVE LEARNING MODEL TYPE TGT(TEAM TOURNAMENT GAMES)
MOTIVATION TO LEARN AND MOTOR SKILLS STUDENT DORMITORY CLASS VII
(A Case Study of MTs PERSIS Students Tarogong Garut)**

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Abstract

The importance of the role physical education in schools is the teacher must make students can be motivated to learn intrinsically or extrinsically. The purpose of this study was to identify the effects of cooperative learning model TGT and conventional learning model to motivate learning and motor skills boarding students of class VII, method used in this study using a pretest-posttest control group design with a raffle of two groups then drawn again to experimental group and the control group (random assignment). Population determined in this study were students of class VII in cottage PERSIS Tarogong Garut who reside in dormitories (boarding school) were 30 students with a sampling technique using total sampling technique and timing of research over 12 meetings in 4 weeks, every week research conducted for 3 days. The results of this study using the calculation hypothesis testing using Manova (Multivariate Analysis of Variance) using SPSS software program series 16. Based on the hypothesis test average motivation to learn the lessons of physical education students taught by cooperative learning model of 14.875 TGT greater than the average student motivation taught by conventional learning model which is equal to 5.25. Likewise for the average motor skills in physical education lessons the students taught by cooperative learning model TGT by 6.681 greater than the average motor skills students taught by conventional learning model which is equal to 4.648. So TGT cooperative learning model is better than the conventional learning model to motivate learning and motor skills class VII student dormitories in physical education lessons.

Keywords: TGT, Conventional, Motivation, Motor ability.

IMPROVING MOTIVATION AND STUDENT'S ACHIEVEMENT IN LEARNING PHYSICAL EDUCATION THROUGH FORMATIVE ASSESSMENT

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Abstract

The purpose of this study is to know the influence of formative assessment using the feedback and without feedback to enhance motivation and student's achievement in physical education. The method employed by this study is quasi experimental with a counterbalanced design. The population involved in this study was fifth classes of eighth grader of laboratory school in UPI, and the samples were two classes of them selected using cluster random sampling. The instrument to measure motivation using The Sport Motivation Scale (SMS-28), and instrument to measure student achievement in physical education used in observation and self-assessment. The data are then analyzed using parametric test (Friedman and Mann Whitney-U). The result of this study shows that, (1) there is a significant influence of formative assessment using feedback to enhance motivation and students' achievement in learning physical education; (2) there is a significant influence of formative assessment without feedback to enhance motivation, but there is no significant to students' achievement in learning physical education; (3) there is a difference influence between formative assessment using feedback and without feedback to enhance motivation and student's achievement in learning physical education.

Keywords : Formative assessment, feedback, motivation, and students' achievement in learning physical education.

INTRODUCTION

Learning of physical education is an integral part of the educational program as a whole. The study aims to develop aspects of cognitive, affective, and psychomotor, through physical activity. Teachers in implementing the learning process must find out whether learning objectives are achieved or not by students? The goal is achieved or not, certainly needed that could monitor progress assessment student learning on each unit of instruction provided by the teacher, one is a formative assessment.

According to Popham (2008:6); Fook & Sidhu (2013) "Formative assessment is a process used by teachers and students during instruction that provides feedback to adjust ongoing teaching and learning to improve students' achievement of intended instructional outcomes." Popham (2008: 6) further defined formative assessment as follow: "Formative assessment is a planned process in which assessment-elicited evidence of students' status is used by teachers to adjust their ongoing instructional procedures or by students to adjust their current learning tactics." From the definitions stated, one can conclude that formative assessment is assessment conducted at regular intervals of a student's progress with accompanying feedback in order to help to improve the student's performance.

Next formative assessment explained, (Zaenul, 2008) that, "formative assessment is a diagnostic assessment, which provides feedback for teachers and students regarding to ongoing instructional process." An assessment called "formative" if the findings obtained were substantially used and studied to achieve the learning objectives. In addition, formative assessment covers all

activities involving teachers and students, ranging from obtaining into utilizing information, which aims to transform teaching and learning activities in order to achieve defined instructional goals (Black & William, 1998). In accord with these opinions, the essence of formative assessment is learning outcomes assessment to improve learning process, so that teacher and student have involved together in learning process to improve approach and ongoing learning process in order to achieve more effective learning.

Physical education teacher in the learning process have to an understanding in carrying out a formative assessment, because it is part of an integral part of the learning process. The underlying reason, Popham (1995:7) explains that: "1) assessment is a tool to diagnose the strengths and weaknesses of students in the learning process; 2) assessment is useful to monitor the progress of students; 3) assessment helps determine the level of students; 4) assessment can determine the effectiveness of the learning that has been designed by the teacher." Those Opinions confirmed that formative assessment with learning will be more effective because the teacher can monitor and diagnose the strengths and weaknesses of students in mastering the material provided, so that it can be known the position of students from other students in the learning process.

The problems that occur in the field related to the implementation of formative assessment that is still in existence **misconception committed by teachers during the formative assessment.** Broadfoot (1996); Zaenul (2008) described that “teachers too focused on responsibility in implementing summative assessment, so it doesn’t help learning process and they are simply being a judge at the end of learning process.” Zaenul (2008) explained that, “lack of attention to the role of formative assessment caused by several factors, 1) Educational policy, especially the national education reform conducted by external parties at macro level of school education; 2) Teachers always feel lack of time to complete curriculum content scope; and 3) Assessment hasn’t become an integral part of learning process.” Further, assessment is often perceived incorrectly by educational practitioners and public communities, it has considered as the process of taking final decision on learning outcomes. It is rarely seen that assessment used as an important component in learning process. Assessment should be treated as a learning process apparatus rather than just final judgment.

This problem occurs in teaching physical education, in which teachers assess students’ learning outcomes are still ignoring the learning process, it means process oriented formative assessment is often overlooked by teachers. Most of them didn’t conduct formative assessment after giving a learning unit materials. Even a fraction of teachers who conduct data formative assessment or obtained information from such assessment are not followed up by providing feedback, it implies such data are not meaning for the success of the learning process. Teachers more focused on the end of results, in the form of derived data from summative assessment which tends to undermine the learning process.

If such as these conditions allowed to continue in national education system, it will be very dangerous for sustainability of education in a future especially of raising competent children of the nations. Consequently, its long-term impact is that student will not have sufficient ability to prepare themselves for learning throughout life. That was also confirmed by Fook & Sidhu (2013) that, “assessment in higher education is insufficient to the task of preparing students for lifelong learning.” Thus, formative assessment is very important to be returned to its role and function, that allow various strengths and weaknesses possessed by both teachers and students could be early detected.

It requires involvement of teachers and students in managing the process of teaching and assessing themselves after they finished learning. In the end of learning process, the learning objectives could be reached effectively.

In addition, if the teacher ignored the formative assessment in any learning process will affect the improvement of student learning motivation, motivation of learning students will arise because of the intrinsic factor in the form of the passion and desire of successful learning needs, encouragement, hope and ideals. While the extrinsic factor is the existence of the award, a conducive learning environment, and activities of interest. Both of these factors caused by the presence of certain stimuli, so that students wishing to undertake learning activities that are more vigorous and spirited (Hamzah, 2011:23).

Implementation of formative assessment is more emphasized to the giving feedback, the feedback is information given to students about the quality of his performances, both related to the mastery of the knowledge, attitudes, and psychomotor. Results of the tests already given to students after being given feedback in the form of corrections can increase the motivation to learn and the learning outcomes of students, because students know the strengths and weaknesses as well as the students learned how to fix weaknesses in himself. So the Hamzah explained that: "Knowledge of the results of the work is a way to improve the learning motivation of students." Therefore a formative assessment is very important in the learning process to enhance motivation and student learning outcomes in learning of physical education.

To review more focus on this issue then the researcher formulates the problem in some of the research questions as follows: 1) What is formative assessment using the feedback give significant influence towards increasing motivation and students' achievement in learning physical education? 2) What is a formative assessment without feedback gives significant influence towards increasing motivation and students' achievement in learning physical education? 3) What is a difference significant influence among the formative assessment using feedback and without feedback to increased motivation and students' achievement in learning physical education?

METHOD

The method employed in this study is quasi-experiment and counterbalanced design (Muhammad Ali, 2010). In the meantime, the population consists of six classes of eight graders in School Laboratory Universitas Pendidikan Indonesia are 167 students. From the population, some classes are chosen to be the sample through cluster random sampling. The samples are then classified into class B and class E. There's not control group on counterbalanced design, accordingly both group of samples used as the experimental group were given physical education learning and assessed by formative assessment using feedback and without feedback. To measure the student motivation in learning physical education using The Sport Motivation Scale (SMS-28) (Vallerand, 1995). To measure learning achievement in physical education by formative tests on psychomotor domain in each basketball, volleyball, softball, and shot-put learning units. The data analysis technique employed in this study are Friedman Test and Mann Whitney U Test, SPSS 21 for Windows (Santoso, 2013).

RESULTS AND DISCUSSION

The data collected are analyzed through statistical measurement. The data themselves include students' motivation and learning outcome in physical education. The Data calculation results described in the form of average scores on each session and standard deviation for each study variables.

Table1. The results of average scores and standard deviation in student motivation

Variable		Average	Standard Deviation
Formative assessment using feedback	Session 1	112,4800	4,073
	Session 2	113,2000	5,642
	Session 3	113,7600	5,775
	Session 4	117,6400	7,034
Formative assessment without feedback	Session 1	72,3600	11,919
	Session 2	70,3600	7,988
	Session 3	68,7600	8,074
	Session 4	75,2400	9,579

Table2. The results of average scores and standard deviation in learning outcomes

Variable		Average	Standard Deviation
Formative assessment using feedback	Session 1	1,5800	0,400
	Session 2	1,9400	0,219
	Session 3	2,0000	0,000
	Session 4	1,9800	0,100
Formative assessment without feedback	Session 1	1,6600	0,374
	Session 2	1,5600	0,390
	Session 3	1,7400	0,254
	Session 4	1,7600	0,357

Analysis requirements tests is necessary before the hypothesis test, to determine normal and homogenous data. Based on the test results of normality by Kolmogorov-Smirnov test at significance level $\alpha = 0.05$, students' motivation and student achievement in learning physical education, data on several meetings are not normal. Furthermore, based on the results of homogeneity by Levene Test, students' motivation and student achievement in learning physical education data on several meetings are not homogeneity. Therefore, hypothesis test is not feasible to use parametric statistical tests. Thus, hypothesis in this study analyzed by non-parametric statistical tests using Friedman Test and Uji Mann Whitney U Test (Santoso, 2013).

Test results of non-parametric statistics formative assessments using feedback and without feedback through Friedman Test, as shown in Table 3.

Table 3. Test results of non-parametric statistics formative assessments using feedback and without feedback through Friedman Test

	Formative assessment using feedback		Formative assessment without feedback	
	Motivation	Learning outcomes	Motivation	Learning outcomes
N	25	25	25	25
Chi-Square	19,215	38.629	8,111	6.497
Df	3	3	3	3
Asymp. Sig.	0,000	0,000	0,044	0,090

Based on the calculation above, student’s motivation and student achievement in learning physical education variable with formative assessment using feedback gained sig. $0,000 < 0,05$ then H_0 rejected. It means that there’s significant effect of formative assessment using feedback towards students’ motivation and student achievement in learning physical education. Meanwhile, furthermore, based on hypothesis test results students’ motivation variable using formative assessment without feedback gained value sig. $0,044 < 0,05$ then H_0 rejected, it means that there’s significant effect of formative assessment without feedback towards students’ motivation. Whereas student achievement in learning physical education variables gained value sig. $0.090 > 0,05$ then H_0 accepted, it means that there’s not significant effect of formative assessment without feedback towards student achievement in learning physical education.

Table 4. Test results Mann-Whitney U

Test Statistics ^a		
	Motivasi	Student Achievement
Mann-Whitney U	,000	186,500
Wilcoxon W	325,000	439,500
Z	-6,065	-3,926
Asymp. Sig. (2-tailed)	,000	,000

a. Grouping Variable: Treatment

Based on results using Mann Whitney U Test students’ motivation and learning outcome variable gained value sig. $0,000 < 0,05$ then H_0 rejected, it means that there’s significant difference effects between formative assessment using feedback and without feedback towards students’ motivation and student achievement in learning physical education. In according to average scores gained on each sessions of formative assessment using feedback, it is better towards student motivation and student achievement in learning physical education.

DISCUSSION

There’s significant effect of formative assessment using feedback towards students’ motivation and learning outcomes in physical education. Formative assessment is a part that is an integral part of the learning process, which aims to diagnose the strengths and weaknesses, as well as useful to monitor the progress of students so as to determine the effectiveness of the learning that has been designed by the teacher (Popham, 1995). Feedback in formative assessment mandatory is given, in the context of physical education learning, Lutan (1997); Suherman (1998) explains, "The feedback is done by observing the way teachers are the students individually and assess how students do activities as well as what must be done to improve the students' ability of teachers." The formative assessment with feedback is very useful for students, namely to "Helps the student gauge his or her progress, identify weaknesses, and improve performance, as well as promotes reflection and professional development, which leads to lifelong learning. When using one’s own feedback along with others to promote a deeper understanding of an event, the student gains knowledge and further develops his or her skills' (Campos, 2013).

Feedback is the giving of information relating to the ability of the students and teachers to further enhance the ability possessed by both of them, both in the context of learning as well as in the training of sports so students know what the flaws associated with a given material against the

mastery as well as student spirit to fix it. Feedback in formative assessment aims to encourage students to continue practicing, reflecting an effective teacher behavior, helps students to assess the appearance (the ability) which could not be seen and perceived themselves, and encourage teachers to assess how relevant aspects of learning with the ability level of students in mastering a task as desired by his teacher (Suherman, 1998:124).

From some of the purpose of use feedback in formative assessment, it turns out that the feedback was able to increase motivation of students to keep practicing so that student learning outcomes by itself is definitely on the rise. Cauley & McMillan (2010); Clark (2011) that, ' formative assessment now recognized as one of the most powerful ways to enhance student motivation and achievement. Next in the research, Campos (2013) explained that, *"through the use of formative feedback students are able to assess if they are properly performing the learned skills or if they need to alter their practices to correctly implement the learned skills."*

There's significant effect of formative assessment without feedback towards students' motivation. The formative assessment process involves interpreting evidence of student learning to determine the position in the lesson, what needs to be done and how best to achieve it. Determination of the position of students in learning will be more interesting and students would be more homogeneous in mastering the material to be studied, so that students are more interested and motivated in the lesson, because the teachers are given clear directives. Mappedasse (2009:18) explains, "The motivation as a will in themselves and attempt to achieve higher goals." These conditions encourage a person to achieve a goal with the encouragement that comes from inside him. Motivation intrinsic who became a powerful impetus to further progress and grow. Hamalik; Firmansyah (2009:11) explains, 'The motivation that is covered in the learning situation that is sourced from the needs and goals of students own '. While according to Sardiman (2006:83) explains that, "The motivation of the motives is becoming active and functioning does not need to be stimulated from the outside because inside every individual already there is an urge to do something." In other words, individuals compelled to behave towards the goal without any driving factor from the outside. So in the without any feedback in the learning process if students have a powerful force within him, then the motivation students tend to be on the rise. But the difference with increased student learning outcomes, as described by Campos (2013) bahwa, *"if feedback is given but not received, it still results in missed opportunities for learning. In the end, these missed opportunities contribute to a loss of the learning potential."*

The opinion pointed out that feedback in formative assessment very important implementation done by teachers, so the effect on student learning outcomes. In the research Page (1998) in Djwandono (2009) explained that, "students who rated and also received comments from teachers about the wrong answer had better achievement than students who only rated with numbers or letters only, with given the comments by the teacher, students will understand what to do."

CONCLUSION AND SUGGESTION

There's significant effect of formative assessment using feedback towards students' motivation and student achievement in learning physical education; there's significant effect of formative assessment without feedback towards students' motivation; There's not significant effect of formative assessment without feedback towards students' achievement in learning physical

education. There's no difference effects between formative assessment using feedback and without feedback towards students' motivation and there's difference effects of formative assessment using feedback and without feedback towards student achievement in learning physical education. Formative assessment using feedback is better than without feedback towards student achievement in learning physical education. Based on these results, author wanted to give a suggestion to physical education teachers that, formative assessment using feedback should be given by teachers in learning process because it is better than formative assessment without feedback towards students' achievement in learning physical education.

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**BASIC DETERMINANT ON SUB URBAN AREA RELATED WITH POSTPARTUM OBESITY
(A Case Study in District Subah, Indonesia)****Oktia Woro Kasmini H¹, Irwan Budiono², Galuh Nita P³, Nur Siyam⁴, Visca Anindya F⁵**

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Abstract

District Subah is a sub urban region exposed by urban socio culture with postpartum obesity rate up to 80%. The purpose of this study is to prove the underlying factors related with obesity to postpartum mothers on Subah Public Health Centre work region which is a sub urban area. It is an analytic description research by cross sectional design. Population is all 6 – 12 months postpartum mothers on Subah Public Health Centre work region in 2015. Samples numbered 80 people chosen by proportional random sampling. Instruments used are anthropometric measurement device, questionnaire form, FFQ (Food Frequency Questionnaire) and IPAQ (International Physical Activity Question) short form instrument. Statistical test using Chi Square. Research result shows the relation between education ($p = 0,041$), physical activity ($p = 0,004$), energy consumption ($p = 0,003$), family history ($p = 0,002$) and obesity, and there is no relation between exclusive breast feeding ($p = 0,300$) with obesity on postpartum mother. Factors relating to geography region which is a sub urban area is a basic determinant that needs attention, such as the socio cultural changes, economic growth and high urbanization factor can affect people life style including the pattern of food consumption.

Keywords: education, physical activity, energy intake, family history

INTRODUCTION

Obesity is a state shows imbalance between height and weight due to fat tissue accumulation in the body resulting to weight advantages beyond ideal measure. Obesity caused by imbalance between energy intake and energy output. Obesity can happen to anyone, whether a toddler or an adult. Yet in this research, the discussion focuses to obesity on postpartum mothers who do not work in order to contribute to family income. Postpartum is a relieve period and reverse to non-pregnant condition state, lasts up to 12 months.

According to Lee (2011), maternal weight increase over 6% within 6 months postpartum compared to pre-pregnancy weight. While Althuisen (2011) stated 20% woman after 12 months post partum still conserves her body weight over or equal to 5 kg compare to pre-pregnancy condition. Factors affecting the change of maternal weight post partum are the level of education, economic status, physical activity, heredity, sleep, energy intake, saturated fat intake and weight gain during pregnancy (Ostbye, 2012; Grace, 2010; Althuisen, 2011). Kandala (2014) concluded that the geographic, demographic and environmental factors as well as women who are in developing country affect the postpartum obesity level.

The postpartum maternal weight gain is considered as major public health problem for mainly its high contribution to obesity in the community (Kac, 2004; Kinnunen, 2007). In line with that, obesity has various risk of disease following it such as diabetes mellitus, hypertension, cardiovascular disease which cause human resource quality decrease, health financing burden increase and a leading cause of death to adult throughout the population (Simas, 2015; Sasson,

2014). Study result also indicates the failure to decrease body weight gained during pregnancy can contribute to subsequent pregnancy body mass index and increase risk of mother and infant complication (Xiao, 2014).

Prevalence of overweight and obesity pregnant women become nearly twice as much in last 20 years from 24% in 1983 to 45% in 2007 (CDC, 2007). This condition is affirmed by statement that overweight and obesity prevalence increase 5% annually (Ziraba, 2009). Based on preliminary study in January 2015 on Puskesmas Subah work region, Sector Kalimanggis and Sector Tarub, of 20 mothers with postpartum period over than 6 months to 12 months, 10 persons (50%) have been categorized as obese I (BMI 25.0-29.0 kg/m²) and 6 persons (30%) have been categorized as obese II (BMI ≥30 kg/m²). Subah Public Health Centre work region is a sub urban area of Jawa Tengah Province, Indonesia. It is far from city centre yet exposed by urban socio culture since geographically located on road access to the provincial capital with a low economic level and most of the mothers are not working.

Considering this background, a research conducted to prove the underlying factors related to education, physical activity, energy intake, exclusive breastfeeding and family history of obesity on postpartum mother on Subah Public Health Center work region, District Batang, Jawa Tengah Province, Indonesia.

METHODE

Method used is analytic descriptive with cross sectional approach. The independent variables consist of education, physical activity, energy intake, exclusive breastfeeding, and family history while the dependent variable is obesity to postpartum mother related with sub urban region. Confounding variables are variables strictly controlled which consist of age, disease history, drug influence and culture. The population in this research is with 6 - 12 months post partum mothers who reside on Subah Public Health Centre work region in 2015. The sample size is determined by the formula :

$$n = \frac{Z^2 1-\alpha/2p(1-p)N}{d^2(N-1)+Z^2 1-\alpha/2p(1-p)}$$

(Sujarweni, 2012)

And determined as many as 80 persons. Subah Public Health Centre work region consists of 17 village, with a population of 422 6-12 months postpartum mothers, so that the sampling technique in this research using proportional random sampling. The inclusion criteria are 1) postpartum mother aged 20-35 years, 2) not currently taking medication 3) no history of chronic disease 4) reside on Puskesmas Subah region.

Primary data collection technique is done by anthropometric where weight and height are measured directly. To indicate education, exclusive breastfeeding and family history, interview and questionnaire instrument are used. Energy intake data obtained by semi quantitative Food Frequency Questionnaire (FFQ). While to indicate physical activity using International Physical Activity Question (IPAQ) short form instrument. Secondary data collection obtained by refer to public health centre annual report data related with mothers have 6-12 months babies in 2015 and their place of residence. Statistical test is conducted by chi square test and SPSS.

RESULT AND DISCUSSION

Subah Public Health Centre work region located on Subah Highway, Subah District, Batang. This region is a busy north coast road, connecting Jawa Barat Province and Jawa Tengah Province. As so, it's exposed by socio cultural, demographic and economic as consequences of its geographical location. Bivariate statistic test results are as follow

Table 1: Variables statistic test result

Variables	Category	Nutrition status				P.Value
		Obesity		Not Obesity		
		f	%	F	%	
Education	Low	35	44	24	30	0,041
	High	7	8,8	14	17,5	
Phisical Activity	In aktive	29	36,25	14	17,5	0,004
	Minimally aktive	13	16,25	24	30	
Energy Intake	Hepa aktive	-	-	-	-	0,003
	Defisit	-	-	-	-	
	Insufficient	6	7,5	17	21,25	
	Sufficient	16	20	14	17,5	
Exclusive breast feeding	Non Exclusive Breastfeeding	29	36,25	22	27,5	0,300
	Exclusive Breastfeeding	13	16,25	16	20	
Family History	No History	13	16,25	25	31,25	0,002
	Has History	29	36,25	13	16,25	

Education and obesity to postpartum mother

From statistical test result, can be concluded that there is a significant relation between education and obesity. Of the 42 (52.2%) respondents who are obese, the majority (83%) has low education. Or on this research indicates of the 42 (52.2%) respondents who are obese, 35 (44%) respondents have low education and 7 (8.8%) respondents have high education. While of 38 (47,5%) respondents who are not obese, 24 (30%) respondents have low education and 14 (17,4%) respondents have high education.

A person with higher education level will be better in receiving, processing, interpreting, and using information especially knowledge about nutrition. One with high education level has high possibility to be able to apply health promotion or health education available on the environment whether it is facilitated by health institution or non-health institution. In this term, the health education given in an attempt to influence other, whether individual, groups or communities to implement healthy behaviour. Include parenting behaviour in nutrition. As stated by Diana (2012) a person who has senior high school education and above, has 20% lower risk of obesity compare to one with junior high school education and below. Research in China and Africa, discovered that obesity more common to be found among women with low education. Event obesity occure 45-50% on those with low education. The increase of Obesity is higher on low education group who has low economic status (Ziraba, 2009; Jin, 2013). Research on post partum mothers obtained that mothers who do not complete post-secondary education allow for five times as much to maintain their weight more than 5kg after giving birth compare to mothers who able to complete a high school education (Althuizen, 2011).

A Physical activity and obesity on postpartum mother

Physical activity is a movement of body muscles and its supporting systems. The amount of energy required depends on numbers of muscles moving, time and load. Lack of physical activity is one of increasing obesity reason, due to food consumption is more that required.

Based on statistical test result can be concluded that there is a significant relation between physical activity and obesity. Of 29 (69%) mothers who are obese have mild activity and no one with heavy physical activity. Based on group of obesity and non-obesity mothers considered from level of physical activity, obtained a result that of 42 (52.5%) respondents who obese, 29 (36.25%) have mild physical activity and 13 (16,25%) have moderate physical activity. While of 38 (47,5%) respondents who are not obese, 14 (17,5%) respondents have mild physical activity and 24 (30%) have moderate physical activity and no respondent has strenuous physical activity.

On this research, most mothers simply do house wife regular activity such as cooking, washing, house cleaning, dish washing, and only few add physical activity like sport, walking, or other activity outside the regular ones. Kinnuen (2007) recommends postpartum mother to do physical activity to be health and fit by exercising 30 minutes a day, 5 days a week for being health and minimum 3 times a week for heavier activity for being fit. Also join a counselling for a diet management. Those activities will reverse weight of postpartum mother to pre-pregnancy condition within 10 months, supported with food and vegetables consumption.

Another study found physical activity of postpartum mother does not fully support the effort of weight loss. As Riz (2010) obtained that on white postpartum mother who return to work will facilitate the effort of weight loss. Contradictionary on black mother, the addition of physical activity lead to tendency of obesity. So in this case, race or etnis should be considered as a factor that has relation to obesity on postpartum mother.

Energy Intake and Obesity on Postpartum Mother

Dietary allowances (RDA) for energy obtained from food consumption whether its from carbohydrate, protein or fat. It indicates average requirement of each age group or individual. When daily maternal food consumption exceeds daily requirement in long term, it will cause obesity. Research result indicates significant relation between obesity and energy intake. Excessive energy intake if not balanced with physical activity will cause fat accumulation in body tissue. In this study result, of 42 (52,5%) mothers who are obese, 20 (47,61%) have excessive energy consumption, 16 (20%) mothers have sufficient energy consumption and 6 (7,5%) have insufficient energy consumption. As of 38 (47.5%) mothers who are not obese, 17 (21,25%) have insufficient energy consumption, 14 (17,5%) have sufficient energy consumption and 7 (8,75%) have excessive energy consumption.

According to Mustamin (2010), generally people with obesity are less sensitive to hunger (internal factor) yet they are more responsive to smell and taste of the cuisine (external factor). So they tend to keep eating as long as food are served. To housewife or mother who is not working and daily do nearly all household activities from cooking to serve the meal, cleaning and managing the home, and household chores. Meanwhile all of those are done selfwillingly, without a target or any serious thread to complete it. In addition she has time freedome to consume and serve any meal she desire will triger high food consumption as so increase energy intake.

Mother energy consumption in this research is influenced more by culture, bad eating habits supported by economic level, environment and food availability (Foster, 2006; Franzini, 2009; Schimid, 2006). Most mothers in the research region have low economic and education so to meet their need, they buy food widely available and affordable on the region. Mothers commonly consume rice and fried snack such as tempe mendoan, fried banana, fried cassava sold with affordable price around their house.

Exclusive Breastfeeding and Obesity on Postpartum Mother

Based on the research result can be concluded that there is no significant relation between exclusive breastfeeding and obesity. In this research showed that of 42 (52,5%) respondents who are obese, 13(16,25%) respondents give exclusive breastfeeding while 29 (36,25%) do not. As of 38 (47,5%) responden who are not obese, 16 (20%) respondents give exclusive breastfeeding while 22 (27,5%) do not.

Though theoretically said breast feeding or exclusive breast milk feeding predicted to be able to decrease body weight better, since it will increase daily energy requirement. Yet researches obtain various results, starting from exclusive breast milk feeding with insignificant effect to no effect at all (Bonni, 2011). In this case it can be said effect of exclusive breastfeeding to obesity still need to consider other factors. In certain cases other dominant factors must be considered. Such as environment, culture, customs up to ethnicity or race.

Family History and Obesity on Postpartum Mother

Based on this research, can be concluded that there is significant relation between family history and obesity. Of 42 (52,5%) respondents who are obese, 13 (16,25%) respondents do not have history of obesity in the family while 29 (36,25%) respondents have. On the other side 38 (47,5%) respondents who are not obese, 25 (31,25%) respondents do not have history of obesity in the family while 13(16,25%) respondents have. So if we see that mothers with obesity 29 (36,25%) of the mothers have family history of obesity, it can be seen obesity genetic factors are descended from generation to generation in the family. Parents who are obese tends to have obese children anyway.

Permatasari (2013) said if both parents are obese, 80% of children become obese, if only one parent is obese, it decrease to 40% and if both parents are not obese, the prevalence is down below to 14%. According to Newham (2002) changes in the nutritional environment in the utero causes organs development disorder especially vulnerability to fetal programming on later along with the influence of diet and environment stress predispose to various disease later in life. Genetic susceptibility mechanism to obesity through effects on the resting metabolic rate, non-exercise thermogenesis, lipid oxidation rate and poor appetite control. Thus susceptibility to obesity genetically determined and the environment determine phenotype expression. Genetic factor has intervened in determining lipid cell amount related with its number and cell beyond normal condition and will automatically being descended to the baby in the utero.

Basic determination on sub urban region

On this research of obesity on post partum mother on Subah Public Health Service work region which is a sub urban area, obtained there is a relation between education, physical activity, energy intake and family history. Nevertheless, the location of the area which is a sub-urban area

need to be considered as a factor influencing obesity on postpartum mother. Sasson (2014) obtained 56.4% adults who are obese on Panama living on urban area economies above the poverty line. Meanwhile according to Ziraba (2009) prevalence of overweight or obesity on women increase by 5% annually, with the rate of obesity change on urban area is not significantly different between rich and the poor, yet more likely on women with low education level.

The geographical position is a basic determinant and an aspect need to be considered in cases of increasing obesity in the community, including postpartum maternal obesity. The geographic location will influence social economic, environmental, food consumption pattern, and community life style. As Kandala (2014) concluded that geographic pattern affecting obesity on women in Nigeria. Urbanization factor and westernisation are things influencing life style in sub sahara region.

Subah Public Health Service work region is a sub urban area connecting land transportation path between Jawa Barat province and Jawa Tengah Province. This area is possible to have: 1) better economic growth, 2) socio culture change from traditional toward a more modern one along with its prosperous and concerns, 3) with high urbanization, changes take place among the community. Such as changes in type of food consumed toward fast food with unbalance nutrition contents. Changes also take place in people's life style becoming more consumptive. Those changes when are not balanced with sufficient education or knowledge will lead to adverse health behaviour, which in this case will influence the nutritional status related to obesity on post partum mother.

CONCLUSION AND SUGGESTION

Based on conducted research, can be concluded that there is a relation between education (p value 0,041), energy intake (p value 0,003), physical activity (p value 0,004) and family history (p value 0,002) with obesity on postpartum mother and no relation between exclusive breast feeding (p value 0,300) with obesity on postpartum mother on Subah Public Healt Service work region. Factors related with geographic location which is a sub urban area are basic determinants that needs attention such as socio culture change, economic growth and high urbanization faktor. They can influence people's life style, including their pattern of food consumption.

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THE IMPLEMENTATION OF AUDIO-VISUAL MEDIA TO IMPROVE STUDENTS' LEARNING IN BREASTSTROKE SWIMMING ON THE TENTH IMMERSION

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Abstracts

This research is written to improve students' learning of breaststroke swimming on the Tenth Immersion of using audio-visual media. This research is a classroom action research (CAR). The subject of researcher was the immersion class on the tenth grade students of Senior High School 2 Karanganyar. The source of the data comes from teacher and students. In collecting the qualitative data, the researcher used test, observation. The data analysis used descriptive techniques based on a qualitative analysis of the percentage. The results cycle I to cycle II. It can be seen from the results of initial study tests; from 23 students only 4 students who gain mastery 17.39% and 19 students have not completed 82.6%. In psychomotor and cognitive score of the first cycle, students who achieve complete criteria were 52.17% and 69.56%, for the affective score of the first cycle of students who achieve complete criteria got 65.21%. In the first cycle, the students' result of breaststroke swimming have reached 52.17% or as many as 12 students out of 23 students have completed the good criteria. In psychomotor and cognitive score, the students who have achieved complete criteria could improved from the first cycle was 82.6% and 73.91%, while in the affective score also improved from the first cycle got 69.56% with KKM 75. In the second cycle, the result of students' learning improved to 82.6% or as many as 19 students out of the 23 students have achieved the criteria completely, while 4 other students have not completed.

Keywords: students' learning, breaststroke swimming, audio-visual media

INTRODUCTION

Education has a very broad sense, not just talking about theory, numbers, formulas, and new discoveries. One of the important education is physical education, because physical education is a "instrument" for nurture children in order they can make the best decisions concerning physical activity undertaken and live a healthy lifestyle in alive. The goal through physical education includes physical education as a whole include cognitive, affective, psychomotor, mental, emotional, social and spiritual. This goal will be achieved through the provision of direct experience and a real form of physical activity. Therefore, physical education has been taught from elementary school (SD), Junior High School (SMP), Senior High School (SMA) even in Higher Education.

Implementations of physical education inside are taught some kind of sports that are contained in the physical education curriculum. One of sports branch which is taught in physical education is swimming. Pool is an aquatic sport that has been existed since time immemorial. One of the goals was swimming at that time as a means of self-defense in facing natural challenges such as flooding. Then pool developed into a sport which is popular in society, as well as athletics, gymnastics, and soccer.

The swimming has many functions, namely for training, educational materials, livelihood, means of coaching health. Equally important as the pride of a country or nation as a sport which is can be taught to children and adults, even a few months old babies can already begin to be taught swimming.

The subject matter swimming was part of the subject of aquatic activity in the subjects of Physical Education and Health taught in schools in general. Likewise at SMA Negeri 2 Karanganyar swimming material has been taught by Physical Education and Health teachers starting from class X (ten), XI (eleven), XII (twelve).

Based on the observation in SMA N 2 Karanganyar in class X (ten) IMERSI 2, at Internship, students has still got difficulties to understand swimming breaststroke. Because of learning process in SMA N 2 Karanganyar tends emphasize on the basic swimming skill. It effects on student who has good academic and sport above average who will achieve the advantages of learning. It makes students hard to swimming practice, especially student who have never basic swimming skill.

The fact most of student cannot do breaststroke very well. Total 23 students join learning process, and just four students can swim precisely. It proves that student does not find out the materials clearly. Often students permit to join swim class because of menstruation, sick, and others reason in order to avoid swimming class. Furthermore, delaying into the pool on learning process gives the answer that the students are less motivation. In learning process, teacher has given the instruction how to jump down into the pool. In practically, it does not give maximal result because of the students cannot comprehend basic technique teacher taught. In addition, the movement underwater disappeared by student. The restrictiveness of teacher in learning model, learning style, and media learning can influence to the goal of learning activities.

To solve the problem, a teacher of Physical Education and Health must be strive for making creative activities. Remaining that nowadays is technology era, it help the teacher to resolve the problem. One of the learning process media is Audio Visual Media. A teacher can show the movement of swimming and bring out the information together. Audio visual is effective media to perform a case chronically including movement elements. Audio Visual Media support the student to understand the movement in detail and clearly, so it can assist learning process excellently. Audio Visual media is used to support in verbal explanation, knowledge demonstration and skill including comprehension correction and strong about the movements.

Hopefully the students can see and correct swimming breaststroke movement clearly. the less precise example impacted the student cannot see whole of swimming movement practice underwater. Therefore, using Audio visual can demonstrate swimming breaststroke movements well because it is captured by camera. Student will watch the video. The aim of study is the students can understand easily and practice the whole basic technique swimming taught.

Optimistically by Classroom Action Research done can give the solution from the problem of a Physical Education and Health teacher in teaching learning process in general and the learning of breaststroke swimming movement, as well as refine physical education process.

METHOD

The data source of Classroom Action Research as follows:

1. Student, to find out the data about by implementation of audio visual media on student class X IMERSI 2 SMA Negeri 2 Karanganyar academic year 2012/2013.
2. Teacher as a colabolator, to determine the level of success in implementation audio visual media in SMA Negeri 2 Karanganyar academic year 2012/2013.
3. Observer

Technique of collecting data in Classroom Action Research consists of test and observation.

1. Test: exercised to find out the result data about the breaststroke swimming movement and the result of teacher written test
2. Observation: using as technique for collecting student activity data in teaching learning process at the implementation audio visual media in learning breaststroke swimming style.

Whereas the instrument of collecting data as follows:

Table 1. Technique of Collecting Data

Number	Data Source	Type of Data	Technique of Collecting Data	Instrument
1	Student	Affective/ student attitude in learning process	Observation	Guiding Assesment
2	Student	The Result Swimming Breaststroke Skill	Practice Test and Learning Method	Breaststroke Swimming Test
3	Teacher	Teacher activities	Observation	Observation sheet

Technique of collecting data using observation if the study regard to human behavior, working process, natural phenomena and also the appearances of correspondent. The technique of validity data test in classroom action research is using triangulation as one of test to increase data validity. Triangulation includes triangulation data, source of triangulation, and triangulation methods. Triangulation Data is similar data be steadier if the truth extracted from several different data sources. Triangulation source matches the obtained data by the informant or other sources both from students, teachers or other parties (principals, fellow teachers, parents/guardians). Triangulation methods is collecting data with different methods so that the result is more stable (observation method, tests) in order to get accurate results on the subject.

The data collection of observation in classroom action research cycle are analyzed using percentage descriptive qualitative to know the tendency in learning process.

1. Research of swimming breaststroke: by analyzing the average of test score swimming breaststroke. Then, it is categorized in classification score.
2. The capability of serial swimming breaststroke: by analyzing the movement of swimming breaststroke. Then, it is categorized in classification score.

This study is using Classroom Action Research. There are several expert state that cycles must practice twice minimally. Arikunto (2006) stated Classroom Action Research is conducted at least two serial cycles. The information of previous cycles is most determining the next form (Agus Kristiyanto, 2010:62).

1. The stage of Cycles

The procedure in classroom action research consist of planning stage, action, observation, and reflection. According to Agus Kristiyanto (2010: 55-62)

The stage of operational cycles as follows:

- a. Planning Stage

Planning is the first stage to plan, which has chosen to fix condition. In the Planning Stage is existed certain related cycles especially on technical matters related to the implementation of the action planning and indicators of achievement at the end of cycles. Planning is not organized own self by researcher, but it is collaboration result of agreement planning between researcher and collaborator.

The substance of planning consists of several matter related to: a. Making lesson planning; b. Preparing learning tools; c. Preparing learning instrument; and 4. Action simulation.

b. Implementation Stage

Implementation stage is implementation the planning. The researcher and collaborator must be convincing that what have agreed should go. The difficult matter is guaranteeing the practice scientifically. This is different with the experiment, which tends treatment in full control to keep validity experiment.

c. Observation Stage

Observation stage is observing the phenomena on the action. The stage is observed by thee researcher and collaborator. The researcher just lists the important whole of occurrence by utilizing observation sheet. The observation sheet is the agreement between the researcher and collaborator on planning stage. The observation is held on implementation.

d. Reflection Stage

Reflection is essentially a form of very deep contemplation and full of what had happened. Cycle Reflections is the sharing of ideas conducted lead researcher and collaborator on things that have been planned, implemented and observed. Therefore, reflection is evaluation phase to make final decision. The observation result and implementation analysis are discussed between the researcher and collaborator: a. whether the indicator, which is reached, continued into the next cycle; or b. whether the achieve indicator should be revised the planning concerning cycle.

2. The implementation Cycle 2

. a. Cycle I

1) Planning Stage

On this stage, the researcher and teacher organize the lesson planning consists of:

- a) The researcher analyze the curriculum to know basic competence that would be learned
- b) Making a lesson plan refers to action being applied in CAR, are learning breaststroke swimming.
- c) Formulate instrument used in CAR cycle, are assessment of learning breaststroke swimming.
- d) Formulate media used to assist learning.
- e) Formulate evaluation instrument of learning.

2) Implementation stage

The implementation stage carries out a lesson planning, as follows:

a) Meeting 1

- (1) Pray and presence
- (2) Explaining breaststroke swimming using audio visual media in the pool
- (3) Warming up
- (4) The students get down to the pool
- (5) The teacher explains breaststroke swimming techniques ranging from body position, footwork, arm movement, breathing and movement coordination breaststroke swimming.

- (6) Evaluation and debriefing
- (7) Cooling down
- (8) Pray
- b) Meeting 2
 - (1) Pray and presence
 - (2) Reviewing the previous materials
 - (3) Warming up
 - (4) The students get down to the pool
 - (5) The teacher explains breaststroke swimming techniques ranging from body position, footwork, arm movement, breathing and movement coordination breaststroke swimming.
 - (6) Evaluation and debriefing
 - (7) Cooling down
 - (8) Pray
- c) Meeting 3
 - (1) Describe the teaching and learning activities in general.
 - (2) Implement the written tests directly in the pool area.
 - (3) Warming up
 - (4) checking the student practice breaststroke swimming test. Each student conducts one trial. Student can revise the score in time remaining.
 - (5) Cooling down
 - (6) Evaluation and announcing the result
- 3) Observation Stage

Observations were carried out on a) Results breaststroke swimming skills; b) the ability to perform a series of movement's breaststroke swimming skills; c) activity on learning process.
- 4) Reflection Stage

Reflection is a description of the analysis procedure as the results of research. Reflection is related to the process and the impact of the remedial implemented as well as the criteria and plans for the next cycles.

b. Cycle II

On the cycle II program is related to the result achieved on cycle 1 as remedial of breaststroke swimming learning appropriate Physical Education and Health syllabus. It is including embodiment's execution, observation, and interpretation, also analysis and reflection that refers to the previous cycle, so it can be determined the improvement.

Table 2. Percentage Achievement Target

Measuring Aspect	Student Percentage Target	Measurement
Affective	75%	Observed on learning process
Psychomotor	75%	Breaststroke swimming test
Cognitive	75%	Written test
Completeness of Learning Outcomes	75%	The average of the sum (affective, cognitive, psychomotor)

CONCLUSIONS AND SUGGESTION

The classroom action research in class X IMERSI 2 SMA Negeri 2 Karanganyar divided two cycles. Each cycle consists of four stages, are: (1) planning, (2) Implementation, (3) observation, (4) reflection.

Based on data analysis and discussion, it can be concluded that the improvement quality can be seen from the results of student. It takes from the improvement before the implementation until the cycle II. Before the implementation, the accomplish student practice for Breaststroke swimming is four student or 17, 39%. On the cycle, I increased to 12 students or by 52.17% to the average learning achievement reached 71.52 and the cycle II learning completeness up to 19 of 23 students who completed, or by 82.6% with the Completeness of Learning Outcomes 75 with an average learning achievement reached 78.6. Thus, it can be concluded that the application of audio-visual media can improve learning outcomes swimming breaststroke in class X IMERSI 2 SMA Negeri 2 Karanganyar Academic year 2012-2013.

This study gives a clear description that the success of the learning process depends on several factors. These factors derived from the teachers and students as well as the tools / instructional media used. The teacher factors are the teacher's ability to develop the material, the material presentation, management class, methods used and technique in the learning process. While the factors of students are interest and motivation in the learning process. The availability of tools / interesting media learning can also improve student's motivation so that would gain optimal in learning results.

These factors can be maximally support each other whether come from teacher and student. The availability of tools makes the teacher easy to deliver the material. The students will understand the good material. The attraction of material also makes the students interest and motivate to be active in the learning process. Thus, the teaching and learning activities are going to run smoothly, conducive, effective, and efficient.

Learning process, which is, used audio visual media underwater easier than directly swim in the pool. It encourages the success of learning process. Audio visual media influence the level understanding of student to comprehend about the good movement technique, especially underwater movement.

Cycle I and Cycle II describe about the weakness of learning process. However, the weaknesses could be resolved by the following cycles. The implementation action is reflected on learning process. It explains the improvement on the Physical Education and Health process and student motivation. On the a Physical Education and Health side, the application of media audio visual can stimulate student motoric aspect related to the improvement of Breaststroke swimming materials.

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THE DIFFERENT EFFECT OF PLAYING AND TRAINING LEARNING APPROACH ON THE ABILITY OF THE STRADDLE STYLE HIGH JUMP OF THE 5TH GRADE MALE STUDENTS OF DJAMAATUL ICHWAN ELEMENTARY SCHOOL SURAKARTA ACADEMIC YEAR 2013/2014

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Abstract

This study aims at investigating the different effect of playing learning approach and the training on the ability of the straddle high jump style of 5th grade male students of Djama'atul Ichwan Elementary School Surakarta academic year 2013 / 2014. This research employed experimental methods with pre-test and post-test design. The research population was 5th grade male students of Djama'atul Ichwan Elementary School Surakarta academic year 2013 / 2014 of 60 students divided into four classes. The samples used were 30 students with random technique. The data collection techniques were performed by test and measurement. The data analysis techniques used by t-test at a significance level of 5%. Based on the research results, it can be concluded as follows: (1) there is a significant difference in playing learning approach and training towards the ability of the straddle style high jump with *t* hit of 3,814 and *t* table of 2.145 at a significance level of 5%, it can be concluded for the filing of the hypothesis that the first is acceptable. (2) Playing learning approach has better effect than training learning approach to the of ability straddle high jump style.

Keywords: high jump ability, straddle style, playing, training

INTRODUCTION

One of the high jump techniques taught in grade 5 of primary school is straddle. However, elementary school students are generally less interested in athletics including straddle technique. In most cases, primary school students prefer games, such as football, baseball and other games. Toho Cholik M. & Rusli Lutan (2001: 66) states, "One of the obstacles faced by teachers teaching athletics is the attitude of students who are easily bored of the lessons. This is due to the lack of variety in teaching method. Elementary school children usually loves to play, therefore athletics should be taught creatively in the form of fun activities".

Based on the characteristics of the elementary school students, games can be a good choice to teach straddle technique. This can be performed by utilizing various tools as well. Mochamad Djumidar A Widya (2004: 65) states, "The tools used in jump learning is rope, beam, rattan hoop, box, Swedish bench, mats and bicycle tires." Those tools can be very helpful to create fun activities in order to teach jumping techniques, for example by cardboard jump racing, rope jumping, and some other fun activities.

High jump learning in the form of games is exciting for the students and it can grow the feeling of fondness. However, when teachers use games as approach to teach high jump, the

relevance of the activity with the straddle technique is less obvious. One of the reasons is because in understanding straddle technique, students have to master starting technique, rivet to jump, attitudes over the bar and landing. Drilling approach can be employed to teach the straddle technique. Students are taught to take starting technique, rivet to jump, attitudes over the bar and landing through drilling activity. This approach is characterized by the raining (drilling) students over and over. By learning the straddle technique repeatedly, students are expected to master the style well so high jump ability using straddle technique can be better performed.

In accordance with the existing problem explained above, teachers have to consider the characteristics of the students, in this case elementary school students, in teaching straddle technique. Since students of elementary school are at the age when they are most excited to playing, games can be a very effective method to teach one of the jumping method previously mentioned. This way, students can have a better capability in performing straddle technique because it is important for them.

Based on the characteristics of the two learning approach, which are games and drilling, both can be used to develop the high jump straddle technique among elementary school students. Each learning approach has strengths and weaknesses and it is not known yet whether one has better result than the other in terms of improving students' skill in applying straddle technique. Therefore, experimental research needs to be performed to find out deeper both practically and theoretically.

The learning approach in form of games and drilling exercise will be applied to teach 5th grade male students fo Djama'atul Ichwan Elementary School, Surakarta, academic year 2013/2014. Through experimental research toward 5th grade male students of Djama'atul Ichwan Elementary School Surakarta academic year 2013/2014, better learning approach to improve students' ability in using straddle technique among the two can be revealed.

The issue raised above is the background for conducting this study which is entitled "The Different Influence of Game and Exercise Approach toward the Capability of Performing Straddle Technique Among Five Grade Students in Djama'atul Ichwan Elementary School Surakarta academic year 2013/2014.

METHOD

The type of this research is experimental research with pretest-posttest design. The basis of the use of research design is an experimental activity which was conducted by applying a certain action toward subject of the research. In the end, a test is given to the subjects in order to know the influence of the action given.

Location and Time of the Research

This research was conducted in Djama'atul Ichwan Elementary School Surakarta academic year 2013/2014. The data was collected in October to December 2014 with 3 times learning program each week for six weeks in total.

Subject of the Research

The population of the research is 60 students of fifth grade of Djama'atul Ichwan Elementary School Surakarta academic year 2013/2014 which is divided into four classes. The sampling was taken by using proportional random sampling. The sample is 50% of the students of each class which makes it 30 students in total. It is then divided into two groups using ordinal pairing method according to the pretest result.

Research Instrument

The research instruments are test and measurement. According to Mulyono B. (2009:2), “Test is an instrument used for acquiring information of an individual or objects”. Test in this research refers to straddle technique test of Andi Suhendro (1999: 2.56). The result obtained from reliability test in the initial test of straddle technique is 0.93 and the final reliability test shows the value of 0.97. This suggests that the straddle technique test obtained high reliability value with a steady range between the initial and the final ones.

Data Analysis

Data obtained from the measurement of each group is analyzed by using t-test with significance level of 5% from Sutrisno Hadi (1995: 457).

RESULT AND DISCUSSION

Hypothesis of the research was tested by using t-test. The result of t-test of each group is presented below:

The T-Test Result of Pre and Post Straddle Technique Test on Game Learning Approach Group

The t-test result of pre and post straddle technique tested to the group applying game learning approach is presented in the table and diagram below:

Table 1. Difference Test on pre and post straddle technique test result on group using Game as the learning approach

Tes	N	Mean	t_{hitung}	$t_{tabel 5\%}$
Tes awal	15	91.00	8.505	2.145
Tes akhir	15	96.67		

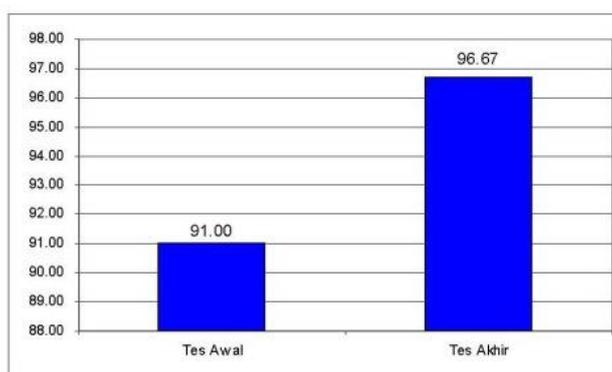


Figure 1. Diagram of Result Difference between Pre and Post Test High Jump Straddle Technique of the Group with Game Approach

According to the difference analysis using t-test of the pre and post test game approach group, the value obtained was 8.505 and t_{table} with $N = 15$, $db = 15 - 1 = 14$ in significance level 5% and value 2.145. It shows that $t_{calculation} > t_{table5\%}$, so can be concluded that H_0 is declined. In accordance, it can be seen that the result of pre and post test of game approach group indicates significant improvement on the students' skill in high jumping with straddle technique.

The T-Test Result of Pre and Post Straddle Technique Test on Drilling Learning Approach Group

The t-test result of pre and post straddle technique tested to the group applying drilling as the learning approach is presented in the table below:

Table 2. Difference Test on pre and post straddle technique test result on group with drilling approach

Tes	N	Mean	t_{hitung}	$t_{tabel 5\%}$
Tes awal	15	90.67	6.556	2.145
Tes akhir	15	92.73		

To make it more obvious, the different mean between pre and post straddle technique test on group with drilling approach is presented in the diagram below:

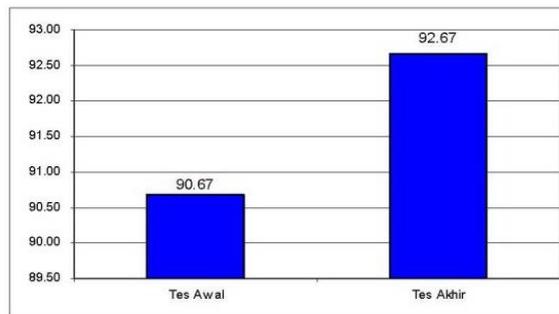


Figure 2. Diagram of Mean Difference between Pre and Post The Ability of High Jump Straddle Technique of the Group with Drilling Approach

According to the difference analysis using t-test of the pre and post test of the drilling approach group, it result to a value of 6.556, and t_{table} with $N = 15$, $db = 15 - 1 = 14$ on significance level of 5% is 2.145. It shows that $t_{calculation} > t_{table 5\%}$, so can be concluded that H_0 is declined. In accordance, it can be seen that the result of pre and post test of drilling approach group indicates significant improvement on the students' skill in high jumping with straddle technique.

The T-Test Result of Post Straddle Technique Test Between Game and Drilling Learning Approach Group

The t-test result of post straddle technique test between the two groups with game and drilling approach is presented in the table following:

Table 3. Difference Test on post straddle technique test result between group with game approach and group with drilling approach.

Kelompok	N	Mean	t_{hitung}	$t_{tabel 5\%}$
Pendekatan bermain	15	96.67	3.814	2.145
Pendekatan latihan	15	92.73		

The different post test mean between group with game approach and group with drilling approach is presented more clearly in the diagram below

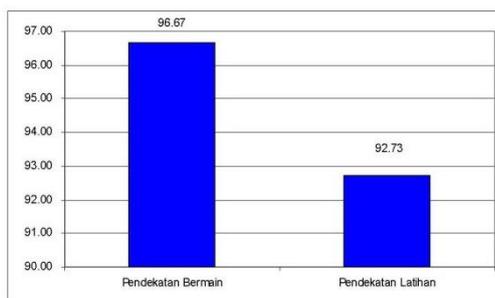


Figure 3. Diagram of Mean Difference of High Jump Straddle Post Test between group with game approach and group drilling approach

According to the difference analysis using t-test statistical analysis of the post test between group with game approach and group with drilling approach, the value obtained is 3.814, and t_{table} with $N = 15$, $db = 15 - 1 = 14$ on significant level of 5% is 2.145. It shows that $t_{calculation} > t_{table 5\%}$, so can be concluded that H_0 is declined. In accordance, it can be seen that the result of the straddle technique post test between group with game approach and group with drilling approach shows significant difference.

Percentage of High Jumping with Straddle Technique Skill Improvement between group with game approach and group with drilling approach

The percentage calculation on the students' skill improvement on straddle technique between group with game approach and group with drilling approach is presented in the table and diagram below:

Table 4. Different Improvement Percentage on straddle technique between group with game approach and group with drilling approach

Kelompok	N	Mean Pretest	Mean Posttest	Mean Different	Prosentase Peningkatan
Pendekatan bermain	15	91.00	96.67	5.67	6.23%
Pendekatan latihan	15	90.67	92.73	2.07	2.28%

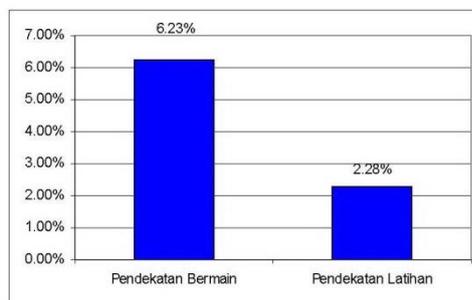


Figure 4. Diagram of Improvement Percentage on straddle technique between group with game approach and group with drilling approach

According to the Improvement Percentage on straddle technique, it is revealed that the improvement of group with game approach is 6.23%. On the other side, the skill improvement of group with drilling approach is 2.28%. Therefore, it can be concluded that the group with game

approach has bigger improvement percentage on high jumping with straddle technique skill than group with drilling approach.

DISCUSSION

Different Influence Between Group With Game Approach And Group With Drilling Approach On High Jumping Skill With Straddle Technique

Game approach and drilling approach are the forms of learning approaches that can be applied to improve students' skill in high jumping with straddle technique. Each approach has different characteristic, strength, and weakness which will contribute to the improvement of high jumping skill with straddle technique.

The learning of high jumping straddle technique with game as approach is a form of teaching the technique using various teaching media. The media that can be used in teaching high jumping straddle technique are ropes, beams, rattan hoops, box, Sweden stool, mattress. With the media mentioned, many creative and innovative ways to teach the high jumping technique can be performed. This way, students can raise the fondness in learning high jumping so that their motivation in learning is also improved. Students can be more active in completing high jumping straddle technique task. The fun learning will strengthen the students' respond and the achieved skill can support the mastering process of basic movement for the actual straddle technique. Sugiyanto & Agus Kristiyanto (1998:2) stated, "In law of effect, it is explained that the strengthening or the weakening of a connection is a result of the process undertaken. The stimulus respond relation is strengthen when respond emerges along with exciting or satisfying condition."

The learning approach of high jumping straddle technique with drilling is an exercise approach in which students are assisted during the learning process by the physic education teacher. Drilling learning approach more emphasis on technical mastery such as: starting technique, rivet to jump, attitudes over the bar and landing which are done repeatedly. Every step of the technique learning is performed by the students in accordance to the teacher's instruction. Straddle technique learning with drilling approach is done gradually and repeatedly. When every learning step is completed, it is then combined together as a whole. The steps to learn high jumping straddle technique will contribute to the students' skill improvement in performing the high jumping. According to the characteristics of the game and drilling approach, there are significant difference in the improvement of the skills between the two learning approach.

The difference is due to different characteristics of each approach with their own strengths and weaknesses. These differences result to different influence toward the skill improvement of the students in the high jumping.

Game Approach Compared to Drilling Approach toward the High Jumping Ability with Straddle Technique

According to the different characteristic between game and drilling approach as well as the advantage and weakness of each, it can be seen that game approach has better influence in increasing students' high jumping ability using straddle technique. This is resulted from the fact that elementary school student's characteristic is their fondness of playing, so that the straddle technique which is taught with games can arise the feeling of likeness. The games referred in this research is one that integrates the teaching of high jump using straddle technique. Dwi Hatmisari Ambarukmi

(2010: 92) stated, "Children should not be enforced to do sport, but sport should be taught in a way which can draw their interest with fun activity, improving skill, knowledge relating to games, friendship, and entertaining". Through playing jumping, students try to understand high jumping with straddle technique to improve their skill.

On the other side, drilling approach is a high jumping with straddle technique learning which is done repeatedly along with the teacher's instruction. The learning of the technique which is done repeatedly can stimulate boredom because student's energy is not well channeled. It is because elementary students literally loves playing and moving. On the contrary, when students' moving desire is not channeled, the learning result will be not optimal. Therefore, it is known that learning approach with game has better influence in improving students' skill of high jumping with straddle technique rather than drilling.

CONCLUSION AND SUGGESTION

Conclusion

Based on the research and data analysis result, the hypotheses proposed is acceptable. Therefore, it comes to the conclusion bellow:

1. There are significant influence of the application of game and drilling learning approach toward the students' ability in high jumping with straddle technique among 5th grade male students Djama'atul Ichwan Elementary School academic year 2013/2014, the the measurement value t_{hit} of 3.814 and t_{tabel} of 2,145 in 5% significance level, therefore it can be concluded that the first hypotheses is acceptable.
2. Game learning approach has better influence toward the straddle technique ability of 5th grade male students Djama'atul Ichwan Elementary School academic year 2013/2014 than drilling approach. Group 1 (game learing approach) increase their ability in high jumping with straddle technique by 6,23%. On the other side, group 2 (drilling learning approach) increased their ability in high jumping with straddle technique by 2.28%. Therefore, it can be concluded that the second hypothesis is acceptable.

Suggestion

Based on the research result, there are some suggestions for the Sport and Health Education teachers in Djama'atul Ichwan Elementary School which can be applied are as follow:

1. Teachers should be more creative and innovative in teaching sport, so that the lesson is not monotonous..
2. The school should provide and add more sport equipment so that the obstacles in teaching sport can be overcome.

The game and drilling approach can be applied in other subject in teaching sport.

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THE EFFECT OF COOPERATIVE LEARNING MODEL ON INTERACTION SOCIAL BEHAVIOR

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Abstract

Childhood's end is the age group, at the time of the child's social interaction processes evolve rapidly, social interaction happens not always has a positive to it need to be done learning developed on the basis of the social goals that can always lead to positive things (associative) and decrease the negative (dissociative) through the learning of physical education. the research method used is the method of experimentation with pretes posttest control group-design. Group experiment in this study were given preferential treatment by the model kooperatif learning type TGT and conventional models with a control group (direct teaching). The population in this research is a grade 7 Junior high school which consists of three classes with a total of 94 students, the sample used is 30 students girl with the technique of two-stage random sampling, instruments used in the form of a questionnaire process of social interaction and data processing using Manova test. Results show There are differences social interaction in the context and an associative disosiatif between that uses a model cooperative learning type TGT with conventional models. Cooperative learning model type TGT can become a reference in order to increase the aspects affective students as well as needed further research on the impact of teaching models use cooperative to other elements such as cognitive students, empathy, responsibility, and emotional.

Keywords: model cooperative learning, interaction social behavior

EXAMINING TEACHING COMPETENCIES IN PHYSICAL EDUCATION CLASSES IN INDONESIA AS THE BASIS OF RECONSTRUCTING PETE PROGRAM

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Abstract

The issue regarding poor quality of student's achievement related to the learning of PE lessons, has driven the writer to investigate the teaching competencies of PE teachers at primary school, to study and analyze of what has happened during the teaching-learning process. Through a systematic observation of teacher behavior, student behavior, teacher-student interaction, and the contextual aspect of teaching, this study is expected to unveil the very actual situation of the PETE (PE TEACHER EDUCATION) program in Indonesia, in order to better understand it both in the level of curriculum and in the realm of the praxis in the level of the preparation stages. The lack of reflective teaching behavior of teacher and student-teacher in schools, irrelevance factors between institutional and curricular expectation with the content knowledge possessed by the teachers, and the obvious absenteeism of teaching skill and pedagogical content knowledge in the teaching action, are bear-evidence to construe that PETE program in Indonesia is still in an under-prepared stage amid the major demand to revitalize it. It is recommended that PETE program in Indonesia be carefully and seriously reconstructed, both in the aspect of curricular content and in the aspect of practical skills of teaching actions.

Keywords: PETE, teacher competency, teaching skills, and teaching action

ACTIVITIES OF TRADITIONAL GAME BASED NEUROSCIENCE LEARNING AS CHARACTER EDUCATION FOR CHILDREN WITH BEHAVIORAL, EMOTIONAL, AND SOCIAL PROBLEMS "TUNALARAS"

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Abstract

This paper examines the theoretical and empirical science with literature method that aims to provide an insight into the activities of the traditional game based *neuroscience learning* as a character education for children with behavioral, emotional, and social problems (*tunalaras*). Based on some previous research, character education can be directed also to the children's behavioral and emotional disorders. Physiological conditions child behavioral and emotional disorders basically have a central nervous system dysfunction causing psychological response in the form of behavior that tend to stray such as personality disorders and social interaction. The traditional game neuroscience-based learning to develop elements of problem-based learning, simulations and role-plays, active discussions, visual appearance, positive climate. The traditional game is also one form of therapy is appropriate because in a traditional game is loading values corresponding character education curriculum in 2013 including the character of religious, nationalist, integrity, independence, mutual cooperation. The traditional game contains elements of physical activity, so it is also possible to affect the secretion of hormones that trigger mood improvement of children such as endorphins, *Serotonine*, *Dopamine*. The impact of that will further affect the child's behavioral and emotional conditions, such as the influence of meningkatnya secretion of these hormones so it is possible can reduce behavioral and emotional disorders in children. Some previous research suggests that the adaptation of these mechanisms can reduce behavioral disturbances in children with behavioral, emotional, and social problems (*tunalaras*) so that children are more controlled emotional and social side. In this regard it can be concluded that the activity of traditional games *based neuroscience learning* can be used as an optimization of character education for children with behavioral, emotional, and social problems (*tunalaras*).

Keywords: should be written with lowercase letters except abbreviations, each separated by a comma, can be used as clues in searching, and consist of 3 words in maximum. [*Calibri 11, justified*]

INTRODUCTION

Characters as a form of local wisdom culture of Indonesia is currently experiencing a shift to western culture. Children today no longer much more familiar in Indonesian culture, such as manners of regionalism, regional language, and regional norms in Indonesia. Those problems led to the nation's character education back into an interesting topic of discussion in the year 2010. In this regard, the actual development of culture and national character proposed by the Government of the Unitary Republic of Indonesia (2010: 1) beginning with the 'Declaration of Education Culture and National Character' as a national movement in January 2010, but it also reaffirmed the President's speech at the National Education Day, May 2, 2010.

The character education directed at students overall education including a special needs child such as children with behavior and emotional problems (*tunalaras*). Children with behavioral, emotional, and social problems (*tunalaras*) have characteristics of emotional and behavioral

disorders either individual himself or social. Aini Mahabbati (2013: 5) explains that children with behavioral, emotional, and social problems (*tunalaras*) by type is defined as children with emotional and behavioral disorders which include: 1) conduct disorder/ CD (behavioral disorders), 2) oppositional deviant disorder / ODD (antagonism) , 3) type of other emotional disorders. Various forms of behavioral disorders can be overcome with sports activities, according Gapin Jennifer I., et al (2013: 7) in the journal study that physical activity (exercise) a positive influence on changes in children's behavior disorders.

Children with behavioral, emotional, and social problems (*tunalaras*) need special attention because if untreated, it can cause a condition that affects the mindset and behavior of children with behavioral, emotional, and social problems (*tunalaras*) are difficult to control. It is as described Sherwood in Akmarawita Kadir (2012: 1), the response to behavioral disorders are untreated will cause stress (pressure), if the body encounters a stressor, your body will activate the response of nerves and hormones to implement measures of defense to reduce stress caused.

Sports activities can improve the behavior because it affects the hormones and chemicals at the level neurologis. According to Rately in Rachmah Laksmi Ambardini (2009: 72) explains that physical exercise has a tendency to increase the levels of glucose, Serotonine, epinephrine, Dopamine. Component chemical substances are known to affect the setting behavior. The condition relating to the cases of children with behavioral, emotional, and social problems (*tunalaras*) have a element of disability performance in the central nervous system, these disorders affect the aggressive tendencies or temperament. According to Andri Kusumawardhani (2007: 124), some researchers in the field of neurobiology and psikofarmalogi perform depth approach on brain function, neurotransmitters, genetics, and neuroendocrine, concluded that serotoenergik and the region of the brain that trigger and directly involved in impulsive behavior and aggressive in patients with conduct disorder , In this regard Pamuji Sukoco (2016: 4) explains that the character education through traditional games, can serve as a stimulus capable of overcoming (conditioning) children with special needs including *tunalaras* in repairing of an aggressive nature, opposed, and other behavioral disorders.

Based on the background exposure mentioned above, the authors wish to disclose / examine the theoretical model of learning in the form of the application of traditional games as a means of character education in the optimization of the child's emotional and behavioral changes *tunalaras* (children with behavior and emotional problems).

FILL AND DISCUSSION

1. Characteristics of Children with behavioral, emotional, and social problems (*tunalaras*)

Characteristic of children with behavioral, emotional, and social problems (*tunalaras*) described by Hallahan, et al (2009: 4), that there are four dimensions: 1) Chaos behavior, 2) Often anxious and withdrawn, 3) Less mature, and 4) Aggressive in socializing.

Nandiyah Abdullah (2013: 6) provides for the classification of children disruption of social behavior among children, *psychotic* and *neurotic* children with emotional disorders and juvenile delinquents (*delinquent*). According to sources in the commission of social behavioral disorders classification can be divided into: (1) Emotional, namely extreme deviation social behavior as a form of emotional distress, (2) Social, the social behavior deviations as deformities in social adjustment because it is functional.

More detailed characteristics described IGAK Wardani, et al (2007: 31-32) that the characteristics of children with behavioral, emotional, and social problems (*tunalaras*) into three aspects, among others:

a. Academic characteristics of

Behavior disorders of children with behavioral, emotional, and social problems (*tunalaras*) implicated in barriers to learning achievement is below the average child the same age. Children with behavioral, emotional, and social problems (*tunalaras*) have a tendency lazy to learn and want to do things his way.

b. Social and Emotional Characteristics

Social characteristics of children with behavioral, emotional, and social problems (*tunalaras*) influenced by emotional characteristics. Social character is usually characterized by causing interference to others, with traits: behavior is not accepted by the environment and usually violate the norm in family, school, peers, and community. Emotional character marked aggressiveness that cause disruption to his friend.

c. Physical Characteristics and Health

Physical characteristics and and health is not much different with children in general, but if the child aggressiveness high impact on health patterns of eating disorders, sleep disorders, as well as the tendency slob (do not pay attention to health).

2. Physical Education Sport and Health

Helmy Firmansyah (2009: 42) defines physical education sport and health activities of learners to improve motor skills and values of a function which includes cognitive, psychomotor, and affective, so that through these activities is expected that learners can grow and developing bodied.

Keep in mind that physical education activity seen from three aspects: the cognitive, psychomotor, and affective. The earliest processes of these three aspects, namely cognitive aspects related to brain development in learners. Affective and psychomotor behavior originating motion on whether or not the performance of the brain through the nervous response. That is important for educators to know the performance system neurons (nerve cells) to increase motion psychomotor and affective behavior of learners. The general picture of the effect of exercise on behavior change described as follows:

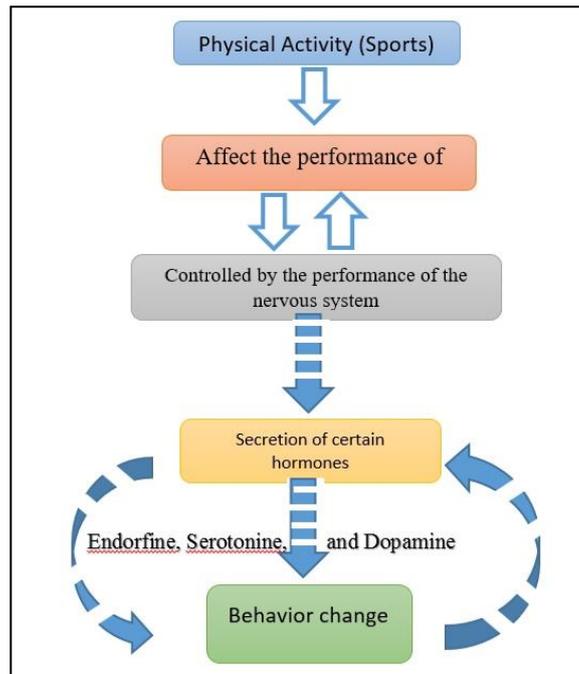


Figure 1. Mechanism in General Physical Activity Behavior Change due
Laurale Sherwood (2013, 128-136)

In figure 1 above are generally described by Laurale Sherwood (2013, 128- 136), generally that physical activity (exercise) managed properly will lead to a series of mechanisms to influence the performance of a centralized organ. Any changes in organ performance can not be separated from the control of the central nervous system (*Central Nervous System/CNS*). The activity took place as an attempt by the body in response to stimuli as a result of physical activity (exercise). As a result, when the homeostatic system in this state under pressure then the body responds to *stressors* in the form of *negative feedback* (negative feedback) by activating the mechanisms of other systems, for example, stimulates the secretion of several hormones that specifically have certain roles and functions to help maintain homeostatic condition of the body. In this regard, according to Lakshmi Rachmah Ambardini (2009: 6-7) secretion of several hormones such as *Norepinephrine*, *Serotonine*, and *Dopamine* supposed to influence the behavior of physiological changes such as hormone that can both improve *mood* (psychological).

3. The mechanism of communication between *neurons*

Physical activity involves a series of mechanisms to systematically organ performance is closely linked to the mechanism of the central nervous system control of the body's biochemical communication. In this regard Rachmah Laksmi Ambardini (2009: 68) explains that physical activity involving performance of nerves in the brain electrochemically. Along nerve fibers, the flow of electrical impulses run, due to differences in the levels of ions inside and outside the cell. In nerve synapses to communicate chemically through neurochemicals called neurotransmitters.

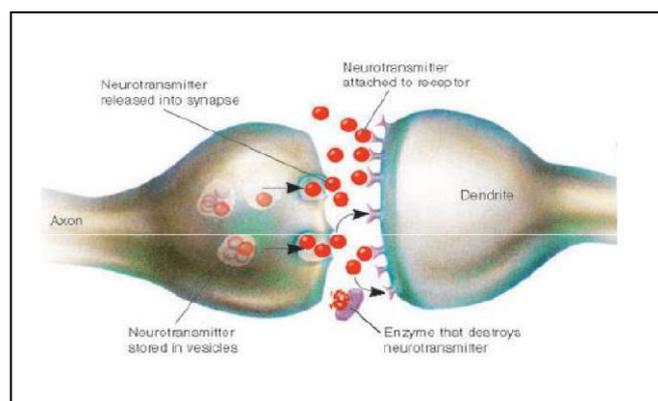


Figure 2. How Neural Communication
Rachmah Laksmi Ambardini (2009: 68)

Ratey in Rachmah Laksmi Ambardini (2009: 6-7) outlines three The main neurotransmitters associated with physical activity, as follows:

- a. *Norepinephrine*, works to improve mood, intrinsic motivation, and confidence, the perception, and learning the cellular level. It said acute or chronic physical exercise can improve brain *Norepinephrine*.
- b. *Serotonine*, serves to set the mood, impulse control, raises confidence, against the toxic effects of stress hormone levels in height, and improve the learning process in a cellular level.
- c. *Dopamine*, physical exercise is said to affect the synthesis, release, and retrieval of *Dopamine*. *Dopamine* increases for the duration of motor behavior. The greater the intensity, the greater the improvement. Regular exercise can increase the amount of the enzyme that makes *Dopamine* and *Dopamine* employment change in *postsynaptic membrane*.

4. Traditional Games

Agus Mahendra (2007:4), is a form of traditional games or sport games and activities that develop a habit of certain people. In the further development of traditional games often serve as a kind of game that has a genuine regional characteristics and tailored to local cultural traditions. Hakimeh Akbari, et al. (2009: 126), traditional games to effectively contribute to the formation of character in learning through manipulative and locomotor movement skills. In this regard, traditional games allegedly able to give a positive effect on improvement of character education in schools.

In general, traditional games in Indonesia has begun to experience a shift in the game. *Modern* as a result not too many traditional games that still persist or sustainable (awake) until now. Traditional games in Indonesia spread from Aceh to Papua Province. In particular, the traditional game in Yogyakarta and Central Java, suspected to be potentially sustainable (awake) in the community including, tops, stilts, *Gobak Sodor*, peg catfish, rounders, moldy, and Cublak-Cublak Suweng.

5. Character Education

Maya Bialik, et al (2015:1) explains that the Center for the Study curricula in Boston dividing education in the 21st century into four dimensions of education, among others: a) *Knowledge* must be able to balance the subjectivity between traditional knowledge and modern, b) *Skill* has a

correlation of cause and effect to knowledge, which *skill* shows the level of a person's knowledge, c) *Character* relating to behavior in the life around. d) *Metakognition* as part of the process of self-reflection and learning in a good learning by building a three-dimensional aspects.

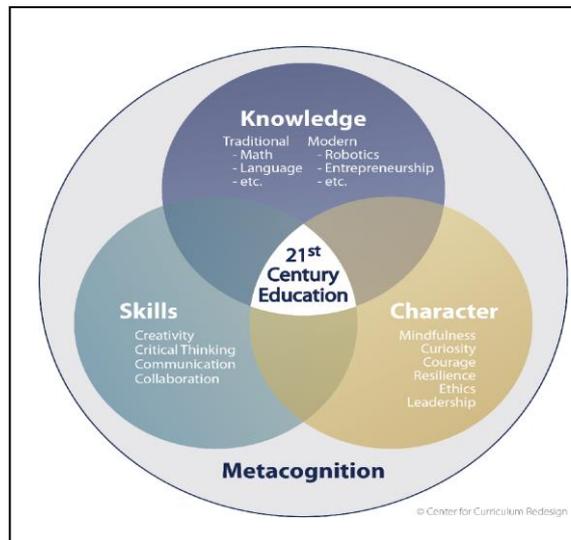


Figure 3. Dimensions of 21st Century Education
Maya Bialik, et al (2015: 1)

One-dimensional in the 21st century is that in jabarkan kakater into six aspects. namely: a) Mindfulness, b) Curiosity, c) Courage, d) Resilience, e) Ethics, and f) Leadership Further Maya Bialik, et al. (2015: 1) describes that character education is about the acquisition and the strengthening of good (quality), values (ideals and concepts), and the capacity to make wise choices for life knowledgeable and developing societies (Maya Bialik, et al., 2015 : 1).

Alex Agboola and Kaun Chen Tsai (2012: 164) explains that "*theUSA Department of Education*" defines the character education as "learning process is explicit from which students in a school community to understand, accept, and act on ethical values such as respect another, justice, civic virtue and citizenship, and responsibility for self and others. education character by Berkowitz and Hoppe (2009: 132) is a deliberate attempt to promote character development of students in the school, the purpose of planting the characters focus on values is to reduce behavioral problems and increase academic engagement in schools.

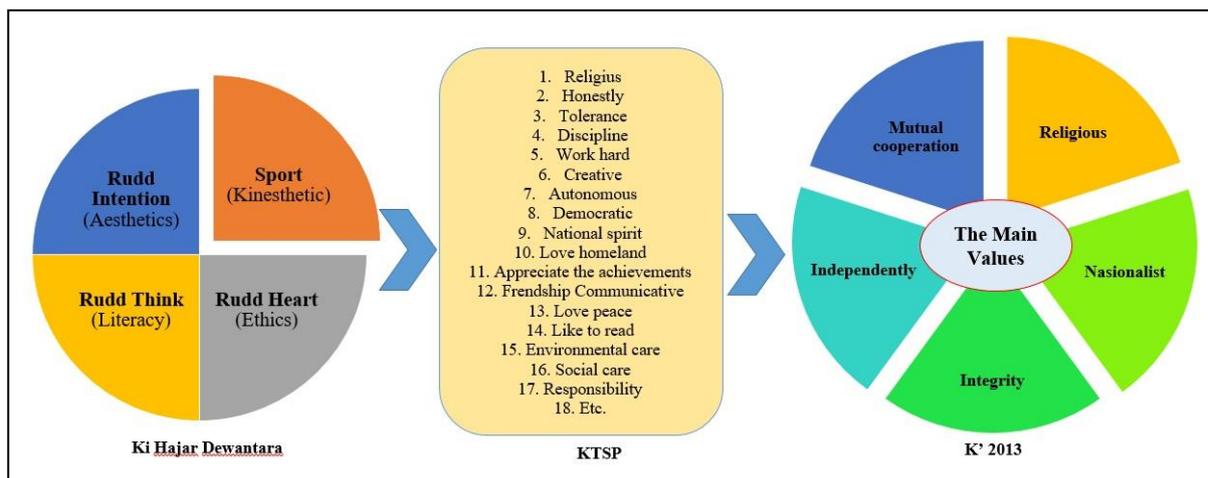


Figure 4. Development of the value of character education in Indonesia
Kemendikbud (2016) dalam Erick Burhaein (2017: 27)

DISCUSSION

physical education is divided into three domains, namely the cognitive, psychomotor, and affective. the process of the earliest of the three domains namely related cognitive brain development, it is because the behavior of affective and psychomotor movement rooted in whether or not the response performance of the brain through *neurons* (nerve). The learning-based approach to *neuroscience learning* that occurs predominantly in the left hemisphere of learners. According to Dale H. Schunk (2012: 89), educational practice approach *neuro learning* include: problem-based learning, simulations and role-plays, active discussions, visual appearance, and a positive climate.

The second domain is the domain of psychomotor movement through traditional games and the third is the affective domain through character education. In this regard, raises learning approach *psychology learning* (going dibelahan right brain) where massive traditional game activities are integrated with psychological aspects through character education. According Kemendikbud (2016: 5), character education curriculum in 2013 bring as: religious, nationalist, integrity, mutual cooperation, and self-contained.

Children's learning in general use for the psychomotor and affective approach alone, but children with behavioral, emotional, and social problems (*tunalaras*) should include approach. *neuro learning* It is known that the condition of children with behavioral, emotional, and social problems (*tunalaras*) have disturbances in *neurons*, shown with their children's behavior disorders such as aggressive behavior, opposed, and other behavioral disorders. Therefore, the physical education of children with behavioral, emotional, and social problems (*tunalaras*) can occur if there is no implementation optimization approach to learning *learning neuro* through play traditional respond to stimulus on psychomotor so no improvement movement and affective children against behavioral and emotional changes in a positive direction. The picture-Based Optimization Traditional Games Character education in physical education Children with behavioral, emotional, and social problems (*tunalaras*) such as picture 5. follows:

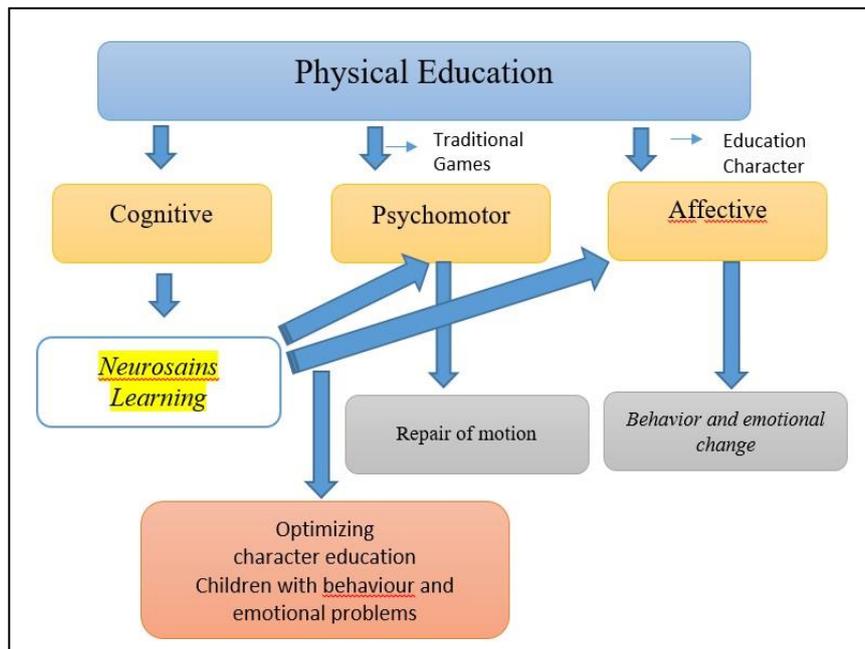


Figure 5. Optimizing the Traditional Game-Based Character education in physical education *Tunalaras* (children with behavior an emotional problems)

Activities traditional game based - neuroscience *learning* as character education for children with impaired behavioral and emotional, can be made more detailed application described as Figure 6 below:

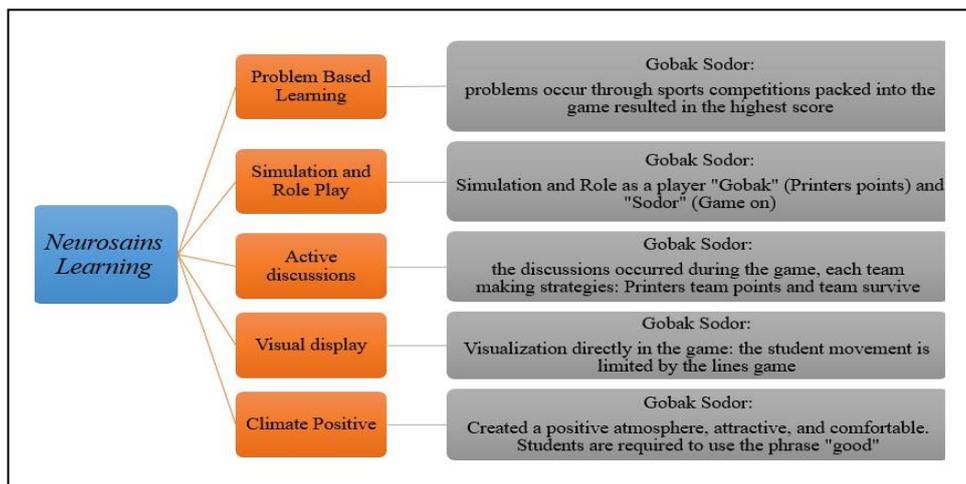


Figure 6. Scheme Implementation neuroscience through traditional games "*Gobak Sodor*"

CONCLUSION

Optimization of learning takes place through the contribution of *synergies* between traditional game with a *based neuroscience learning*. Adaptation of these mechanisms can reduce behavioral disturbances in children with behavioral, emotional, and social problems (*tunalaras*) so that children are more controlled emotional and social side. In this regard it can be concluded that

the activity of traditional games *based neuroscience learning* can be used as an optimization of character education for children with behavioral, emotional, and social problems (*tunalaras*).

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INTEREST IN LEARNING STUDENT ACTIVITIES RHYTHMIC IN SEMARANG CITY PRIMARY SCHOOL

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Abstract

In the process of learning elementary school student physical education rhythmic activity is one of the materials allegedly said less attractive to students because it is not an interesting game. This study aims to determine how much interest and the interest of students towards learning material physical education rhythmic activity. This study is a research survey. The procedure of this study to conduct observations at school, then the instrument used to determine the interest and the interest of students by taking the response from students using a questionnaire. Data analysis technique used is to use the data tabulation and frequency distribution. Based on the results of this study on the frequency distribution aspects of the psychomotor, cognitive and affective when the learning material physical education rhythmic activity. In psychomotor aspects of 120 students, which is included in both categories as many as 94 students, or about 78.3%, the category was as many as 23 students, or about 19.2%, and less category as many as three students, or about 2.5%. In the cognitive aspect which consists of 120 students, which is included in both categories were 81 students, or approximately 67.5% category were as many as 34 students, or about 28.3% and less category as many as five students or about 4.2%. On the affective aspect which consists of 120 students, which is included in both categories by 88 students, or about 73.3%, medium category by 26 students, or about 21.7%, and less category as 6 students, or about 5%. Based on the results of this study concluded that students are very interested and were delighted with physical education learning. It can be seen from enthusiasm them during the implementation of learning .. suggestion after this study were: (1) For physical education teachers in primary schools could use more models vary in material rhythmic activity. (2) Teachers should be creative in implementing physical education learning in school.

Keywords: Rhythmic Activities, Penjasorkes, interest and interest Students

INTRODUCTION

Physical Education, Sport and Health (Penjasorkes) as one of the subjects that should be implemented in schools, developing following and in accordance with the educational curriculum developed in Indonesia. Physical Education, Sport and Health (Penjasorkes) is a group of subjects that are taught from primary education to secondary or vocational education through physical activity. Penjasorkes expected to drive the growth of physical, psychic development, motor skills, knowledge and reasoning, appreciation of the values (attitude-mental-emotional-sportsmanship-spiritual-social), as well as habituation healthy lifestyle that is geared to stimulate the growth and development of physical qualities and psychological balanced.

Pangrazi (2004: 4) states that Penjasorkes is the stage of general education programs that contribute to the overall growth and development in children, particularly through the experience of movement. This is a learning program that focuses on all domains of learning, namely: psychomotor, cognitive, and affective. The scope of subjects Penjasorkes include games and sports, development activity, the activity of gymnastics, rhythmic activities, water activities, and school education. Games and sports include: traditional sports, games, skills, locomotor-nonlokomotor, and manipulative,

athletics, rounders, rounders, kippers, football, sepak takraw, volleyball, table tennis, tennis, badminton, and martial arts, and other activities (Depdiknas, 2006: 703).

Rhythmic activity in elementary school have a wide variety of options, among which; SKJ, healthy heart gymnastics, aerobics, gymnastics students, gymnastics cheerful, etc. Aerobics as a material of choice in the rhythmic activity Penjasorkes learning basic competencies in the implementation should refer to the educational goals of which are to develop skills in psychomotor development effort and maintenance of physical fitness and a healthy lifestyle through a variety of rhythmic activity in the school. It also stated Penjasorkes goal is to understand the concept of physical activity and exercise in a clean environment as information to achieve perfect physical growth, healthy lifestyles and fitness, skills, and have a positive attitude (Astuti, 2005; 7)

Penjasorkes rhythmic activity in reference to the principles of motor learning, which corresponds to the type of motion. That is; locomotor and non-locomotor. So all students are required to move around and play an active role in it. Rhythmic activity in Penjasorkes in its implementation should be based on the charge of educational objectives of whom develop self-management skills in the development and maintenance of physical fitness and a healthy lifestyle through physical activity and sport selected. It also stated Penjasorkes goal is to understand the concept of physical activity and exercise in a clean environment as information to achieve perfect physical growth, healthy lifestyles and fitness, skills, and have a positive attitude (Depdiknas, 2006: 703).

Based on the results of observations penjasorkes danwawancara with several teachers during the data collection methods used by teachers in delivering learning materials rhythmic activity include: 1) In general, the rhythmic activity performed in the school has been run in accordance with the SBC. 2) learning methods used in carrying out the rhythmic activity in schools is the method of demonstration, where some children do the learning rhythmic activity according the teacher's instructions and follow his movements. 3) Most of the teachers use media that his movement SKJ common to all societies when learning rhythmic activity. Therefore, it needs survey student interest and attraction towards learning material penjasorkes rhythmic activity in elementary school.

THEORITICAL REVIEW

Physical education

Physical education is a process of learning through physical activities that are designed to improve physical fitness, develop motor skills, knowledge and behavior of healthy and active life, sportsmanship, and emotional intelligence. The learning environment is carefully arranged to promote growth and development across the domains of physical, psychomotor, cognitive, and affective each student (Samsudin, 2008: 2). Meanwhile, according to the Law of the Republic of Indonesia Number 3 of 2005 on National Sports System, "exercise is any activity that systematically to encourage, nurture and develop the potential for physical, spiritual, and social (Republic Act 2005 Th 3, 2005: 4) , The scope Penjasorkes subjects in primary schools include the following aspects:

1. games and sports include: traditional sports, games, exploration of movement, skill locomotor non-locomotor and manipulative, athletics, rounders, rounders, kippers, football, basketball, volleyball, table tennis, tennis, badminton and martial , as well as other activities.
2. Development activities include: the mechanics of posture, the components of physical fitness and body posture, as well as other activities.

3. Fitness exercisers include: simple dexterity, agility without tools, dexterity with tools and floor exercises and other activities.
4. Rhythmic Activities include: free movement, exercise in the morning, SKJ, and aerobics.
5. Water Activities include: games in the water, water safety, skill moves in the water, and swimming and other activities.
6. Special education classes include: picnic / field, the introduction of environmental, camping, surfing, and mountain climbing.
7. Health include: inculcation of a culture of healthy living in our daily lives, especially those related to body care to stay healthy, maintain a healthy environment, choosing food and drink healthy, preventing and treating injuries, arranging a proper rest and play an active role in P3K activities and UKS. The health aspect is an aspect of its own (Depdiknas, 2006: 195).

Rhythmic Activities

Rhythmic activity called regular or rhythmic gymnastics is beautified movement activity through coordination between rhythm and movement space, as well as build and diversify. This activity is accompanied by musical movements, movements should be internalized and is an exercise that animates formation. Gymnastics is accentuate the quality of movement (Imam Hidayat, 1985: 2). Rhythmic activities conducted in schools have a standard of competence, namely: 1) Students are able to make gestures to the rhythm. 2) Students have the concepts and thinking skills in a variety of rhythmic activity. 3) Students have the sensitivity, harmony, and smoothness of motion. The purpose of learning rhythmic activity include:

1. Stimulate Creativity. Creativity can be stimulated through the freedom to fantasize and an emphasis on spontaneous motion.
2. Establish personality. With rhythmic activity requires the individual's ability to form personal and social maturity.
3. Cultivate cooperation. Perfection motion addressed to themselves sendiritak may occur regardless of the movement of another person (Imam Hidayat, 1985: 27).

In this case discussed about the implementation of the activity rhythm in primary school fourth grade done by teachers physical education, whether it is in accordance with aspects of the development of their motor relating to the material combination of the basic motion path, running and jumping, the school that my observation of SD Negeri Rejosari 01 ,, SD Negeri Pedurungan Kidul 03, SD Negeri Kalicari 01 , SD Negeri Pandean Lamper 01 in Semarang city.

Motion exercises in rhythmic activity aims to increase flexibility in the joints and exacerbate feelings of gymnasts in adjusting its movements to the rhythm of music. Movement by referring to aspects of motor development of students. Which at the age of 10-12 years old can coordinate between multiple movements. The movements are carried out on learning in elementary rhythmic activity is

1) Basic Motion Path

Stepping from one foot to the other foot with the toes facing down. The movement is done in rhythm.

2) Running

Stepping from one foot to the other and done faster. There is a moment where both feet are not touching the floor. The movement is done in rhythm.

3) Jump

The leap is done with one leg or both legs while moving both tangangerakan can be done in place or migrate.

According Samsunuwiyati (2015), elementary school age is a continuation period of infancy and preschool children. This period occurs from ages 5 to 12 years were marked by the developments in children including physical and cognitive. Later in this paper will discuss how the growth and physical and cognitive development of children of school age rather elementary school. Since the old criteria for children to be accepted in the elementary school is "maturity". For Indonesia plays penting.yaitu age criteria:

1. Children can cooperate in a group with other children, the child should not be still dependent on her mother, but must be able to adjust to a group of peers.
2. The child must be able to observe analytically. He should already be familiar with the parts of the whole and can reunite these parts. So here is the child must already have the ability to divide (Kem, 1954 in F.J Monks, 2005; 179)

METHOD

This study is a survey research. survey is an information-gathering techniques were done by compiling a list of questions to the respondent. In a survey study, the researchers investigated the characteristics or causal relationship between variables without the intervention of researchers (Mubarok, 2016). Subjects in this study were students of class V. Sources of data in this research that the student male and female students as 120 students Instruments used in product development in the form of observation and questionnaires. Observations conducted to gather information on the implementation of the learning process of rhythmic activity in elementary school. A questionnaire was used to obtain information related to the interests of students and interest in learning penjasorkes. The data collected by researchers from the observations of experts in the field related to the interest and the interest of students in learning rhythmic activity.

RESULT

The study, of interest and the interest of students towards learning material penjasorkes rhythmic activities include aspects of psychomotor, cognitive and affective student categorized into 3 (three) parts, namely good, moderate, and less. The range of scores for the determination of categories in each of these aspects can be seen in the table below:

1. In the psychomotor aspects of 120 students, which is included in both categories were 94 students, or about 78.3%, the category was as many as 23 students, or about 19.2%, and less category as much as 3 students, or about 2.5%.
2. In the cognitive aspect which consists of 120 students, which is included in both categories were 81 students, or about 67.5% category were as many as 34 students, or about 28.3% and less category as many as five students or about 4.2%.
3. On the affective aspect which consists of 120 students, which is included in both categories by 88 students, or about 73.3%, medium category by 26 students, or about 21.7%, and less category as 6 students, or about 5%.

Based on data from the results of the above studies Collecting data about students' interest or an interest in learning the material penjasorkes rhythmic activity was also obtained from

observations. From the results obtained observations of students interested and keen on learning the material penjasorkes rhythmic activity, this is evidenced by the very enthusiastic when learning, moving actively, and they were delighted.

CONCLUSION

Based on the results of this study concluded that students are very interested and happy with penjasorkes learning. It can be seen from their atusiasme during the implementation of learning .. suggestion after this study were: (1). Penjasorkes for teachers in primary schools could use more models vary in material rhythmic activity. (2). Teachers must be creative in implementing learning in school penjasorkes.

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CAN SCIENTIFIC APPROACH IN PHYSICAL EDUCATION IMPROVE CREATIVITY AND PHYSICAL FITNESS OF SENIOR HIGH SCHOOL STUDENTS LIVING ON MOUNTAINOUS AREA?

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Abstract

This research aimed analyzed the effect of scientific approach in physical education learning toward creativity and physical fitness of Senior high school students in mountainous area. Experimental method with randomized pre-test and post-test control group design is applied. The population is students of Senior High School 1 Lembang, the sample is 60 students which taken by simple random sampling method. This number is divided into two groups, each 30 students given scientific and conventional approach. Creativity test and physical fitness test are conducted. The data analyzed by independent t test with reliability level 0.05. Result: experimental group applying scientific approach got value $t = -17.997$, Sig 0,000 since 0,000 less than 0,05, so H1 accepted. Control group applying conventional approach got value $t = -12.415$, Sig 0,000, since 0,000 is less than 0,05, so H2 accepted. Experimental group got value $t = -8.601$, Sig 0,000 since 0,000 is less than 0,05 so H3 accepted. Control group got value $t = -1.675$, Sig 0,105 since 0,105 is more than 0,05, so H4 rejected. Creativity Independent Sample t test got value $t = 5.227$, Sig 0,000, so H5 accepted. Physical Fitness independent t test got value $t = 5.123$, Sig 0,000, so H6 accepted. Concluded that physical education done by applying scientific approach in mountainous area effects the creativity and physical fitness. Physical education done by applying conventional approach in mountainous area effects the creativity, but doesn't effects the physical fitness. Scientific approach better than conventional approach toward creativity and physical fitness.

Keywords: Scientific Approach, Creativity, Physical Fitness, Mountainous Area

INTRODUCTION

Through the process of formal education such as school students are educated, should be nurtured and encouraged to ability as well as its potential to evolve, had a personal quality, a healthy body and spirit as well as the temperament and character independent. The process of education, including physical education and sport is one of the efforts to support the achievement of national education goals. Physical education is an integral part of the educational system as a whole. Physical education in the 20th century more emphasis on the physical fitness, motor skills, and social knowledge^[1,2]. The problems that occurred in the field is less interesting learning process that makes physical education students are not eager to perform a given activity motion, so that the level of physical fitness of students to be low. It reinforced the notion that the old curriculum (Conventional) in a static and rigid implementation by those who apply it in the field^[3,4,5]. Other data showed that the prevalence of attending physical education classes (PE) also decreased to 29.4% in 2013 from 31.5% in 2011^[6]. Meanwhile aktivitas research trends influence the physical and all components of physical fitness, including body composition, cardiorespiratory fitness, muscular fitness, and flexibility on HRQOL or Health Related Quality of Life in children, less attention compared with adults^[7,8]. Physical education is carried out properly proven to improve physical fitness, children can facilitate positive outcomes including improved quality of healthy life^[9]. There are still many physical education teachers who lack an understanding of the learning models that can be used in learning.

Lack of teacher knowledge about the many models that can be used in learning to make teaching less effective for students to develop their creativity. Even still using conventional approaches in learning.

In this regard, the government has adopted a policy to implement the curriculum in 2013 at the start of a new semester of 2014, for all educational units ranging from elementary, junior high, and high school. One emphasis of the curriculum is a model approach called Scientific consisting of approach Problem Base Learning, Project Base Learning and Discovery Learning. Through such an approach to three students are expected to develop aspects of creativity, concentration and, intelligence of students. The learning model is considered scientifically can help the existing problems. Learning was able to develop an active student learning how to find their own (investigating itself) so that the results will be long-lasting dipeloreh in memory, the student will not be easily forgotten. Other experts predict that the approach with the best scientific ethics for current and future^[10,11,12]. With the mindset that continues honed and growing, then aim towards lifelong healthy living can be realized and can develop students' intellectual and social^[11]. In physical education, creativity or inventiveness allow the emergence of new ideas in solving the existing problems in the learning process of physical education. The level and quality of the concentrations found at the end of each lesson is significantly higher than at the beginning. The material does not affect the concentration. Increased concentration towards the end of this lesson implies the need to plan lessons more carefully or even necessary consideration to increasing the duration of the lesson^[13,14].

Others say every man has the intelligence, but its power will be different for each aspect. On learning that involves movement, students were able to express ideas, is involved in the process of thinking and be able to solve the problem kinesthetic^[15]. This is confirmed by other experts who assert that intelligence is influenced by environmental factors^[16,17,18,19], as an inborn trait^[20,21,22,23], by contrast, the theory of Multiple Intelligence as a combination of intelligence on potential inherited and skills that can be developed in various ways through the relevant experience^[24]. Meanwhile senses and intelligence factors are influenced by independent system, where the type and quality of information received by the sensory systems (senses) determines a person's intelligence^[15]. In this regard it is learning physical fitness needs to be associated with improved quality of life better and avoid the disease lack of movement, so that a person who has a physical fitness is good, it can avoid the disease sedentary (hypokinetik) so that they can enjoy kehidupanya well and unpretentious^[25]. Other researchers also highlight and identify the role of physical activity and physical fitness and mental health of children of school age who have implications for public health which is an important factor in the lives of children^[26,27].

The above opinion explained that low physical fitness can result in quality of life for the less support the activities undertaken by the students both physical education or daily activities are wont to do, so doesn't enjoy a better life. Physical education programs should raise awareness, influencing attitudes, and identify alternatives so that people can make informed choices and behavior change to achieve the level of physical and mental health is optimal^[28]. Then students who do regular exercise with a scientific approach in schools and through awareness outside the school can improve brain performance. That are expected to excel in school and will be able to compete nationally and internationally.

METHOD

The method in this study used the experiment, because this study aims to look the impact of physical education and sport taken with scientific approaches and conventional approaches to students' creativity and physical fitness. The research design in this study used the Randomized Control-group pretest-posttest design because this research used control and experimental groups. The experimental group was given treatment with a scientific approach and the control group with conventional approaches.

Population and Sample

The population in this study were junior high school students in mountainous regions (SMAN 1 Lembang), 2 class consisting of 60 students who serve as sampel. The sampling technique used the simple random sampling. In each class consists of 30 students, one group was treated with a scientific approach and other with conventional approaches.

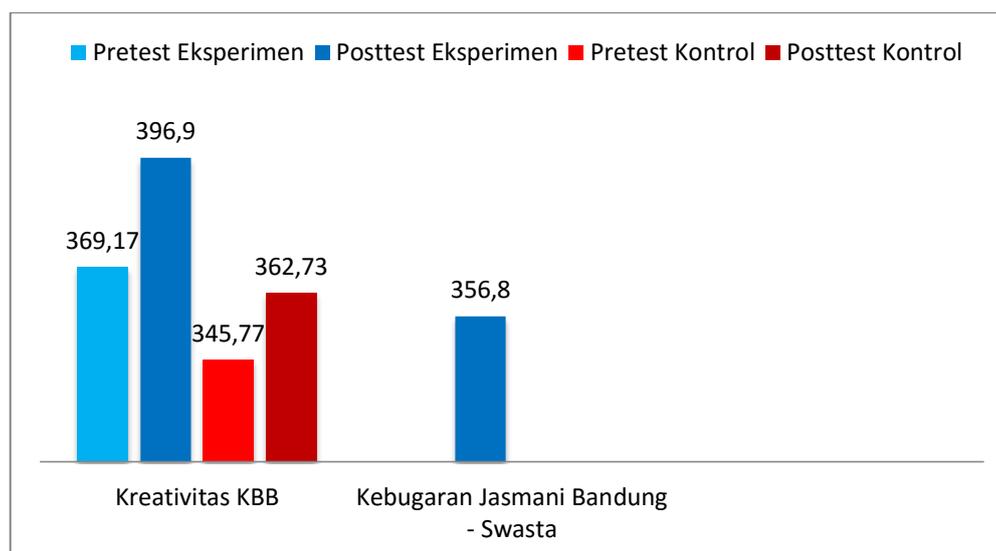
Analysis

Data analysis using SPSS version 22 with the following steps:

1. Normality test used Kolmogorov-Smirnov on a $p\text{-value} > 0.05$. Homogeneity test used Levene's test at $p\text{-value} > 0.05$.
2. Analysis of hypotheses 1 through 4 using a paired sample t test, and 5 to 6 using independent t test at $p\text{-value} > 0.05$.

RESULT AND DISCUSSION

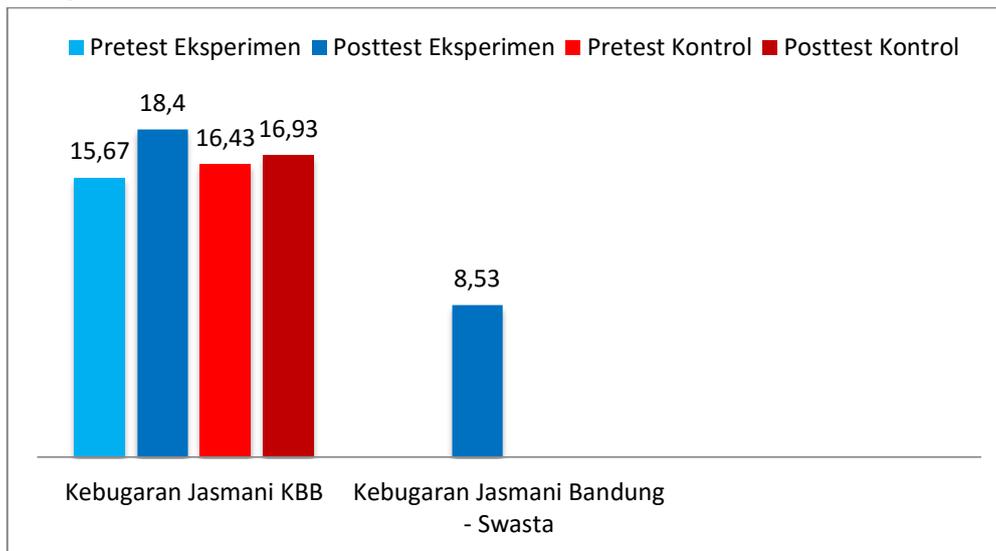
Result



Graph 1. The difference results for Scientific and Conventional Approaches Toward Creativity in Mountain Regions

Based on the data served at Graph 1. It's seen that the experimental group with Scientific approach in the area of creativity KBB pretest results 11075 with an average of 369.17, while the posttest results 11907 with an average of 396.90. The control group with conventional approaches in

the Region KBB creativity pretest results 10373 with an average of 345.77, while the posttest 10882 with an average of 362.73. Group Bandung - Swasta as comparator creativity posttest results 10704 with an average of 356.80.



Graph 2. The difference results Scientific and Conventional Approaches Toward Physical Fitness in Mountain Regions

Based on the data served at Graph 2. It's seen that the experimental group with Scientific approach in the area of physical fitness pretest results KBB 470 with an average of 15:67, while the 552 posttest results with an average of 18:40. The control group with conventional approaches in the Region KBB pretest results of physical fitness 493 with an average of 16:43, while posttest 508 with an average of 16:93. Group Bandung - Swasta as the comparison result of physical fitness posttest 256 with an average of 8:53.

Table 1. The Results Paired Test of Creativity

Paired Sample t Test	T	Sig. (2-tailed)
KR_Eks_Pre_KBB - KR_Eks_Post_KBB	-17.997	.000
KR_Kon_Pre_KBB - KR_Kon_Post_KBB	-12.415	.000

This means that physical education with a scientific approach give effect to the increased concentration of students in mountainous areas. While teaching physical education with conventional approaches also give effect on improving students' creativity in mountainous areas.

Table 2. The Results Paired Test of Physical Fitness

Paired Sample t Test	T	Sig. (2-tailed)
KJ_Eks_Pre_KBB - KJ_Eks_Post_KBB	-8.601	.000
KJ_Kon_Pre_KBB - KJ_Kon_Post_KBB	-1.675	.105

This means that physical education with a scientific approach given effect to the improvement of physical fitness of students in mountainous areas. While teaching physical education

with the conventional approach doesn't give effect to the improvement of physical fitness of students in mountainous areas.

Table 3. The Results Independent Sample T of Creativity and Physical Fitness

Paired Sample t Test	T	Sig. (2-tailed)
Kreativitas_KBB	5.227	.000
Kebugaran_KBB	5.123	.000

This means that learning physical education with a scientific approach is better than the conventional approach to increase the creativity and physical fitness of the students in mountainous areas.

DISCUSSION

Based on the results of processing and analysis of existing data, indicate that physical education is carried out in the mountainous region with a scientific approach to affect the increased creativity and physical fitness of students. Learning physical education using the scientific approach to develop student learning through discovery activities themselves by finding their own information, so that the results obtained will be durable in memory and will not be easily forgotten students. Through this way students can also learn to analyze and try to solve their own problems that it faces, so that will increase creativity and physical fitness of students. Creative people are generally quite healthy^[29], both physically and and mentally^[30], and even easier to actualize themselves. Some physicians utilize the self-actualization to be an indicator of mental health^[31,32]. Based on some of the opinions that have been expressed, can be described that creative students who are also students who have a good physical fitness. This is in line with the results of research Tarigan (2015) which states that "Physical education is carried out with the scientific approach to influence the improvement of student creativity and physical fitness of students"^[33].

While physical education was conducted in mountain areas with conventional approaches affect the increased creativity of students, but does not affect the improvement of physical fitness of students. Physical education learning with conventional approaches can stimulate students' critical thinking. Creative thinking teachers in presenting the lessons and active participation of students during learning. The group with the technical approach alone (conventional learning) indicates the effect on creativity, but still small when compared with the group with global-situational approach method (SG) or model tactical approach^[34]. But sometimes it makes the teacher forgetting that the main component of learning in physical education, namely the problem of physical fitness of students.

The results of further research shows that physical education is carried out in the mountainous region with a more scientific approach to influence students' creativity and physical fitness compared to conventional approaches. New thought or idea falsifies previously thought or idea to solve a problem. Creativity is an ability possessed by every individual in creating something new in resolve the problem^[35,36]. Results Tarigan (2015) Stating that physical education is carried out with the scientific approach to better influence on creativity, concentration, physical fitness and intelligence of students compared to conventional approaches "^[33].

Then the physical education and sports are done in school should have a positive impact on students, it is advisable to use the FITT formula means: F = Frequency of exercise 3-5 times / week; I

= intensity of light and moderate exercise with pulse zone (Target Heart Range): 50% - 70% X (220-age); Time = time to do sports activities, namely the length of 30-60 minutes; Type = Type the type of aerobic exercise performed^[25].

From the research that has been done is known that there is positively influence the level of physical activity, physical fitness and health-related quality of life^[37,38,39,40,41,42,43,44]. Education is the key in helping to 'Changing the direction of' society for a better future. It is recommended that school leaders, policymakers, university and school committee must consider the ecological effect to maximize the productivity and quality of teachers^[45].

CONCLUSION

Physical education in the mountainous region with a scientific approach give effect of the increased creativity and physical fitness of students. Physical education in the mountainous areas with conventional approaches give effect of the increased creativity of students, but does not effected the physical fitness of students. Physical education in the mountainous region with scientific approach given better influence to students' creativity and physical fitness compared with conventional approaches.

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PHYSICAL ACTIVITY OF PRIMITIVE SOCIETY IN JAMBI INDONESIA

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Abstract

This study aims to (1) reveal the phenomenon of physical activity of primitive society in their daily life, (2) understand which physical activities have the element to improve physical performance, (3) understand which physical activities have the element of motor skills. The subject of the study is physical activity conducted by primitive society of *Suku Anak Dalam* in Jambi, Sumatera, Indonesia. This study uses descriptive qualitative method with phenomenology approach. Level of confidence is tested by using data triangulation from the informants who are considered to understand the primitive society *Suku Anak Dalam's* life structure. The analysis in this study is conducted within five stages, which are: (1) data reduction, (2) data display, (3) conclusion drawing, (4) validity result improvement and (5) narrative analysis result. The result of study shows that: (1) there is physical activity conducted by *Suku Anak Dalam* people as part of survival activity in the jungle, (2) there is physical activity which has the element of physical performance, (3) there is physical activity which has the element of motor skills.

Keywords: Physical Activity, Primitive Society, *Suku Anak Dalam*, Physical Performance, Motor Skills.

INTRODUCTION

In this era, there are primitive societies which hunt and gather foods as a living. Usually primitive societies still maintain their ancestral traditions, both in the activity of looking for food or in customs. For primitive societies, maintaining and preserving the cultural tradition is an obligation that must be done, so that parents are obliged to teach the gospel to children or descendants of their ancestors so preservation continues.

The categorization and classification of elements of cultivation according to Alo Liliweri (2014: 432), type of society based on the viewpoint of ecological-evolutionary theory states "one; hunter and food gatherers (12000-8000 SM), two; horticultural society (8000-3000 SM), three; agricultural society (3000-1800 SM), four; industrial society (1800-now)". In the above explanation, it can be classified that primitive tribe societies are included in the category of hunters and food gatherers that still remain in indigenous group of *Suku Anak Dalam* in the Forest of Bukit Dua Belas National Park, Jambi Indonesia.

On the physical activity of primitive societies there is something unique to reveal. It can be seen from the activities of physical activity of primitive society in the process of gathering food to be able to live in the jungle, as well as physical activity done at the time of hunters and gatherers who have an element in shaping the physical abilities and skills of individual motion.

Based on Adi Prasetijo (2011: 192) "the life of *Suku Anak Dalam* people who live in the forest meet the basic needs independently of the results of forest and forest activities. They can meet the needs of staple foods such as cassava by searching the forest. For protein, they obtain them from hunting and fishing. To meet needs such as cigarettes, clothing, and fabrics they obtain them from

selling the yield of forest resources". Hunting and gathering activities are still taking place in public life of *Suku Anak Dalam* in Bukit Dua Belas National Park, Jambi, Indonesia.

In general, the process of physical activity by individuals indirectly affect the body condition of the doer. As in the ability of the immune system which are increased and better motor skills obtained from movements done repeatedly.

Endurance capacity is biomotor components that are needed in physical activity. And one of the most important components of physical fitness. Endurance is also understood as durability time which means the length of a person to be able to keep on working or endure the intensity of fatigue. Endurance is the ability to do the job in a relatively long time.

While the movement skill is the ability of motion that can be done by humans in performing activities that require special skills which are trained or obtained from the motion experience gained from physical activity. Movement skill is the ability to perform a task motion optimally according to his ability. Skill motion on each person is different, there are several factors that affect the skill such as levels of age and experience of motion.

Based on the introduction which is stated previously, the aims of the study concluded in this study are to: (1) reveal the phenomenon of physical activity of primitive society in daily life, (2) describe the kinds of physical activity that has an element of improving physical ability, (3) describe the kinds of physical activity that has an element of movement skills.

RESEARCH METHOD

This study used descriptive qualitative method with phenomenological hermeneutic approach. The study contained three stages. The first stage was the collection of data that collect the data on the location of the study through observation, interview, and documentation. The second stage was the analysis of the implementation of data. The early implementation of the initial data analysis, verification, enrichment and deepening of the data and developed in the form of data presentation and followed by formulating a final conclusion. The third stage was the preparation of the study, in this stage of the study, the report validity was tested and discuss the reports that have been prepared by some experts and then revises the report and write the final report of the study.

This research was conducted in Bukit Dua Belas National Park in Jambi Province, Sumatra, Indonesia. Source of data in the early stages of entering the location of the study, the writer chose informants who know and understand the living condition of *Suku Anak Dalam* which is accompanied by a guide of *Suku Anak Dalam* from the Ministry of Social Affairs. Research subject in this study is *Suku Anak Dalam* society. The writer used some tools to help in data collection and data analysis which were field notes, a voice recorder, a video recorder and a camera. The technique of collecting data tends to be participant observation, in depth interview and documentation. While the analysis of the data used triangulation techniques including data reduction, data display and conclusion drawing/verification.

Data collection techniques included observation, interviews, literature review, and documentation. Meanwhile, in order to establish the validity of the data, it used triangulation techniques. The data were then analyzed using three techniques, which were: flowmodels, interactive models and analysis domain. Data were obtained from various sources; interviews and field notes. Data analysis performed in this study were: (1) data reduction, (2) data, (3) conclusion, (4) increase of the validity of the results, and (5) narrative analysis.

RESULT AND DISCUSSION

This study uses interview and observation system which is obtained from the field, the object of the study is *Suku Anak Dalam* society. In the early stages of research on November-December 2016, the initial observation on the subject that has been determined, the observed physical activity conducted by *Suku Anak Dalam* people when doing the hunting and gathering activities. In this chapter, the writer will present the results that have been obtained from interviews with informants through direct observation, the writer can analyze the physical activity of *Suku Anak Dalam* people, the writer is able to analyze the physical activity which has an element of improving physical ability and movement skills. With the process of interviews conducted by the informant, the writer could analyze things which appear and disclosed by the informant with descriptive procedures including written or oral based on physical activity of *Suku Anak Dalam* society. The result of the analysis which is obtained by in-depth interviews, observation and documentation are as follows:

Physical Activity Phenomenon in *Suku Anak Dalam* Society

The house type of *Suku Anak Dalam* society has the form of hut in order to enable them to move, the government has built several houses for some groups of *Suku Anak Dalam* although there are a few empty houses because many of those who do *melangun* (the process of leaving the original settlement to eliminate the grief if there are relatives who died) and the house is left empty.

The entire living source of *Suku Anak Dalam* people lies in the forest with two activities; hunting and gathering. Hunting boars, deers, and elks are part of life for *Suku Anak Dalam* people by using tools such as spears, snares and guns. Hunting is done individually or in teams of two to five people. Usually they look for hiding places of the animal shelter. If the hunting target appears, then they are for the next hunt.

Gathering foods is the activity of looking for extra foods and other vegetations. In addition to searching for tubers and fruits, *Suku Anak Dalam* people are also looking for some other forest materials, such as; honey, rattan, medicinal plants, and firewood. They also look for fish in the river using fish spears, traps (*bubu*), shoot the fish, and noodling (*ngakop*).

Physical activity is the lifestyle of the *Suku Anak Dalam* people as a form of survival in order to survive in the jungle. The life pattern of *Suku Anak Dalam* people can not be separated from physical activity, because any activity undertaken is always in direct contact with the body. This is due to physical activity in the daily life of *Suku Anak Dalam* including; hunting, fishing and gathering is the way of gathering food.

Based on the above explanation, it can be seen that some physical activity conducted by a group of primitive society in hunting, are: pike activity, fishing activity, activity in gathering food and the activity of collecting some materials in the woods.

Physical Activity which Has the Element of Increasing Physical Performance

Physical activity done by *Suku Anak Dalam* people give the effect for limb movement of the doer that is formed from physical activity that they do everyday so that they are unaware that these activities affect the ability of the immune system. The following is a physical activity or physical activity that has elements in improving physical abilities in *Suku Anak Dalam* people, which are: hunting with spears, hunting with rifle, gathering food and collecting some materials from the woods.

Hunting Activity

These activities do not depend on time, instead it depends on the individual when the hunting activities would be done, and the activity can be done in the morning, afternoon, during the day or night. In hunting activities usually the hunters have to walk deep into the jungle and they have to run after prey animals and sometimes they must swim when the target prey is on the other side of the river. It is indirectly and unconsciously forming endurance and with erratic weather that boost the immune system of the skin that hence will hold hot or cold weather.

Besides, the far trip of hunting also affects one's physical endurance, the road taken by the time of hunting is sometimes up and down because of the geography of where *Suku Anak Dalam* people live inside the Taman Nasional Dua Belas jungle which has hilly ground contour. As stated by Ottawa (1998: 7) "Strength activities help your muscles and bones stay strong, improve your posture and help to prevent diseases like osteoporosis. Strength activities are those that make you work your muscles against some kind of resistance, like when you push or pull hard to open a heavy door ". As stated by Ottawa that strenuous activity affects the formation of muscles and bones strong. We can know that hunting activity is considered as heavy work, in the process of hunting the hunter must do some settings in the process of hunting like; walking, running, swimming and bringing the quarry.

Gathering Activity or Collecting Foods and Material in the Jungle

Gathering foods is the process of finding foods and forest types of material such as firewood for cooking and rattan which is commonly used forest types of material such as *ambung* or bags made from rattan to help them in carrying goods. These activities are included into heavy work because a single person may carry 50 kg to 75 kg , the good carried are varied such as tubers, fruits, rattan and firewoods. Physical activity is unwittingly forming muscle and bone strength so that it is rarely found a member of *Suku Anak Dalam* who is obese and almost every individual in *Suku Anak Dalam* society has the ideal muscular body shape.

Physical Activity which Has the Element of Motor Skills

Physical activity that they do, there is a lot of activities that affect the ability of the movement skills of *Suku Anak Dalam* people. From the movement skills that are subtle and tough. This capability is owned by the people of *Suku Anak Dalam* as the cultural traditions of physical activity they do everyday and repeatedly so that this ability continues to stick to each individual.

Good physical ability and movement skills make *Suku Anak Dalam* people able to survive the tough life. With physical abilities and movement skills obtained since child, *Suku Anak Dalam* people form a strong and skilled human from the compulsion to do to be able to continue to live with the family.

With the diversified activities and tools used in *Suku Anak Dalam* daily activities, there are some elements of physical activity that has an element of movement skills. The following is a physical activity that has elements of motor skills:

Piking Activity

Piking activity is conducted during hunting period in the woods. To use the pike, it requires good motor skills with the right technique so that the throw can hit the target. Piking activity requires the combination of accuracy, speed, technique, and strength to do the throw.

The limbs used in the process of piking are arms and legs including muscles like hand muscles as the spring used to throw, finger muscles to clamp the pike, chest muscles and arm muscles as the thrust to do the throw and leg muscles used as the stance during the pike throw, with the help eyes coordination to see the target and the hand as the tool when throwing.

Piking skill is taught by *Suku Anak Dalam* people when the children are able to walk. This is done by the parents so that their children can look for their own food in the future. The technique that is learned uses vision method, which is to ask their children to go with the parents when hunting and see by themselves how their parents use and throw the pike correctly to hit the target.

Motor skills in piking use hard motion which means the motion done using large muscles. Regarding this, the learning process is done continuously and it keeps developing until they master the piking activity.

Shooting Activity

Shooting using guns is one of the tools used by *Suku Anak Dalam* people to hunt. This tool is used to hunt big animals such as deer and boar. Due to acculturation from externals of *Suku Anak Dalam* people, they start using modern tools to hunt, using guns not only help them to hunt easier, but also avoid the risks of using pike, because using pike has a lot of risks, such as getting rammed by boars even there are some people who die because they get rammed by a big boar. Guns also help them avoid the risks although it comes with its own risks like aiming the wrong target and other people may get shot.

Teaching to shoot is similar to the method of teaching children to hunt using vision method, which is seeing by their own eyes how the technique is conducted by the parents. The muscle used to shoot is the small muscle that works when the finger pull the trigger of the guns.

The skill used to shoot requires agility and skill to shoot. This skill needs to be honed by keep doing the activity with the parents when hunting and sometimes the parents ask their children to try to shoot the target animals. This activity is continuously done so they grow the feeling when shooting the target and finally they can hit the target.

It is common for parents ask their children to go hunting together using guns in the age of 14 or older. It is based on the consideration of *Suku Anak Dalam* people that using guns should require standard body height and strong arm to endure the impact of gun shooting. The reason they have standard height is because the tip of the gun should be pointed down to the ground to avoid shooting other people coincidentally.

Catching Fish Activity

Ngakop or noodling is the activity of fish catching done by *Suku Anak Dalam* people with bare hands and this activity is done when the river is at ebb tide. This activity is done by walking across the river and the fish caught with bare hands.

The fish catching activity requires good motor skills. *Ngakop* activity requires the coordination of speed, strength, and good accuracy. If it is not done in high speed, the target will run

away and the grip should also be strong so that the fish does not get away. *Ngakop* activity requires hard motion which requires motion using large muscles such as arm muscle and strong grip from finger muscle. *Ngakop* skill is obtained by the children of *Suku Anak Dalam* through self-taught learning, which means they only see other people do *ngakop*. This activity is done to help the parents gather foods.

Catching Snakes Activity

Snake catching activity is done by *Suku Anak Dalam* people using bare hands. This activity requires good motor skills, first; speed is necessary when catching snakes, second; accuracy is necessary to catch snake head because the snake moves aggressively in dangerous situation, hence accuracy is needed to catch snake head, three; the hand strength to grip is necessary to avoid snake attack in the catching process.

Snake catching activity is done with appropriate measure of snake size, when there is a big snake it requires two or three people to catch it to avoid the twist of the snake. And the snake target is commonly python or snake in paddy field. They can sell the snake skin and the snake meat can be used as food material for *Suku Anak Dalam* people.

CONCLUSION

Based on the analysis of data from the previous discussion, it can be acquired some conclusions as follow:

1. There is a phenomenon of physical activity in the life of *Suku Anak Dalam* primitive society which still continues to happen until today as to survive in the forest. The physical activities are; hunting using pike, guns, and bare hands. The activity of catching fish, such as; *ngakob* or noodling (catching fish using bare hands). The activity of gathering foods and material from the forest such as; tubers, honey, fruits, rattan, and firewood.
2. In the series of activity that they do, there are several physical activities that has an element of physical ability increase such as the activity of hunting and gathering food and material in the forest. This can be seen from the heavy work they do in their daily life in order to survive and almost all of *Suku Anak Dalam* people have ideal muscular body.
3. The physical activity done by *Suku Anak Dalam* people has the element of motor skills such as the hunting process as well as catching fish. In terms of motor skills of *Suku Anak Dalam* people, it can be seen from the technique used to pike, shoot, catch fish and snake using bare hands.
4. The activity of piking has similar motion with javelin throw. The javelin grip technique generally uses American and Finland technique style. The way the American grips is by holding the javelin behind the cord with the index finger goes around behind the cord and the thumb push the other side, while the other fingers also go around the body of the javelin loosely. Finland style is by holding the javelin behind the cord with middle finger and thumb, while index finger holds in the body and a little askew to an appropriate direction, the other fingers also hold the body of the javelin loosely. The way *Suku Anak Dalam* people hold the body of the pike by clamping using thumb and the distal phalanx to clamp the pike.

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GANTAO ART TRADITION IN BIMA REGENCY OBSERVED FROM VALUE OF PHYSICAL EDUCATION AND SPORT

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Abstract

Gantao art tradition is one of the local arts contained in Bima regency of West Nusa Tenggara, Gantao art tradition can be applied to increase the mental attitude and the quality of the young generation, through training in physical fitness, mental attitude and discipline, so it will create a generation of young-spirited knight, The purpose of this research is to determine how the values of physical education and sport contained in Gantao art tradition. The method used in this research is descriptive qualitative method by using the phenomenological approach. The research was conducted in Bima regency with sample of six sub-districts by using random sampling techniques. The result of that research has been done in the Gantao art tradition are the values of physical education and sport for the Gantao art tradition there are values of sportsmanship, social responsibility, discipline, honesty, able to control the emotions, the value of teamwork, and fair. Endurance and physical strength as well dexterity in playing gantao obtained from structured exercise. Gantao art tradition is a local art that can be developed in sports science.

Keywords: Tradition, Gantao art, Value of physical Education and Sport.

INTRODUCTION

Nowatoday's development, social culture in sport is heavily influenced by the social phenomenon because of the dynamics of socio-cultural interaction in the community. This was in line its development, the sport continues to develop in accordance with the development of culture. Socio-cultural grounding in sports is the role of socio-cultural aspects related to sports or physical activities daily. As social beings, humans are part of the social system in groups shaping the culture and tradition.

In Indonesia there are various kinds of arts and cultural traditions of different ethnic groups that reflect diversity. To keep the tradition and the local art that has been entrenched in Indonesian society, it is important to do the preservation of the development of more modern era that resulted in the erosion of tradition and art so that we can be sure gradually tradition and art that will become extinct. To maintain and continuou Art and cultural tradition it is important to maintain the existence of local art in Indonesia.

Bima regency of West Nusa Tenggara province is an area that has a tradition of cultural art of dance with Gantao name. Gantao art tradition based on some historical accounts explaining that gantao art tradition is one that is adopted by culture of Makassar developed by coastal communities in Bima kingdom around the 16th century (Ismail: 2006: 5). Gantao art tradition to this day can still be found in some of the galleries that foster specifically and became one of the traditional culture and cultural identity of Bima. Gantao as the Milky cultural identity is important to be maintained and preserved in order to not forgotten by the younger generation and not eroded by modern cultures as

it is today. Preservation in question is to maintain the existence of gantao itself apart as a local identity can also be known widely in terms of both its historical and its presence in society.

When it is seen inside there are movements that show agility, strength, and sportsmanship in addition to the moral values also contained in Gantao artistic traditions such as the value of cooperation, fairness, and respect for the opponent. Gantao art tradition is played by two men to the accompaniment of traditional musical instruments wearing traditional costume Bima. Aspects contained in the arts as an attacking style and the style survived to become the main movement.

Gantao as a traditional art can be applied in improving the mental attitude and the quality of the young generation. This of course will be linked with the aim of youth development that are sustainable, so that it becomes an opportunity for institutions to help to improve the quality of students through training in physical endurance, mental attitude and discipline through physical education and sport that will print the younger generation who spirited knight. In addition to improve health, physical fitness, raise self-esteem, mental endurance train, develop high self-awareness, improve motor skills, improve physical abilities, fostering sportsmanship, discipline and tenacity higher.

Based on the understanding of physical education Feiring According to Jesse Williams in Williams H. Freeman (2001: 3) physical education is about a number of human physical activities in order to obtain results that are beneficial to the body. physical education is an integral part of the overall education that aims to improve individual organically neuromuscular, intellectually, and emotionally through physical activity. This is consistent with the understanding of Lutan and Chalik (2001: 21) that emphasizes the development of strength and physical fitness, but also develop the whole person: physical, mental, moral, and social in order to prepare the child's life in order to function well in society.

As researcher said in backround previous, the formulation of the problem that will be raised is: How does the movement technique gantao art traditions and the values of physical education and sport contained in gantao art tradition.

METHOD

This research used descriptive qualitative research with phenomenological approach. In the data collection, it is using random sampling techniques. Place of research conducted in Bima regency of West Nusa Tenggara province. Data were collected randomly, namely in areas that meet the criteria as a location for data retrieval. Observation and in-depth interviews conducted to obtain the desired data. The data collection technique was using the technique of in-depth interviews and observation. The validity of the data is using triangulation data. Analysis of data is using interactive analysis with the three stages of analysis, namely data reduction, data presentation, and drawing conclusions.

a. Physical Education and Sport

In this research, several parameters are used as reference for comparison, which departs from several theories about physical education and sport, Edi Suparman (2000), Abdullah (1994), and the theory of sport that promote competitive involving physical skills of complex (Coakley, 2004), another theory that a parameter in this study was proposed by Giriwijoyo (2005: 30) says that exercise is a series of regular exercise motion and planned that people consciously to improve functional ability. This can be said to be in line with what is disclosed in the Gale Encyclopedia of

Medicine (2008), sport is a physical activity that is planned, structured, and done repeatedly and intended to improve or maintain physical fitness. In connection with the sport and culture of ethics becomes crucial in sports where ethics is a theory of moral behavior in sports. Due to ethical sporting phenomenon reflects the social and cultural settings. Ethics in sport requires passion and hard work to create a clean sport (Volkwein 2014: 129). Briefly Giri Wiarto (2015) asserts that sports activities have an impact on human life, whether religious life, leisure time (leisure), patriotism, and achievement. So the purpose of physical education is a vehicle to achieve the aim of making the whole man both physical and spiritual. In addition physical education can also improve physical development, cognitive development, affective, psychomotor and social.

Another theory stated by Tamburrini (2000) sport into a lifestyle that makes us become more active or passive to the life of society, to the content of the effects of social differences that social attitude and character description of the value of sport, which is positive among others: self-discipline, teamwork, play fair, and negative examples such as: too obsessed in so that the team wants more self-effacing, always like bringing the opponent.

The term "sport" has many definitions throughout the world, which can only be fully understood in the context of historical, social, and cultural. The origin of the word "sport" is derived from the Latin "disportore", meaning dis is separating and portore is carrying, so understanding bring itself apart from interference. In most European languages, the term "sport" means all-inclusive, incorporating a wide range of human movement, including sports, recreation and leisure activities, as well as exercise and physical fitness. In German, for example, distinguish between the different forms of sports involvement depending on the main focus of the activity. For example, physical activity is oriented towards fitness is called Fitness-Sport; orientation to health called Gesundheits-Sport (sport health); orientation toward achievement and competition called Leistungs-Sport (athletic or top-level sport); orientation towards rehabilitation called Reha-Sport Focus on disability sport called paralympics sport has evolved over the last 10 years. Then the term as Geronto-Fitness (sports for the elderly), and Prestige-Sport (eg, golf and sailboats) was added in the vocabulary of the sport that evolved as a variety of sports activities. Therefore, the term sport is used in the broadest sense of the human body movement and sports (Volkwein, 2014: 14).

Sport is essentially a miniature life (Mutohir, 2004: 25). In this context implies that the basic values of everyday human life can be found in sports. Eg: competition, morality, justice, cooperation, and so forth. Sports teach discipline, spirit of sportsmanship, not easily give up, high competitive spirit, understand the rules, and take bold decisions to someone. While in Indonesia understanding of the sport (sport) is formulated in UUSKN No. 3 of 2005 Article 1, paragraph 4 is explained that the definition of exercise is any activity that systematically to encourage, foster and develop the potential for physical, spiritual, and social. The formulation of this definition is very broad, because it is not mentioned whether the activity is intended as a sport. The key word is any systematic activity. Thus this formula shows that the sporting activity in question the whole purpose is to encourage, foster and develop the potential for physical, spiritual, and social.

b. Sport and Culture

In the span of human history to date, sport and play activities are always associated integrally with the social, political, and economic. In Greece, for example, players and sports contests are based on mythology and religious beliefs. They focused on the interests of the young men from respectable society. Meanwhile, the product has implications for the political world outside the

event. Doty (2006) states that sport is a human need, if someone regularly exercises it will bring a good influence on the development and physical health. Sports besides useful for the development of physical growth also affects the spiritual development of the culprit. Exercise can give the working efficiency of the means of the body, so that blood circulation, respiration and digestion become irregular. In addition, exercise is also a major part of their communities and cultures around the world.

Sport is as an integral part of the socio-cultural systems of a given society, the sport activities that are in a society that is different from the sports activities that exist in other societies. Sport activities are merely a part of a series of actions and human behavior must be seen and understood expression is explained by taking into account factors that affect the sports activities or the human behavior. Basic factor that affects an activity or action sports, which is an organic act of the human body, is a socio-cultural systems. Social and cultural system was a reference system, which is a series of models of cognitive or knowledge which are at different levels of human consciousness.

RESULT AND DISCUSSION

Gantao art tradition into becomes popular art among youth in Bima recently because according to story and history told by the players, the tradition of Gantao art is an attractive arts which show the beauty of the movement also shows the physical strength so that in his time Gantao art tradition is an art that is mastered as a special skill for youth in Bima, even became a special skill for Bima royal soldiers at that time.

Gantao art tradition is an art attraction that shows dexterity twosome gantao by following the music that became his retinue. In the tradition of art of gantao who performed the art of dexterity as well as the attractions of physical strength and agility of movement. Gantao art tradition has a function as entertainment in society in Bima. It has existed since the beginning of the Gantao art tradition introduced in Bima. Gantao art tradition is also an event to showcase the ability of martial owned. Performance of gantao is usually held at the time of weddings and circumcisions.

a. Mechanical Movement in Gantao art tradition in Bima

Movement contained in gantao art tradition in general does not have a special name or nickname to the movements in general are referred to as tricks. There are some movement techniques contained in Gantao art tradition, such as the movement known as the prefix or rebo. This movement is naming the local language Bima which is the opening movement in games or gantao, in Indonesian can be equated with the term attractions of the opening. Rebo movement is the movement shown in the form of attraction that is dominated by elements of art, the movement of the player rebo showed some martial art movements as heating.

Some techniques of movement in Gantao art tradition as follows:

1. Salutation

In motion greeting is done by shaking hands. Both players before heating attraction, they shook hands, this shows the nature of mutual respect and respect, after that they started to do attractions such as movements in the form of moves in the martial arts punches. Movement is a movement that regards general performed as an opening in an appearance or attraction.

2. Easel Attitude

Gantao art is an art that is included in martial arts so it is not surprising that there is a movement of the easel in this game. Easel has the same functionality as the easel are common in other martial arts.

3. Warming Movement

Before entering the core of playing gantao, gantao players beforehand to show some movements, things to do either individually or simultaneously. Things to individual aims to invite an opponent in the arena directly, this attraction is also commonly referred to as a points challenging opponent in the arena.

4. Movement hit and parry

Core movement in gantao game is hitting motion and parry. The game will be marked with one of the players provide the movement that signaled to attack, the movement is marked by the other players do the hitting motion of the chest or pointing the chest as a sign ready for attack. Movements in this game is contained in the movement of martial arts and a lot of movement was showing some movement in martial arts such as attacking, hitting, blocking, slamming and punching. In the movement to hit the opponent, the player's hand of gantao should be in the open state and should not be clenched, aims to be a gantao player not feel excessive pain during the game. Goal punches are the chest.

Technique of movement in Gantao art tradition particular concern is the movement of attack and parry, the second movement is a main movement and the most common which can be marked on gantao game. In attacking movement and elements deflect the most attention is the dexterity and agility movements as movements in Gantao art tradition have in common with the movement in martial arts, especially martial arts. Some of the same movement with martial arts such as attack and parry in a duel there is an element of martial because when attacking is done by hitting the opponent and parrying was using the same movement with martial.

5. Technique of slammed

In gantao art allowed to slam his opponent, slamming technique aims to knock his opponent to appoint members of the opponent's body that begins with the catch.

6. Technique of locks

This technique is usually preceded by catchment techniques and continued with lockdown techniques and dings in accordance with the conditions and the level of gantao players attack. This lockdown technique used to thwart the efforts of opponents to catch the foot, by means of bending the leg or arm lock your opponent and bring down or slammed.

The techniques contained in gantao art movement dominated by the hit, parry and occasionally in some players use in hitting a punching motion. After its development, gantao played by younger generations are now studying in the art studio, from the creation of art gantao in some movements such as slamming movement. In a movement techniques contained in gantao elements of martial arts is clearly seen in the traditional games, but the function is used as entertainment for the community.

Gantao art tradition is a game of the people included in physical fights hard, so that there are rules and must be met by the players. Especially on motion attacking the rules imposed such should not be attacked from behind, because it is considered not show fairness, other than that in public life

in Bima attack from behind it shows cowardice, and in games or gantao if attacked from behind then considered as a challenge to a duel in the sense of fighting and will be opposed as an enemy. Attacking by using the foot is also not allowed in gantao art traditions, this is because using foot is one form of immodesty, so use your legs rather than as part of an organ that is used in the attack but only as a footstool to lock up opponents when they wanted to be dropped or slammed. Furthermore, who is not allowed to attack the head and other sensitive regions, the importance parts of this game are the entertainment element so that the movements contained in its forward elements of art and courtesy. This rule is a rule though unwritten bound.

In fending movement, no rules are overly restrictive because the movement is more at fending off an attack from the opponent's movement, which considered only the alertness and agility to deflect an opponent's attack. Movement in Gantao art tradition more hand for assault by beating and directed at the chest and sleeves. While fending off an opponent's attack it is done by forming a defense that protects the chest so that when the punch landed more of the opponent's arms. In a movement techniques contained in gantao art tradition are the values of decency, values of responsibility, fairness and mutual respect. It thus reflected in the movement and rules in games.

b. Value of Physical Education and Sport in Gantao art tradition in Bima.

There are several values of physical education and sport found in the Gantao art tradition reviewed from several aspects as follows:

1. The mental aspect.

The Gantao players have high confidence. Following high discipline is also contained in the tradition of the art of gantao it is visible in the results of structured training which makes them able to master gantao well, the discipline that will create a positive character and better so in everyday life behave orderly, organized and calm in the face situation may create a harmonious life and good in the community.

2. Self-defense aspect.

Self-defense aspect more dominating in gantao art traditions, movements in the tradition of martial art movements of gantao shows such attack, parry, slamming and locking the opponent. In gantao art, it can only attack the body parts of the chest. Elements politeness is very considered in gantao game with their rules it must not be turned opponent, may not use the legs, and should not be emotional in the performing gantao art.

3. Aspects of sport and physical education

As a folk art, gantao game also has an element of sport, it can be seen with the attitude of high sportsmanship within the player. Besides the activity of movement is range from hitting, blocking, slamming, locking, and others. When do the game players doing a lively and energetic movement. The motion of the body fitness activity is obtained by gantao players because there is a high calorie burning so that freshness and fitness awake.

In essence the Gantao art tradition is a sporting activity, because in the arts in Gantao art tradition there are various kinds of motion activity and some basic values of everyday life such as competition, cooperation, discipline, and morality. In addition there are also ethical values therein such as honesty, fair play, and sportive that has special relevance of the sport. And these values can be applied to increase the commitment to implement justice performace compete. While in the Gantao art tradition infuse discipline and cooperation for the gantao players. Gantao players must

have the motivation and expectation in order to be more advanced and reciprocal relationships between players and spectators to form mutual respect and mutual respect among humans. Gantao players in public life have always shown a positive attitude, a lot of the perceived benefits gantao players both in terms of physical fitness as well as in social life. In the Gantao art tradition is the value of physical education and physical seen in perceptual aspect is where the gantao players can enhance the understanding of the concept of motion, understanding how to understand the function and body work, and develop the ability to explore the movements of the body. Furthermore gantao players can also develop and of increasing in developing the personality, attitudes, and values that will be useful in social life. The cognitive aspect is emphasized in the gantao art tradition players can explore any martial arts movements in the gantao art so that they are able to improve the knowledge of body function is associated with physical activity.

CONCLUSION

Based on the research that has been done, it can be concluded as follows:

technique of movement in Gantao art tradition. As for the motion-engineering techniques in Gantao art tradition comprises, greeting movement, opening movement or Rebo, easel and movement of attack and parry. In the tradition of the art movement techniques of gantao, there are some rules that must be met by gantao players especially in attacking movement technique. The player cannot attack from behind, hitting the head, attacking with the feet, and attacking other vital region, because this game can do in part of chest only.

The value of physical education and sport in the Gantao art tradition is there a value of sportsmanship, social responsibility, cooperation, justice, and decency. In the Gantao art tradition can be regarded as a sporting activity because there is a wide range of motion activity and some basic values of everyday life such as competition, cooperation, discipline, and morality. In addition there are also ethical values therein such as honesty, fair play and sportive that has special relevance of the sport. And these values can be applied to increase the commitment to implement justice in the match. In addition the value of physical education contained in gantao art tradition that is located in emotional aspect, cognitive, affective and psychomotor.

SUGGESTION

1. Department of Youth and Sport is expected to be more attention and consideration to the development of artistic tradition gantao dikabupaten Bima by conducting socialization activities in schools about the importance of protecting and preserving the arts gantao which is the local cultural heritage Bima.
2. The Government of Bima district is expected to be more consistent in maintaining and developing the traditional arts in Bima district, so cultural heritage and local arts preserved and maintained.
3. To society at Bima to always love and appreciate all forms of art and culture, especially traditional art gantao manner berpatrisipasi participate in maintaining and preserving particularly among the younger generation in Bima district.

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DEVELOPMENT PLAY LEARNING MODEL ON PHYSIC EDUCATION CHARACTER BUILDING IN ELEMENTARY SCHOOL GRADE V

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Abstract

This research purposes to produce play learning model on physic education on character building in Elementary School grade V. This learning model expects to be interest of students in physic and health education so to be intern values in education character of students in elementary school special grade V. This research uses research and development by Borg and Gall. This research develops 10 steps but this research modification to be 7 steps. Try out for small control group uses students of SDN 15 of Surakarta and SDN Sumber 1 Banjarsari of Surakarta. Try out large group uses students in SDN 15 of Surakarta grade V-1 and V-2, SDN 16 of Surakarta grade V-1 and V-2, SDN Sumber 1and SDN Sumber 2 Banjarsari of Surakarta. Effectiveness test for students SDN 15 and SDN 16 of Surakarta and dissemination with international seminar. Instrument collecting data uses questionnaire and observation guide. Analysis data uses descriptive quantitative and product moment correlation. Result by research and development are: (1) changing by cycle I to cycle II to all measure aspects (2) significant correlation between observation result and values character education of students. Base of research result and development conclusion: (1) play learning model of physic and health base character education can growth values work hard character, tolerance, creative, responsibility, discipline, care, friendly and honest. Play learning model of physic and health education is "loyal play" growth value character of students. (3) Instrument observation consists work hard, tolerance, creative, responsibility, discipline, care, friendly and honest can to predict growth of values character of students.

Keywords: play learning model, physic and health education, character education

INTRODUCTION

Problem moral decline lately plagued most of the younger generation. Symptoms of moral degeneration among others characterized by widespread case of drugs, promiscuity, crime, violence and various other less commendable behavior (Lubis, 2009: v; Parji, 2002: 78). On the other hand, not a few of the younger generation who failed to show finer appropriate parental expectations. Modesty, nature friendly, tolerant, humble, helpful, and so the social solidertitas a national identity for centuries as though less so strongly embedded in them (Supriyoko, 2003: 3). It can be said even more specialized education in Indonesia leaning dimensions of knowledge (cognitive oriented) or tend intellectual / academic and ignore moral education (Suyanto, 2003: 153). Efforts to improve student achievement is inseparable from a variety of factors that influence it. In this case, the necessary creative teacher to make learning more interesting and preferred by learners. The learning process in the Education Unit Level Curriculum (SBC) requires the active participation of all students, learning activities are expected to student-centered, teacher as motivator and facilitator in it so that the classroom atmosphere more lively. Therefore, the classroom atmosphere should be planned and constructed in such a way by using appropriate learning models so that students can have the opportunity to interact with each other so that in turn can be obtained personal skills or attitudes and social skills in addition to the achievement of optimal learning. Teacher plays a strategic role, especially in efforts to form a national character through the development of personality and values

as desired. Because teachers in the learning process not only armed with enough knowledge regarding the subject areas being taught, but need to pay attention to aspects of learning

This suggests that the quality of character education learner is essential to be improved. Furthermore, survey researchers, following the state of learning in the subjects Sport Education Elementary School in Surakarta:

1. Models of innovative learning has not been widely practiced
2. Teachers teaching in a conventional way, ie how to teach the engineering approach and a teacher-centered
3. Availability of tools and learning support facilities both in quality and the quantity inadequate
4. Enthusiastic male learners in the material play, especially football, otherwise it is not eager to follow the learning
5. For character education is still largely limited to the syllabus and lesson plans and have not been implemented in learning (Interview with Master Sport Education Surakarta, March 8, 2011)

Problem Formulation

Based on the description of the background above, the problem in this research can be formulated as follows:

1. Is the learning model playing Obedient to foster values of hard work in learning Sport Education based character education in grade V?
2. Is the learning model playing Obedient to foster values-based discipline in learning Sport Education elementary character education in the fifth grade?
3. Is the learning model Obey play can foster tolerance value in learning Sport Education based character education in grade V?
4. Is the learning model playing Obedient to foster values-based care in learning Sport Education elementary character education in the fifth grade?
5. Is the learning model Obey play can foster creative learning Sport Education value-based character education in grade V?
6. Is the learning model playing Obedient to foster values-based Sport Education honest in teaching character education in grade V?
7. Is the learning model playing Obedient to foster values-based Sport Education friends in teaching character education in grade V?
8. Is the learning model Obey play can foster learning the value of responsibility in Sport Education based character education in grade V?
9. How is the effectiveness of the learning model as an attempt to play Obey internalization of values-based character in learning Sport Education character education in grade V?

THEORETICAL BASIS

Sport Education and Health in Primary Schools

Sport Education a medium to encourage the development of motor skills, physical abilities, knowledge, reasoning, appreciation of the value of (attitude-mental-emotional-spiritual-social), and habituation to a healthy lifestyle is geared to stimulate growth and balanced development. With Sport Education students will gain a wide range of expression is closely related to personal

impressions are fun as well as various expressions of creative, innovative, skilled, have physical fitness, healthy living habits and have a knowledge and understanding of human motion (MONE, 2003: 45). Sport Education in the learning process, teachers are expected to teach a wide range of basic movement skills, techniques and strategy games and sports, internalization of values (sportsmanship, honesty, cooperation) as well as the conditioning of healthy lifestyles. Its implementation is not through

Conventional teaching Sport Education in the classroom that is theoretical study, but involve an element of physical, mental, intellectual, emotional and social. Interest Sport Education Elementary School are: (1) laying the foundations of strong character through internalisasi grades in Sport Education, (2) Building a foundation of strong personality, an attitude of peace, social attitudes and tolerance in the context of different cultures, ethnicities and religions, (3) Cultivate the ability to think critically through learning tasks Sport Education, (4) Develop sportsmanship, honest, disciplined, responsible, cooperative, confident, and democratic through physical activity, (5) Develop motor skills and engineering skills and strategies of various games and sports, development activities, gymnastics, activity rhythmic, aquatic (water activity) and special education classes (outdoor education), (6) developing the skills of self-management in the development and maintenance of physical fitness and a healthy lifestyle through a variety of physical activities, (7) Develop the skills to maintain the safety of themselves and others, (8) Know and understand the concept of physical activities as information to achieve health, fitness and healthy lifestyle, and (9) Being able to fill leisure time with physical activities that are recreational. Elementary School Sport Education material mainly upscale (kl 4-6) which includes: experience practicing the basic skills of the game and sport, activity development, self-test / gymnastics, rhythmic activity, aquatic (water activity), and special education classes (outdoor) served to helping students to understand why humans move and how your way of doing the movement as a safe, efficient and effective. The implementation needs to be done in a planned, gradual and sustainable, which, in turn, learners are expected to increase positive attitudes to self and appreciate the benefits of physical activity for improving the quality of life. Thus, it will be formed the soul of sport and active lifestyles.

Nature of Character Education

Character education is a system of cultivation of character values to the school community, which includes knowledge, awareness or volition, and actions to implement these values, both against God Almighty (YME), ourselves, others, the environment, and the nation and state (Education, 2010: 4; Akhmad Sudrajat, 2010: 21). Based on the understanding of the culture and character of the nation as noted above, the culture and character education

The nation is defined as education that develops cultural values and national character in the self-learners, so it has a value and character, to apply these values in her life, both as a member of society, as well as citizens who are religious, nationalist, productive and creative. Based on the above statement can be affirmed that character education is an effort that is designed and implemented systematically to help students understand the values of human behavior associated with the Almighty God, ourselves, our fellow human beings, the environment, and nationality were manifest in thoughts, attitudes, feelings, words, and actions based on religious norms, laws, manners, culture, and customs. Furthermore, based on the grand design developed (2010), psychological and socio-cultural character formation in the individual is a function of the whole potential of the human

individual (cognitive, affective, and psychomotor) in the context of social interaction of cultural (in the family, school, and community) and last a lifetime. Configuring the characters in the context of the totality of the process of psychological and socio-cultural can be grouped into: Heart (Spiritual and emotional development), Sports Thought (intellectual development), Sports and Kinesthetic (Physical and development), and Sports (Affective Creativity and development)

The concept of Play Obey

Play Obey sourced from the opinion of David Shield and Brenda Bredemeir (1995) of his book entitled: Character development and physical activityyaitu there are four virtues which a person has a good character should display, compassion (compassion), fairness (fairness), sportsmanship (dexterity) and integrity. The observance of the provisions to be observed are as follows (Teachings in learning Play Obey):

- 1) Obey the rules,
- 2) Rely on your friends,
- 3) Keep your fitness,
- 4) Take control of your anger,
- 5) Keep your game remains free of brutality,
- 6) Control your pride upon winning,
- 7) Keep manly when they lose,
- 8) Maintain a healthy soul and a clear mind in a healthy body.

Furthermore, in the understanding and practice Play Obey defined as the quality which is characterized by kindness and sincerity toward others by:

- a) Play by following the rules, accept defeat or failure without protest, or victory without excessive excitement;
- b) Treat others as you want to be treated;
- c) Respect others and yourself;
- d) Strengthen self-control, remain polite, and accept with respect the result of the actions of others;
- e) Indicate ethical conduct while good (character) and apply the correct (action);
- f) Be a good citizen.

Also play Obey adopting of the book Don Hellison (2003), entitled Teaching Responsibility Through Physical Activity (TPSR). The outline of some of its provisions in physical activity (model play) is as follows:

- a. The basic idea: there is value in every material responsibility Sport Education, inseparable from physical activity, affective and knowledge that must be prosecuted and obtained as a result of learning
- b. used not to "cure" but as a means of learning good behavior, and develop the habit of making decisions in a productive
- c. The responsibility can be intentionally taught in learning
- d. The responsibilities and decision-making are not separated from the learning material Sport Education
- e. Empowerment for learners is preferred, through the provision of assistance in learning settings
- f. learning centered on learners
- g. Level of responsibility can be planned with giving hope and acceptable, to be achieved gradually

Themes in TPSR

- a. Integration, is not separate from the overall contents Sport Education
- b. Transfer, designed in learning to be able to take decisions in the school, home school, and in society
- c. Empowerment, learn to know, to act of their own accord in real life, the teacher brings the learner to think that he is not the victim's life, but the person who is responsible for what happens in his life
- d. The teacher-student relationship, is the most difficult thing. Personal pattern that is built from experience, honesty, trust, and communication. Need to develop partner - the equivalent.
- e. Affective, skill, and knowledge to interact dynamically and unpredictably, even priorities mixed up anytime

Model "Playing Obey"

Some Activities to Develop Motion Intelligence as the Basis In "Playing Obey". In developing the intelligence of motion (Graham, George., Shirley Ann, and Parker, Melisa. 1987) suggests we need to know in depth the motion of anything that needs to be developed. The motion is divided into three types namely locomotion motion, the motion of non locomotion and manipulation of motion. In addition, there are three stages in the study of motion of the stage of cognition, fixation and the latter is automation. In teaching a variety of ways intelligence of movement, also in the "Play Obey" safety standards must be maintained and handled well, is not enough just to give children the tools to do it themselves and then left without adequate supervision. In this study, the development of intelligence of the motion which is implemented through the study of motion in "Playing Obey" will contribute to other aspects of a child, for instance learn to appreciate the differences, respect for self and others, honesty and openness, control yourself and emotional, physical health and fitness body, work in teams and learn to socialize, and learn to compete in a healthy manner. There are 6 models play Obey developed in this study are: (1) Street Soccer, (2) Ball Kick, (3) Seize Ball, (4) Ball heading, (5) Police and Criminals, (6) Keep the Eggs.

RESEARCH METHODS

Model Development

This study was designed to approach the research and development (research and development). Borg and Gall (2007: 589) explains that the research and development comes from industry-based development model, which is used as a procedure to design and develop a new product quality. In other words, is the development of research-oriented research to develop and validate the products are used in education. Borg and Gall (2007; 564), said ten steps in development research is as follows:

For the purposes of the dissertation, the researcher tenth step simplifies the research and development of Borg and Gall's into three stages, namely (1) a preliminary study, (2) development model, and (3) testing the effectiveness of the model. The design model, referring to Dick, Carey, and Carey (2009).

a. Preliminary studies

Preliminary study of the activities of research and collecting information which has two main activities, namely the study of literature (literature review and the results of previous research) and

field studies. The results of this activity is the implementation of learning Sport Education in the field that will be used as the basis for the development of the model.

b. development Model

At this stage of the development of this model is a combination of the planning phase (planning) and draft product development (develop preliminary form of product). Main activity is goal setting, determining the qualifications and forms of participation of the parties involved in research and development, determine working procedures and due diligence. The results of these activities is a draft design model is ready to be tested.

Field test phase containing the stages: limited field trial (preliminary field testing), then revise the test results (main product revision), the test area (main field testing) and the improvement of products, field test results (operational product revision). Limited testing conducted by PTK in the cycle, while the extensive test conducted quasi-experimental, so it gets the model of effective and efficient learning model was developed.

c. Testing Effectiveness Model

Testing the effectiveness of the model consists of the implementation of the field test activities (operational field testing) and the refinement of the final product (final product revision). The goal is to test the model through a quasi-experimental group pretest-posttest) an experimental group and a control group. The results are used as consideration in making recommendations thus only the effectiveness of the model

Learning to play Obedient in SD.

d. Data source

Sources of data in the study are:

- 1) Informant: teachers, students, and principals,
- 2) Event: Sport Education teaching and learning activities.
- 3) Document: documents related to: syllabi, lesson plans, teaching materials, instructional media and other relevant documents.

e. Data collection technique

Data collection techniques that researchers use in the form of questionnaires, interviews, observation / observation, analysis of documents related to the learning Sport Education

f. Data validity

Validity of data in studies using triangulation of data / sources and methods. Triangulation of data to test the validity of data from different sources, whereas the triangulation method to test the data with different methods.

g. Data analysis technique

Trial to see the effectiveness of the model in this study carried out by true experimental approach, and the results were analyzed by t-test. The use of t-test is based on the consideration, the researchers wanted to compare the state before being given treatment by state after given treatment.

As for the evaluation of Likert Scale questionnaire and closed questionnaire were analyzed using analysis techniques mean. Data from an open questionnaire, observations, will be analyzed by qualitative descriptive analysis techniques.

RESULTS AND DISCUSSION

1. Preliminary Study

Preliminary study of the activities of research and collecting information which has two main activities, namely the study of literature (literature review research results terdahlu dn) and field studies. The results of this activity is the implementation of learning learning Sport Education field that will be used as a foothold for the development of learning models Sport Education.

2. Development Model

At this stage of the model development is done stages: small group trial, then revise the test results, and testing large groups and improvement of products, field test results. Small group trial with PTK in the cycle, while the large group trial conducted through quasi finally produced an end product that is a model of effective and efficient learning model was developed.

Table 2 Test Results The effectiveness of the first cycle and the second cycle

No	aspect	Cycle I		Cycle II		Changes	
		Σ	%	Σ	%	Σ	%
1	Hard Work	3,7	74	4,2	84	+ 0,5	+ 10
2	Tolerance	3,7	74	4,2	84	+ 0,5	+ 10
3	Creative	3,6	72	4,0	80	+0,4	+8
4	Responsibilities	3,7	74	4,2	84	+ 0,5	+ 10
5	Discipline	3,6	72	4,0	80	+0,4	+8
6	Care	3,7	74	4,2	84	+ 0,5	+ 10
7	Honestly	3,7	74	4,2	84	+ 0,5	+ 10
8	Responsibility	3,6	72	4,0	80	+0,4	+8

Table 3 shows the change from the first cycle to the second cycle measured for all aspects of the criteria that were to be good for all aspects.

3. End Product Testing Large Group

After the trial in the first stage or limited small groups, to establish a model developed second stage of trials conducted with large groups or large. Implementation of a large group trial conducted at two schools: (1) A class 15 SD Negeri Surakarta and SD Negeri 16 Surakarta class A as the experimental group, while the two schools namely SDN Source I and II Elementary School Resources as a control group. For a large group test used quantitative methods to do a quasi-experimental (quasi exsperiment) and processed using the t test.

CONCLUSION, IMPLICATIONS AND SUGGESTIONS

Conclusions

Based on the results of research and development has been done it can be concluded as follows:

1. Model of learning to play Obedient to foster values of hard work in learning Sport Education based character education in grade V.
2. Obey play learning model to foster values-based discipline in learning Sport Education character education in grade V.
3. Obey learning model play can foster tolerance value in learning Sport Education based character education in grade V.
4. Model Obey learning to play can foster values-based care in Sport Education teaching of character education in grade V.

5. The learning model Obey play can foster creative learning Sport Education value-based character education in grade V.
6. The learning model play Obedient to foster values-based Sport Education honest in teaching character education in grade V.
7. The learning model play Obedient to foster values-based Sport Education friends in the learning of character education in grade V.
8. Obey learning model play can foster learning the value of responsibility in Sport Education based character education in grade V.
9. Obey effective learning model as an attempt to play the internalization of values-based character in learning Sport Education character education in grade V

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PROJECT BASED LEARNING ON BASIC MOTION RHYTHME ACTIVITY LEARNING PROCESS

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Abstract

The need for learning model that can put the student as a subject of study to be more active and can explore the ability of self. How do the results of the application of Projec Based Learning in the learning process hands and feet rythme activity basic motion? In learning to use project based learning and students must make a move hands and feet of the rythme activity basic motion. This type of research is applied research and analysis used is descriptive quantitative. Cognitive learning outcomes in students know and understand the name and the movement of the feet and hands basic step aerobics. In the affective domain students are very enthusiastic, active imitate and demonstrate movement. In psychomotor students are able to assemble and display the basic step aerobics movement. Project Based Learning makes learning activities become more focused with five stages and the students more active and explore the ability of self.

Keywords: Project Based Learning, rhythmic activity

INTRODUCTION

Implementation of physical education learning is not as effective as expected. Goal of physical education learning is not only develop the skills of the sport, but on the personal development of the whole child. The basic concept tend to be traditional. Physical learning models should not be centered on the teacher, but the students. Orientation learning must be tailored to the child's development, content and materials and methods of delivery should be adjusted so interesting and enjoyable physical education and physical education teaching model of effective needs to be understood by those who wanted to teach physical education (Samsudin, 2008: 1).

In the process of learning Activities Rhythmic taught during still using the command method where do all learning activities with the orders of his teachers resulting in the ability of students are less able tereksplor as a whole, as well as in terms of the assessment or evaluation is still using the instrument skills so that the results obtained does not reflect the overall student results. Project based learning is a kind of learning model. Project based learning use a 5 steps in scientific approach. Scientific approach is learning Consisting differences activities observed (for review identifies Things That Want to be known), formulate questions (and formulate hypotheses), Testing / data gathering (information) with different techniques, associate / analyze / process data (information) and pull conclusion As well as communicating the results consisting Of conclusion to review acquire knowledge, skills and attitude.

Should be given another learning model. Project Based Learning model focuses on the process of learning in which the student is considered as a subject of study to explore the ability itself through learning model that is oriented to students (student center), as well as in terms of evaluation used the evaluation of the learning process Rhythmic Activities not more skill evaluation. Through a project based learning is expected cognitive and affective domains can explored well.

How do the results Implementation Project based learning in the learning process learn the basic motion the feet and hands in Rhythmic Activity? The purpose of this study was to determine the

learning outcomes application of project based learning model in the process of learning basic motion feet and hands students.

METHOD

The research used in this research is applied research in the form of an action learning activities to evaluate the learning process. Applied research is one type of research that aims to provide solutions to certain problems in practice. It contains design, material/ subject of the research, procedure, instrument, and data analysis technique, and also others related to the system/technique of research. Procedure in this Research is 1) Planning, 2) Implementation, 3) Observation and Reflection. Research instrument used in the classroom action research are: 1. The sheets of observations (observation), Sheets observation in this study consisted of student activity observation sheet that includes the affective student in the learning process basic step aerobics with a scientific approach. While the cognitive domain is to provide tick mark on the name of the step aerobic basic understanding of the material. 2) Sheet tests, Sheets tests are used to assess psychomotor students. Practice tests conducted at the end of the study that aims to determine the extent to which the level of achievement of the students of the subject matter that has been given. Data technique collection in this research are 1) observation, Observations were made to fill in the affective domain, 2) The achievement test, Achievement test was conducted to assess cognitive and psychomotor. Tests carried out by the practical test.

RESULTS AND DISCUSSION

In this study, there are three aspects are researched, which includes 1) Cognitive Aspects, which is related to the students' understanding of basic learning materials and hand foot step aerobic gymnastics. The cognitive aspect is done through questions and answers about the basic step aerobics. In this aspect there is an increase understanding of the basic step aerobics feet and hands. In addition to the results of question and answer, knowable cognitive ability in assembling motion and varying the movement. Came the creativity of students in assembling movement of the feet and hands aerobics. Activities memorize movements included on the cognitive strongly influenced by the thinking abilities of each student. The first stage in this study were observed. Student observations of instructional media such as video learning basic step aerobics. From the stage of video watching increased knowledge about the various foot and hand movements as aerobics. At this stage of the cognitive aspect has been increased as students from previously not knowing to knowing about the name and all kinds of basic foot and hand movements as aerobics. 2) Affective aspect, namely that relating to the attitude and behavior of students in learning. The result on the affective aspect is done through observations made by the lecturer. Based on observation, affective aspects of students is good. They look serious in implementing the learning stages. Visible enthusiasm when asked to demonstrate and assemble movement. 3) Psychomotor aspect, which is related to the skills of movement / performance of students. On the psychomotor result, all 35 students completed the basic learning step aerobics feet and hands. They exceed the limit of the minimum value for each of the assessment indicators. Psychomotor aspects observed by the teacher or lecture when students try and imitate movements in the videos. Basic motion ability of students in basic step the feet and hands at the beginning is a bit stiff. After several attempts and imitate the video, the student movement has been seen supple. At the stage of trying to stage occasional repeat students observe

and ask. After sampling, the students do associate stages. Associate in question is incorporates movement between the movement of the feet and hands that have been studied previously. Students stringing aerobic moves with a count of 8x8 to the right and left. The series was created student movement is the brainchild of cognitive aspects.

CONCLUSION AND SUGGESTION

Conclusions

From these results we can conclude several things, among others a) Structured activity occurs on the student in the learning process, this is due to the activity of students follow the stages of scientific learning are of observing; ask; collect information / experiments; associate / process information; and communicating. b) Students are becoming more active as a student-centered learning log. No more the command and centered on the faculty. The role of scientific dipembelajaran faculty is as facilitator, mentor and evaluator .c) Student results will be more easily monitored both cognitive, afekif, and psychomotor. In the cognitive domain of students more easily understand wide and basic step aerobics movement using video. In the affective domain, active students will be more visible on the stage impersonations and during the discussion / form a network. On the psychomotor, learning outcomes motion aerobic basic step students can practice the movements properly, as well as the experience of mastery learning with a value above a minimum completeness criteria to meet all the assessment indicators.

Suggestion

For students, the importance of understanding learning models using a scientific approach will add information about learning models to be applied when microteaching, and the Practice Field Experience. For lecturers and teachers, use the scientific approach combined with models of learning oriented student provides convenience in the process of observing, directing, and provide an evaluation. Besides learning will also be more varied.

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**Sport Paedagogy, Sport Coaching,
and Training, Sport Psychology**

PHYSICAL ACTIVITY LEVEL OF STUDENTS GRADE V MI DARUL HIKMAH KECAMATAN PURWOKERTO BARAT KABUPATEN BANYUMAS

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Abstract

This research aimed to investigate the physical activity level of students grade V MI Darul Hikmah Kecamatan Purwokerto Barat, Kabupaten Banyumas. This research was a descriptive research which employed cross-sectional design. The instrument of this research was an Indonesian version of Physical Activity Questionnaire for Older Children (PAQ-C) from Kent C. Kowalski et al (2014) which had been validated by the expert judgment. There were 69 students participated in this research. The data were analysed using the quantitative descriptive technique with Microsoft Excel 2010 and IBM SPSS Statistics 23. The results of this research are: (1) a number of 43.5% students had low physical activity level, (2) a number of 53.6% students had medium physical activity level, and (3) a number of 2.9% students had high physical activity level. Conclusion: the high percentage of students who had a low level of physical activity and the low percentage of students who has a high level of physical activity indicated that the habituation to be physically active need to be encouraged to the students. The teachers and policy makers need to formulate a policy to enhance the students involved in many kinds of physical activity forms.

Keywords: physical activity level, students, primary school

INTRODUCTION

Recently, obesity problem rises over the world, no exception in South-East Asia Countries. Malaysia had the highest overweight and obesity prevalence over other South-East Asia Countries [1]. Moreover, data from National Health Survey Singapore 2010 shown that 1 in 9 (10.8%) Singaporean age 18-69 years old suffered from obesity [2]. In Indonesia, the study of Basic Health Research (Riskesmas) 2013 shown that the obesity prevalence in man (>18 years old) is 19.7% which sharply increased from 2010 (7.8%). Even in the women (>18 years old), the obesity prevalence far increases from 17,5% in 2010 to be 32,9% in 2013. Specifically, in children (5-12 years old), the overweight and obesity prevalence is 18.8% [3].

According to WHO Report 2002, overweight and obesity would give bad metabolic effect on blood pressure, cholesterol, triglyceride resistance, and insulin, coronary heart risk, ischemic stroke, and diabetes mellitus type 2 [4]. For young people, overweight and obesity are associated with poorer academic performance [5, 6], lower self-esteem [7], and poorer health-related life quality [8-10]. Furthermore, overweight and obese young children tend to socially marginalised [11], and more likely to become victim and perpetrator of bullying behaviour [12-14]. Therefore, it is urgent to maintain the normal weight from early childhood.

Overweight and obesity occur as the result of unbalance of the nutrition input and the energy output. When the calories intake is high while the body is physically inactive, it makes the low energy output which resulted to the addition of fat in the body. If this process continues for a long time, this will make the body suffered from overweight and obesity. Physical activity had an important role in burning calories and fat which benefits to keep the ideal weight. Moreover, doing physical activity regularly and in sufficient amount is also important to get a physical fitness.

Unfortunately, the rapid development of technology has made the human activity become much easier and made the people become less active. The uses of mode transportation such as a car, motorcycle, bus, train; wash machine; lift and elevator, and other modern equipment have increased the number of physically inactive people. The limited access to the public sports facilities also influences the people to be physically active.

There is still limited research which investigates the physical activity level in Indonesia. Therefore, this study aimed to measure the physical activity level, especially in primary school students grade V, MI Darul Hikmah in Purwokerto Barat region, Banyumas Regency. The result of this research will enrich the literature of physical activity studies in Indonesia and could become a basis for the policy makers in developing a physical activity program for children.

METHOD

Research Design

This research was a descriptive research which employed cross-sectional design. The participants answered the questionnaire 1 time and those data were analysed. The honesty of the students when answering the questionnaire is mandatory because it will affect the data. So, the researchers stressed to the students to answer the questionnaire carefully and honestly and that their answer will not affect their mark.

Participant

The subject of this research was students grade V MI Darul Hikmah Kecamatan Purwokerto Barat, Kabupaten Banyumas. There were 69 students (age 10-12 years old) participated in this research.

Research Instrument

The instrument of this research was The Indonesian version of Physical Activity Questionnaire for Older Children (PAQ-C) from Kent C. Kowalski et al (2014) [15], which had been validated by an expert judgment. There were some adjustments on item no 1 related the option of sport and activities to be suitable with culture and situation in Indonesia.

1. Physical activity in your spare time: Have you done any of the following activities in the past 7 days (last week)? If yes, how many times? (Mark only one circle per row.)

	No	1-2	3-4	5-6	7 times or more
Skipping	<input type="radio"/>				
Rowing/canoeing	<input type="radio"/>				
In-line skating	<input type="radio"/>				
Tag	<input type="radio"/>				
Walking for exercise	<input type="radio"/>				
Bicycling	<input type="radio"/>				
Jogging or running	<input type="radio"/>				
Aerobics	<input type="radio"/>				
Swimming	<input type="radio"/>				
Baseball, softball	<input type="radio"/>				
Dance	<input type="radio"/>				
Football	<input type="radio"/>				
Badminton	<input type="radio"/>				
Skateboarding	<input type="radio"/>				
Soccer	<input type="radio"/>				
Street hockey	<input type="radio"/>				
Volleyball	<input type="radio"/>				
Floor hockey	<input type="radio"/>				
Basketball	<input type="radio"/>				
Ice skating	<input type="radio"/>				
Cross-country skiing	<input type="radio"/>				
Ice hockey/ringette	<input type="radio"/>				
Other:					
.....	<input type="radio"/>				
.....	<input type="radio"/>				

Figure 1. Original PAQ-C item number 1

1. Aktivitas jasmani di waktu luang. Apakah kamu melakukan beberapa olahraga di bawah ini dalam 7 hari terakhir (seminggu terakhir)? Jika iya, berapa kali? Berikan tanda centang “√” pada jawaban yang sesuai.

Aktivitas	Tidak	1-2 kali	3-4 kali	5-6 kali	7 kali/ lebih
1. Lompat tali					
2. Dayung/Kano					
3. Sepatu Roda					
4. Kejar-kejaran					
5. Olahraga berjalan					
6. Bersepeda					
7. Jogging/Berlari					
8. Senam					
9. Renang					
10. Baseball/Softball					
11. Menari					
12. Bulu Tangkis					
13. Skateboard					
14. Sepakbola					
15. Sepak Takraw					
16. Bola Voli					
17. Permainan Tradisional					
18. Bola Basket					
19. Futsal					
20. Kasti					
21. Tenis Meja					
22. Memanjat					
23. Silat/karate/taekwondo					
24. Tenis Lapangan					
25. Lainnya (sebutkan) :					
26. Lainnya (sebutkan) :					

Figure 2. The Indonesia version of PAQ-C item number 1

Analysis

Data were analysed using the quantitative descriptive technique with Microsoft Excel 2010 and IBM SPSS Statistics 23 software. The researchers made the detail of each mark: (1) a score 1 means very low physical activity, (2) a score 2 means low physical activity, (3) a score 3 means medium physical activity, (4) a score 4 means high physical activity, and (5) a score 5 means very high physical activity.

SCORING

Overall process - Find an activity score between 1 and 5 for each item (excluding item 10)

Five Easy Steps

- Item 1 (Spare time activity)* - Take the mean of all activities (“no” activity being a 1, “7 times or more” being a 5) on the activity checklist to form a composite score for item 1.
- Items 2 to 8 (PE, recess, lunch, right after school, evening, weekends, and describes you best)* - The answers for each item start from the lowest activity response and progress to the highest activity response - Simply use the reported value that is checked off for each item (the lowest activity response being a 1 and the highest activity response being a 5).
- Item 9* - Take the mean of all days of the week (“none” being a 1, “very often” being a 5) to form a composite score for item 9.
- Item 10* - Can be used to identify students who had unusual activity during the previous week, but this question is **NOT** used as part of the summary activity score.
- How to calculate the final PAQ-C activity summary score*
 - Once you have a value from 1 to 5 for each of the 9 items (items 1 to 9) used in the physical activity composite score, you simply take the mean of these 9 items, which results in the final PAQ-C activity summary score. - A score of 1 indicates low physical activity, whereas a score of 5 indicates high physical activity.

Figure 1. Scoring Guideline PAQ-C

Source: Kowalski et al (2004). The Physical Activity Questionnaire for Older Children (PAQ-C) and Adolescents (PAQ-A) Manual. Canada: College of Kinesiology University of Saskatchewan.

RESULTS AND DISCUSSION

The results of this research are: (1) a number of 43.5% students had low physical activity level, (2) a number of 53.6% students had medium physical activity level, and (3) a number of 2.9% students had high physical activity level, (4) there is no students (0%) who categorized on very low and very high physical activity level.

TABLE 1. PHYSICAL ACTIVITY LEVEL RESULT

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid VERY LOW	0	0	0	0
LOW	30	43.5	43.5	43.5
MEDIUM	37	53.6	53.6	97.1
HIGH	2	2.9	2.9	100.0
VERY HIGH	0	0	0	0
Total	69	100.0	100.0	100.0

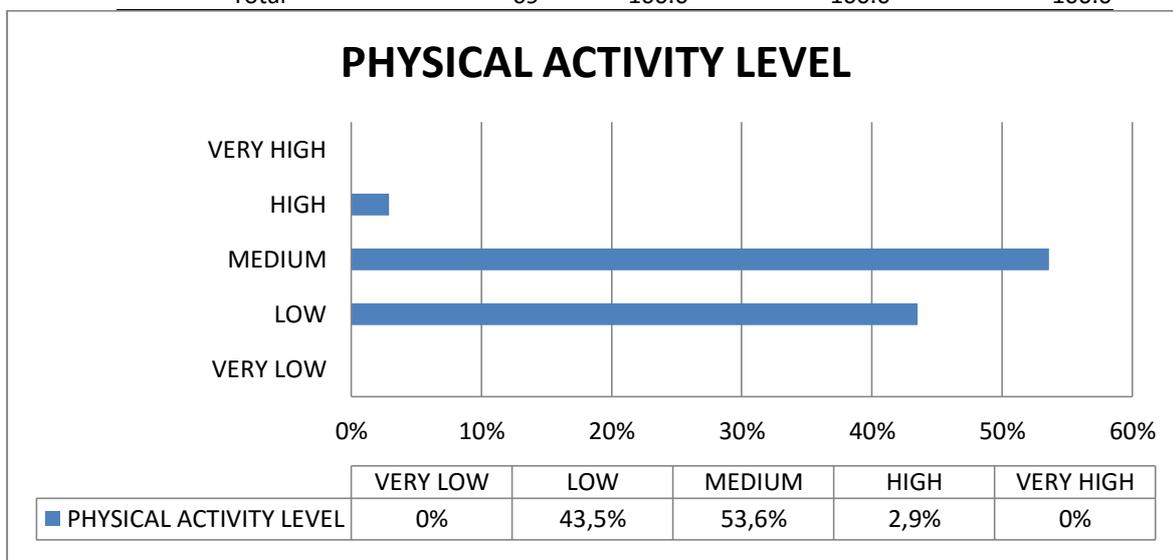


Figure 2. PHYSICAL ACTIVITY LEVEL RESULT

Those data shows the high percentage of students who have a low level of physical activity (43.5%) and the low percentage of students who have a high level of physical activity (2.9%). These results are linear with the interview and observation results to the students. Students said that they were more likely to play the game online when they were at home, which made them lazy to play outside with their peers. Students felt more comfortable to stay at home after school because of they completely tired with school’s activity. This condition indicated the low level of physical fitness of the students. The school’s location which is in the dense area with modern lifestyle (e.g. the using of many kinds of technology) also became the cause of the high percentage of students who had low physical activity level.

The researchers found that the student were less active in the recess time, especially the obese students. The limited access to the open space in the school which is only 7x18 m² for a total

416 students was also one of the causes of inactivity. Religious ritual (praying) on the second recess time is also the reason of why many students choose not to be physically active on recess time.

The high percentage of the students who had low physical activity level is in line with the previous studies. Using the objective measurement that is Tes Kesegaran Jasmani Indonesia (TKJI), Agus Amin Sulistiono (2014) found the similar results with this research that the primary school students who had a low level of physical fitness were 42.27 percent [16]. In addition, Liestufaroh J. (2013), by using TKJI found that most of the students grade V SD Negeri 1 Gambarsari, Purbalingga had low and very low physical fitness (92,5%) [17]. Komhery (2016), using TKJI, also found the similar result that most of the students grade 4 to 6 of SDN 01 Kecamatan Kayuagung, Kabupaten Ogan Komering Ilir had low and very low physical fitness (91,8%) [18].

CONCLUSION AND SUGGESTION

The high percentage of students who had a low level of physical activity and the low percentage of students who has a high level of physical activity indicated that the habituation to be physically active need to be encouraged by the teacher and policy makers toward students. The teacher should make a reformation in the way of teaching physical education so that the students become more physically active during physical education lesson and also in their daily activity. The teacher could give movement homework to the students to get them active every day. Furthermore, the policy makers need to encourage the students to be active during school days and weekend. Firstly, the policymakers need to increase sports facilities in the school. Secondly, there is need to extend recess time so that the students will get extra time to move. Lastly, the school should encourage the students to play physical games or active traditional games during recess to enhance their physical activity.

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IMPROVING MOVEMENT SKILL IN SEMARANG CITY PEOPLE WITH “MAN TO MAN” GAMES ON CAR FREE DAY

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Abstract

MAN TO MAN is a game that combined elements of some sport. Because, MAN TO MAN played in the field about the size of badminton, the technique such as playing tennis and paddle for equipment like table tennis sport, very appropriate to be developed. MAN TO MAN required in the value aspect of the personal development of individual components, namely cognitive, psychomotor and affective. On the other hand MAN TO MAN has practical value, economical or inexpensive and provides pleasure and satisfaction for all age levels of play. With the development of a sports game MAN TO MAN expected to increase the diversity of sports that can eventually serve as a means of education and teaching to enhance the dignity of the nation. The Car Free Day set out a challenge for a city belong Semarang city, neighborhood or group, to spend one carefully prepared day without cars, observe closely to study and what exactly goes on during that day, and to publicly and Collectively reflect on the lessons of this experience and on what MIGHT be prudently and creatively done next to build on Reviews These.

The exercise Considered car users to be "addicts" who need to be "treated" in some way. The Organisers Considered this to mean that Motorists should have no choice but to be without cars, at least for a time. In this particular instance the proposed "treatment" was to find an answer to the following question in the main three parts, Is it possible to get drivers out of Reviews their cars in one or more cities, in ways that will be tolerable in a pluralistic democracy, for at least long enough to demonstrate what needs to happen to make a car-less (or, more accurately, less-car) urban transport paradigm actually work.

Keywords: man to man game, car free day

INTRODUCTION

Play in human life has become a part of life that are sometimes difficult or cannot be forgotten or left behind by the perpetrators. In fact, play activities by many already considered to be one of the necessities of life, for not only for children, but adults and parents felt need of the situation and play activities in his life. They felt derive pleasure or satisfaction after playing activities, can eliminate fatigue because of the tasks and work, and not a few who feel the freshness regain body and soul.

Then, what play activities mostly done by men in his life? There are different types of games are usually done by the children, both school and community environment, either using a tool or without instruments. In further developments, because actors use physical activity as playing like walk, run, jump, throw and so forth, which can indirectly influence the health of the body, then eventually known as the sports game.

The Car Free Day set out a challenge for a city belong Semarang city, neighborhood or group, to spend one carefully prepared day without cars, observe closely to study and what exactly goes on during that day, and to publicly and Collectively reflect on the lessons of this experience and on what MIGHT be prudently and creatively done next to build on Reviews These.

The exercise Considered car users to be "addicts" who need to be "treated" in some way. The Organisers Considered this to mean that Motorists should have no choice but to be without cars, at least for a time. In this particular instance the proposed "treatment" was to find an answer to the following question in the main three parts, Is it possible to get drivers out of Reviews their cars in one or more cities, in ways that will be tolerable in a pluralistic democracy, for at least long enough to demonstrate what needs to happen to make a car-less (or, more accurately, less-car) urban transport paradigm actually work.

MAN TO MAN is a game that combined elements of of some sport. Because, MAN TO MAN played in the field about the size of badminton, the technique such as playing tennis and padle for equipment like table tennis sport, very appropriate to be developed. MAN TO MAN required in the value aspect of the personal development of individual components, namely cognitive, psychomotor and affective. On the other hand MAN TO MAN has practical value, economical or inexpensive and provides pleasure and satisfaction for all age levels of play. With the development of a sports game MAN TO MAN expected to increase the diversity of sports that can eventually serve as a means of education and teaching to enhance the dignity of the nation.

As one type of sports games, badminton has become a very popular sport in Indonesia, even as some of the accomplishments achieved in the arena badminton player of international championship, then the branch are always a mainstay Indonesian contingent to medal in world championship level. Unlike the case with badminton, tennis, although this is now growing rapidly in the community but the achievement is still far from expectations. Many of the real constraints faced in the development of tennis sport. One of the fundamental fields is very limited there, so the introduction of programs that should be the first step in construction effort to be blocked, and eventually the seeds of a powerful tennis player are very limited in number.

FACILITIES AND EQUIPMENT

Field, MAN TO MAN played in a rectangular shaped field with the same size badminton court, which is 13.40 m length and width of 6.10 m. in the middle of the field is limited to the net 80 cm in height at the middle and 85 cm at the net post. Surface field can be clay, grass or fields marked with a line width of 5 cm or rope. Thus to make the field need not require MAN TO MAN land or space that is wide enough as to the tennis court, so that in every possible community can make TONNIS field.

Because MAN TO MAN can be played by all age groups, ie groups of children aged 6-12 years and above 12 years of the field is also used there is little difference. Field for the 6-12 year age group, the field is only divided into 2 parts namely the right and left (Figure 1)

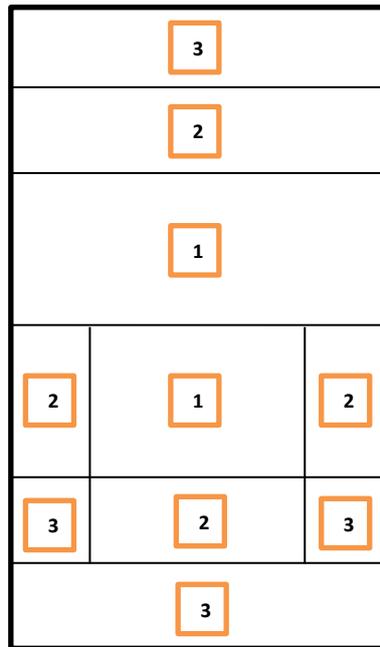


Image 1. Field of MAN TO MAN GAMES

Racket (paddle) Racket that is used to hitting the ball is in the form of paddle racket. Paddle is made of lightweight wood, but strong or not easily broken, such as multiplex board with a thickness of 8-12 mm. This bat model can be made in various forms with the overall length of 32 cm (8 inches long handle and the top 24 cm), and 20 cm wide. To reduce weight and wind resistance bat in the bat can be made small holes without disturbing the surface at the time of the ball. Paddle model can be made as follows. (Figure 2)

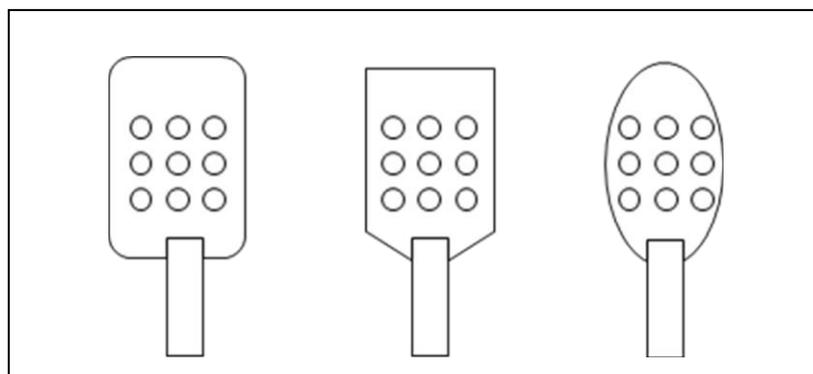


Image 2. MAN TO MAN Paddle

Ball of MAN TO MAN like a tennis ball-sized ball in general but the air pressure is very less and lighter; with the intention that the ball does not bounce hard and the ball becomes slower pace is not fast or like the regular tennis ball. This type of ball has been sold in sports shops with interesting color combinations and low prices, or can use an old tennis ball has reduced the air, thus the game becomes more economical.

With the use of the field, rackets and balls as described before, the game has its own characteristics MAN TO MAN very possible to be played by students in the school environment from primary school to high school or even student level, and also by all levels of society from different age groups and economic level.

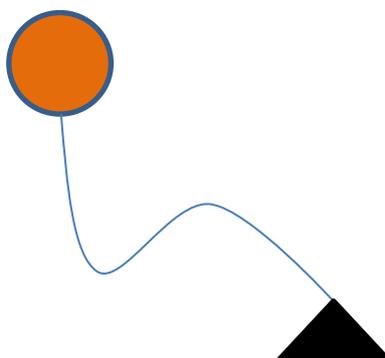


Image 3. MAN TO MAN Ball

CAR FREE DAY IN SEMARANG

Semarang, the capital city of Central Java, held its Car-Free Day that closed the main avenue of the city from cars and invited local pedestrian to exercise and having their activities on the streets that normally full of cars and traffic. Along the road from the Simpang Lima on Cental of Semarang, to the Pemuda Street, all the way , cars are cleared out for pedestrians. Car-Free Day in Semarang is held every Sunday. It is held on the main avenues of the city, Jalan Pemuda and Sompang Lima, from 6 AM to 11 AM.



Image 4 Man to Man Game In Car Free Day

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FUNDAMENTAL MOTOR SKILLS OF EARLY CHILHOOD STUDENTS' IN PADANG, WEST SUMATERA

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Abstract

The quality of human health continues to decline slowly, this condition occurs with increasing people who are physically inactive. Effect of this situation is increasingly high number of people with obesity, especially children are the most vulnerable. It is therefore important to know the activity level of children by knowing their basic movement skills. The study was conducted on 120 students of Early Childhood Education (PAUD) in Padang with 3-6 years old using the Test Gross Motor Development-2 (TGMD-2). The results showed that for locomotor skills of as many as 30 students were above average and 43 students were below average, the other 47 students are in the average category. Then for object control skills as many as 17 people were above average, 44 people were below average, and others as many as 59 people are in the average category. Combined both locomotor and object control skills together as many as 33 people were above average, 47 people were below average, and others as many as 41 people are in the average category. It can be concluded that the fundamental motor skills of early childhood students in Padang are in the average category. From the results of this study are expected to be further research with a larger scale, so it can get a clear picture of the level mastery of fundamental motor skills of children in West Sumatra, Indonesia.

Keywords: fundamental motor skills, early childhood, tgmd-2

THE TALENT TEST IN TAEKWONDO

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Abstract

The current sport achievement in Indonesia, especially Taekwondo, is determined by many factors; namely method of the coaching and method of recruiting athletes that so far still do not have the fixed rules or that are used for the purpose of athlete recruitment that will be trained to be the mainstay of national athletes. This can be seen that there are still many athletes who have exceeded the golden age who are still being hired to perform in the event of multi championship. The selection method of the talented athletes has been a hot issue for a long time especially in the competitive sport kinds. Not surprisingly, the developed countries such as Australia, Russia, Romania, Bulgaria, Germany and China are very concerned towards the selection process of recruitment, because it is associated with the confidence that the selected children should be ready to undergo a serial of regular trainings and they are believed to be able to show the best performance next in their golden ages. Therefore, the selection process is to be very closely linked to which the ideal age of children is to start the defined trainings, and to which the peak age when the children are at their golden achievement. Sport talent identification is the process of granting traits (characteristics) towards the basic capabilities of the inborn skills which can reinforce the sport skills. This study is a descriptive qualitative study using the phenomenological approach. The data of this study will be the junior high school students (50 boys and 55 girls) who are active in physical education and exercise. Some constructive studies that so far have been developed in the field of sports are the test instrument construction and instrument construction to assess the physical ability or movement skills.

What will be developed or constructed In this study is a measuring instrument to determine the talent in Taekwondo in the sparring category (kyorugie), which is specifically to be applied to find the talented athletes at the age of 12-14 years. In accordance with the research objectives that have been formulated, the method used in this study is the instrument construction method, because this study is a type of research that is done to construct a test instrument design.

Keywords: Test, Talent, Taekwondo

INTRODUCTION

Sports coaching system in Indonesia is depicted in a sport building that puts the potential talent coaching in the early age as the main foundation, then a systematic coaching is applied which is then staged and sustained to achieve the highest performance result. Early childhood coaching is used as a foundation for the development of potential and talent, and then to be further developed in the tiered coaching which is sustainable so that the optimal performance results can be achieved.

Based on the Indonesian Presidential Regulation No.22 of 2010, it is implied that the main target of developing the prospective top national athletes relies on the potential athletes, who are proven scientifically or factually, having the prospect to be developed through serial of trainings to achieve the international level, through the development stages and sustainability training programs, based on the principles of long-term athlete coaching.

In addition, it is also mentioned that the parameter of the successful development of the prospective top national athletes is the successful identification of top national athlete candidates. The development scope of top national athletes involves a scientific and systematic effort to adapt

and empower the talented athlete candidates to meet the requirements to be the top national athletes. Systematically developing the talents of athletes from an early age is to use the sport scientific approach and sport technology (Science and Technology). The sport policies in Indonesia state that a sport achievement can be done by anyone who has the talent, ability, and the potential for best achievement.

There are many references which state that to be able to perform in sport optimally, an athlete needs to be supported by many factors including the main one factor is the giftedness or in-born talent. Based on some expert opinions, Wang et al (2011) have concluded that success in sport is the result of a complex interaction of some variables that are fully understood. And therefore, for people to become champions, the aspect of talent is not to be neglected by them. In the sport perspective, there are two assumptions that are used in assessing the giftedness or in-born talent in sports, namely: (1) In particular population, there will be at most 15% of individuals who have sport talent, while the rest are less talented, (2) All members or individuals in a population actually have in-born talent, but just not all of them are really talented and they don't have the accurate information about their achievement potentials on certain sport branches.

The study on the development of sport technology has an impact on the guidance system of sport achievement, especially towards the prediction in terms of physical ability, anthropometry and physiologies which are to be prepared since the beginning, specifically for those who are the prospective potential athletes. Physical ability and the physiological function are to be predicted according to motoric development, motoric learning and physiology. Based on the studies of some related sciences, the candidates for potential athletes as early as possible can be effectively and efficiently prepared.

Indonesia has the potentials to compete for the sport achievement in the international level. Indonesia's population is large enough and it has diverse ethnicities, cultures, and the character. This becomes a great capital to create a number of athletes who are very potential to gain the highest achievement in the international level. The standard used to convince the competitive potential of Indonesian athletes at world level can be seen from the results of multi-sport event such as Sea party games, Asian games, and the Olympics. From the historical records, it can be seen that Indonesia has ever gained a silver medal from archery sport at the Seoul Olympics in 1988, in Seoul South Korea women's team event, named Lilies Handayani, Nurfitriana Saiman and Kusuma Wardani.

Though, Taekwondo was still in the game show at that time and Indonesian team could not gain a medal, it had already passed the 2 athletes, named Ina Febriana and Virna Bolang. Then, in the Barcelona Olympics 1992, specifically in Taekwondo event, Indonesia could win some medals; Rahmi Kurnia medal (silver), Dirck Richard (silver), Jefri Triaji (bronze), and Susilowati (bronze) with a total of 2 silvers and 2 bronzes. But since then, Indonesia has not passed its best athletes at the Olympic level, and only in the Sydney Olympic of Australia, Indonesia could release one athlete named Yoana Wangsa Putri. She, however, was defeated in the first half. And since then, in some other Olympic games, Indonesia has no longer released its potential athletes.

The more given concern is on that in participation the history of Taekwondo of Multi Event Sea games, Indonesian athletes could not gain any gold medals such as in the Sea Games of Myanmar in 2013 and it only gained 2 silver medals (by Stephen Ong and Selviana Jahabut Rosok) and 4 bronze medals (by Basuki, Aghnini Haque, Agiek, Eka Sahara).

Indonesian Sport achievements especially in Taekwondo is then conclusively determined by many factors, namely the pattern of the coaching and athletes recruitment method which still do not have a standard rules that can be used for the recruitment of new athletes to be prospected as the mainstay of the national athletes. This can be seen from the facts that there are still many athletes who have exceeded their golden ages to perform in the event of multi championship but still hired, such as Basuki who are aged above 30 years and Selviana Jahabut Rosok and Eka Sahara who have also been approaching the age of 30 years.

Indonesian contingent got the third position in the final standings with a total of 3 gold, 5 silvers and 3 bronzes in Asian University Games held in GOR Dempo Jakabaring Sport City (JSC) Palembang, Thursday (9-11 / 12/2014). On the first day, the national team got a gold medal in the men's team *poomsae* category by Maulana Present, Fazza Muhammad and Muhammad Abdurahman Wahyu. In this category, they managed to collect a point value of 7.4200. Their scores exceeded Thailand and Singapore that each won only 7.2500 and 7.1250. Next Maulana Hadir appearing in a number of individual men also got a silver medal. The gold medal in this class was won by Kanawat Sukcharoen of Thailand with a score 7,8850. And it was also on the woman of individual class, Indonesian taekwondo named Mutiara Habiba won a silver medal, while gold was taken by Philippine athlete named Junvinile Faye Chrisostomo

Problem Formulation

- a) What Indicators are effective for *anthropometric* measurements in identifying the talented athletes of Taekwondo in sparring category (kyorugie)?
- b) What Indicators are effective for *physiological* tests to identify the talented athletes of Taekwondo sparring category (kyorugie)?
- c) What Indicators are effective to *biomotoric* test to identify the talented athletes of Taekwondo sparring category (kyorugie)?
- d) Is the development model of giftedness tests for the taekwondo athletes through anthropometric measurements, physiological tests and *biomotoric* in identifying talented athletes of Taekwondo sparring category (kyorugie) effective?
- e) What is the level of acceptance like in the respondents, especially athletes and coaches, towards the development of a giftedness test model of taekwondo in identifying the talented athletes of Taekwondo sparring category (kyorugie)?

Objective

- a) To improve the quality of sports training, especially in the process of talent identification.
- b) To Identify the taekwondo lovers in the ages 12 to 14 years who have accurate information about its potential physical abilities in the sport of Taekwondo, especially in the sparring category (kyorugie).
- c) To help trainers and coaches in the sport to find the seeds of Taekwondo athletes talented in the sparring category.
- d) To make it more efficient in the talent scouting system especially in Taekwondo sport in the sparring category.
- e) To accelerate the birth of Taekwondo athletes and Taekwondo-in in the sparring categories for the best sport achievement from Indonesia.

METHOD

This study is generally aimed to generate the indicators of anthropometric measurements, and *biomotoric* physiological tests that can be used to identify the seeds of the talented athletes of Taekwondo sport in the sparring category (kyorugie).

Specifically the study has the following objectives:

- a) To obtain effective indicators for the anthropometric measurements in identifying the seeds of the talented athletes of Taekwondo sport in the sparring category (kyorugie).
- b) To obtain effective indicators for the physiological tests in identifying the seeds of the talented athletes of Taekwondo sport in the sparring category (kyorugie).
- c) To obtain effective indicators for the *biomotoric* test in identifying the seeds of the talented athletes of Taekwondo sport in the sparring category (kyorugie).
- d) To find the model of measurement equation of anthropometric, physiological tests and *biomotoric* in identifying the seeds of the talented athletes of Taekwondo sport in the sparring category (kyorugie).
- e) To produce Software (software) that can be applied to identify the seeds of the talented athletes of Taekwondo sport in the sparring category (kyorugie).

The procedures of the instrument development were done in three stages. Stage I begins with a process of identifying the model tests of the talent scouting and then collects the items test of measurements, the selection of measurement test items by consulting the Taekwondo coaches, and a number of competent sport scientists and measurement test experts in sport.

At this stage, it was done a related literature review of the talent scouting, anthropometric measurements, physiological tests and *biomotoric* test in Taekwondo athletes who performed both nationally and internationally. The results of these activities are designed as a framework of the construction concept to produce measurement instruments of anthropometric, physiological tests and the developed *biomotoric* test. Furthermore, the results of the measurements test done in the stage 1 were identified as a reference to produce a measurement model of anthropometric, physiological test and *biomotoric* test called the Chosen Test Instrument Design (CTID), which will be tested in the study of stage 2.

Stage 2 is a preliminary study, which is a trial test of CTID obtained in the first stage, aimed to create a model for the measurement of anthropometric, physiological tests and *biomotoric* test. The field trials model was to test the measurement RITT on the subject of children aged 12-14 years consisting of 105 junior high school students (50 boys and 55 girls), active in physical education activities.

Based on the analysis of test results will be determined instrument for the measurement of anthropometric, physiological tests and *biomotoric* test. The instruments that do not meet the eligibility criteria (load factor 0.06) of *anthropometric* measurement, physiological tests and *biomotoric* test will be eliminated. The items in anthropometric measurements, physiological tests and *biomotoric* test that meet the eligibility criteria will be selected in stage 2, then they will be used as Chosen Test Instruments (CTI) and will be tested in the field implementation in the study of stage 3.

Stage 3 is a trial study of the field implementation on the more subject, consisting of 205 junior high school students (100 boys and 105 girls) aged 12-14 years and active in physical education

activities. The research objective of stage 3 is to get the anthropometric measurement instrument, physiological tests and *biomotoric* test that can be used in identifying the seeds of the talented athletes of Taekwondo sport in the sparring category (kyorugie).

Based on the analysis of the test results of the field implementation, it will be obtained a model of anthropometric measurement instruments, physiological tests and *biomotoric* test. Then software (software) will be made. Methods of instruments testing used this study is the method of instrument preparation, because this study is a type that is done to construct or prepare an instrument tests design. The constructive studies that have so far developed in the field of sports are the preparation of the test tool or a measuring instrument to assess the ability of physical or movement skills.

In this study, however, it will be developed or constructed an measuring instrument to determine the talent Taekwondo in the sparring category (kyorugie), specifically to be applied to the seeds of Taekwondo athletes in the sparring category (kyorugie) aged 12-14 years. The subjects in this study, for the purpose of constructing an anthropometric measurement test, physiological tests and *biomotoric* test are the junior high school students who meet the determined criteria aged 12-14 years, from Central Java.

The age determination of 12-14 years is based on the regulation by WTF (World Taekwondo Federation) in terms of the competed age groups. The population and samples taken in this study are the junior high school students aged 12-14 years, active in physical education activities and participating actively in some trainings in Taekwondo Dojang, the Board of Taekwondo Central Java. The sampling technique used in this study is purposive sampling.

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“SWING TRAINER” AS A SWINGING TRAINING AID TOOL ON WOODBALL MALE ATHLETES

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Abstract

This research aims at (1) generating a prototype design aid tools that can be used to swing in swinging training for beginner and advanced level of woodball male athletes, (2) testing the design of swinging training aid tools whether or not be effectively used to improve the skills of athletes' swinging motion. Here are steps of developmetal procedures: (1) research and information collection, (2) planning, (3) develop preliminary form of product, (4) preliminary field testing (5) main product revision, (6) main field testing by 6 athletes, and (7) operational product revision, (8) operational field testing by 10 athletes, (9) final product revision, (10) dissemination and implementation. The result of this research is a product and this final product is a training aid tool of swinging training which is so-called “swing trainer” that can be used for swinging practice. The tool's validation result is obtained from an assessment rubric from woodball experts and tools experts with the score 92 (exact). Meanwhile, the efectiveness of this prototype was obtained from an assessment result by woodball experts in a small scale experiment and a large scale experiment. From those experiments, the average score of athletes performed that most athletes can do the whole swing motion and there are 16 athletes clarified that the training aid tool “swing trainer” is an effective tool to be used in swinging practice.

Keywords: swing trainer, research and development, woodball

INTRODUCTION

Woodball is kind of sport played with a wooden mallet and wooden balls that has lot of similarities to putting in golf. The goal of the sport is very simple, to strike the wooden balls through the small gates whose width is slightly larger than the ball. Woodball game is almost similar to the game of golf, but the holes (hole) is replaced by a small wicket (gate) and when balls are hit with a mallet woodball, the ball will roll, being a golf ball when the ball is struck almost a whole will soar. (Kriswantoro, 2016).

The basic motion of woodball game is a swinging motion. Swinging motion is basically like a pendular movement or a very simple arch. Swinging motion is used on all strokes from the tee (early starting hit), to the strokes in a gate area (the goal). The fundamental aspects of the woodball swing still the same, but the length and the normal swing speed is different depending on the strokes used by the athletes.

The most important concept in the swinging techniques in woodball is when the athlete can direct the ball through a good swing motion. In woodball, the ball is not moving before being hit, so the main goal is to develop consistent swings. One technique to develop a consistent swing is to imagine when the swing is at the wheel imagine sloping. The ideal swing will follow a path that is constantly spinning along a sloping field.

The observation conducted by the researcher in the Mini Golf Course of Unnes toward some beginners and advanced athletes at Woodball Students Club of Unnes showed that there are still

many errors when students practice a swinging motion. Errors found in research include positions in swinging preparation (setup), mallet swung backward before hitting (backswing) and after the mallet head comes in contact point with the ball (follow through). The results of the observations concluded that an aid tool is needed to facilitate students easier to practice swinging motion as well as a way to faster muscle memory because the motion is already in the field of the correct swing.

The researcher found problems to follow up dealing with this study. Based on the observations, the problems are as follows: there are as many as 13 regional Indonesian Woodball Associations in Central Java don't have a standard swing trainer. The swinging training aid tool used by the regional woodball association in Central Java is only a simple structure that uses two sticks that were put down on the ground / floor parallel to the direction of the body which is less appropriate for the athletes. Central Java Regional Woodball Association (IWbA) did not have plan to develop a training aid tool to swing practice, so that the woodball athletes in Central Java have difficulties in mastering the correct swing technique. According to the explanation above, the researcher would like to develop a standard swinging training aid tool for woodball athletes which is modified from a standard golf swing aids (PlaneSWING®), so that this developed training aid would have the same functions with the the golf swing trainer and tend to have more economical price.

RESEARCH METHOD

In this study, the researcher conducted a research and development method that would bring about a swinging training aid tool for woodbal athletes as the product of the study. The swinging training aid tool then would be so-called woodball swing trainer. This woodball swing trainer aims at facilitating woodball athletes especially male athletes in swinging motion practice on woodball. The materials used in the manufacture of swinging tools are stainless steel pipe, steel plate, door hinges, mallet, heat shrink tube, rubber mats, elastic straps, and stainless balls. All the developmental research steps were done based on R&D method.

The procedure used is the research and information collection, data collection, product design, design validation, design revisions, product testing, product revision, and trial usage. The design trial conducted through two phases, namely a small group test conducted in Pengcab IWbA Pengcab IWbA district of Jepara and Kudus. The subject of research which are involved in the study were athletes woodball as many as 16 athletes (beginners and advanced), gymnastic coach of five (5) members, experts / specialists woodball 2 (two) people, experts woodball supporters of two (2) people, as well as experts / expert equipment as much as two (2) people. The data used in this study is qualitative data and quantitative data. Instruments used in product development is the interview, observation, documentation, and assessment rubrics. This study used a qualitative approach and methods development models. Examination of authenticity of data need to be done by the researchers so that data obtained accountable legitimacy, in ways that can be done to determine the validity of the data results of the study are as follows: (1) Perseverance Observations, (2) Triangulation, (3) Examination peers and (4) Members Checking Through discussion.

RESULTS

Product Description Tool Swing "Swing Trainer"

The specification of the product development tools swinging "Swing Trainer" can be seen from the following table:

Table 1. Product Development Aid Model Swing "Swing Trainer"

No	Developmental Product
1	The swing plane is made from stainless steel with the diameter is 1.14 inch and the thickness is 0.8 mm.
2	It empowers surrounding societies (artisan blacksmiths and welders)
3	It uses local materials
4	It is made manually
5	It can be raised and lowered by three buffers.
6	The shape of metal frame layer is round
7	It has a small layer at the front side
8	Have a description of the manual use of the product (book and cd manual)
9	easily rectified if there is damage
10	Equipment is more durable, because they can choose their own quality raw materials
11	Operation is the same, that is used to perform swinging motion exercises
12	Maintenance of the same, that should not be left too long exposed to sunlight
13	Prices are affordable, that is Rp. 2,000,000. (\$ 150)

(Source: Research Findings, 2016)

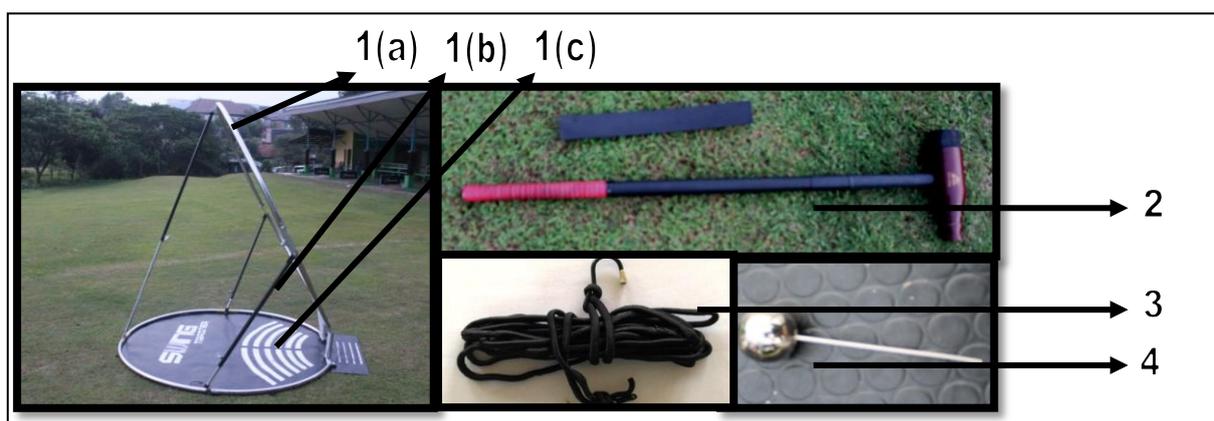


Figure 1. Part tool "swing trainer"

Product development model tool "swing trainer" has four (4) main parts, among others:

- 1) Tools swinging named "Swing Trainer" consists of three (3) parts, namely:
 - a) Section 1 (a) is part of the main tool called "swing plane", circular iron pipe, consisting of stainless steel pipe with a diameter of 1.14 inch (3 cm) and has a thickness of 0.8 mm, diameter iron pipe 5/8 inch thickness of 0.8 mm. Circular with a diameter of 180 cm. At the bottom there is a buffer with a height of 20 cm. On the right side there is a circular pipe door hinge that can be folded and straightens, while at the top of the bottom circle of metal installed shock. At the top of the rear mounted iron plate 7 cm long with a thickness of 0.4 cm. In the circle pipe is installed numbers 1-12 are placed in accordance with the formation of the clock and facing toward the athletes
 - b) Section 2 (two) is the center of the circle, is there are three iron buffer with the name "buffer 1", the buffer 2 and buffer 3 '. The stand 1 is the main buffer is placed on the top of the swing plane and the back of the metal frame below (metal frame). buffer 2 and 3 are placed right and left swing plane and the right part of the left frame under the iron (metal frame). buffer 1 consists of two iron pipe connection with an overall length of 220 cm, while the buffer 2 and 3 have an overall length 130 cm. the stand has two types of iron pipe marked with black on top

and silver on the bottom. at each end of the buffer is attached an iron plate which gave a hole as a hook between the swing plane with a metal frame. at the center of the black iron installed bolt size 12 mm making it easier to raise and lower swinging aids.

- c) Section 3 (three) is the bottom, consists of a metal frame under the named "metal frame", pedestal footing with the name "mat" and headrests mallet with the name "little mat". Circular metal frame made of metal pipe with a thickness of 1.14 inch with a diameter of 150 cm. At the base are added rubber carpet (mat) circular diameter of 150 cm. On the mat there is a white line radial to determine the position of the footrests. The front is installed mattress pad small 50 cm x 30 cm on board mallet head
- 2) Mallet
Mallet woodball length of 90 cm and weighs 900 grams. Mallet is the main tool to perform a series of swinging motion. at (shaft) stick by a layer of heat shrink to minimize friction with iron circles for doing the exercises.
- 3) elastic Cord
Elastic cord with a diameter of 2 mm length of 130 cm. On both ends of the rope installed clip. Elastic cord plug in the pipe loop that exists between the numbers 3 and 9 in accordance height athletes
- 4) Correction ball
Corrections ball made of stainless steel spherical with a diameter of 3 cm. At the lower end of the iron paired diameter of 2 mm and a length of 15 cm. Ball correction in place at the end of the mallet that has been given into the hole with a 5 cm

Results Validation Experts Aid Products Swing "Swing Trainer"

Products produced in validation by some experts, the two experts / specialists woodball coming from coach woodball, namely Bambang Sulistiyo, S. Pd, and Drs. Kriswanto, M. Pd. as well as two experts / specialists woodball equipment that Drs. Sutarno and Ika Yulianingsih, S. Pd, M. Pd. Here are the results of the evaluation sheet or questionnaire filling of specialists / experts woodball and specialists / experts woodball equipment :

Table 2. Results of Questionnaire Completion of Specialist / Expert Woodball and Specialist / Expert Equipment Woodball

	Criteria	Rated aspect	Aspects Rating			
			A1	A2	A3	A4
1	aspects of Originality	Is the work of researchers	15	15	15	15
		Has a distinguishing feature compared with similar sports technology (originality)	5	5	5	4
2	Aspect of advantage Development Results	Has an advantage in terms of development results	8	9	9	8
		Have advantages in terms of materials manufacture of products.	4	4	4	4
		Has an advantage in terms of the operation tools "swing trainer"	4	5	4	4
		Has an advantage in terms of maintenance tools " swing trainer"	4	5	4	4
3	Benefit aspects	Has a high efficiency for a wide audience in support of sports coaching woodball in Central	15	15	15	15

	Criteria	Rated aspect	Aspects Rating			
			A1	A2	A3	A4
4	Economic aspects	Java.				
		Having a positive power of the application of technology.	5	5	4	5
		Prototype development tool "swing trainer" can give rise to any other industry (Multiplayer Effect)	4	4	4	5
5	Security Aspects	Has potential commercialization and market reach	8	9	8	10
		Have a good level of security for the men athletes woodball beginner level	5	5	5	4
		Have a good level of security for the men's athletes woodball advanced level.	5	5	5	4
6	Comfort aspect	Have a good level of comfort for the men athletes woodball beginner level	5	5	4	5
		Have a good level of comfort for the men's athletes woodball advanced level.	5	5	5	4
		Total score	92	96	91	91

(Source: Research Findings, 2016)

Information:

A1: Expert Woodball 1, A2: Expert Woodball 2, A3: Expert Equipment 1, A4: Expert Equipment 2

The results of testing the effectiveness of Aid Swing "Swing Trainer"

The results obtained by researchers in large-scale trials and small scale test is as follows:

a. A total of seven athletes beginner states:

The products can be used to exercise for the beginners athlete, the product is safe and comfortable to use by beginners athletes, and the product already has a standard size.

b. A total of nine athletes advanced states:

The products can be used to exercise for the advances athlete, the product is safe and comfortable to use by advances athletes, the product already has a standard size, and products can be used to improve the skills of swinging motion.

After the trial is completed, woodball experts also conduct an assessment of the athlete. The following table athletes ratings.

Tabel 4.15 Comparison of assessment before and after using the tools swing on a small scale test

Before using the tool	Aspects Basic Motion Swing	Before using the tool
58%	Set up	83%
58%	Back swing	88%
63%	Down swing	83%
63%	Impact	83%
67%	Follow through	88%
62%	Everage	85%

(Source: Research Findings)

Tabel 4.15 Comparison of assessment before and after using the tools swing on a wide scale test

Sebelum menggunakan alat	Aspek Aspek Gerak Dasar Mengayun	Setelah menggunakan alat
55%	Set up	83%
68%	Back swing	93%
60%	Down swing	83%
68%	Impact	93%
63%	Follow through	90%
63%	Rata Rata	88%

(Source: Research Findings)

DISCUSSION

This study is a product development tools swinging from the research development of tools existing swinging.

1. Swing Trainer Tool can be used for training for Men's Woodball athletes Beginner and advanced

Data analysis and interpretation of data obtained through the activities carried out by researchers carefully analyzed all the data that has been collected, the results of interviews, observation, and documentation. Based on the analysis of research data obtained data about "swinging tools can be used for training for men's woodball athletes beginner and advanced level". In summary, data from interviews can be classified as follows:

On the small scale test 6 (six) athlete swing states that development tools can be used to practice a swinging motion. A total of 6 (six) athlete swinging states that tools already secure, convenient and standards. A total of five trainers and 4 experts declare that tools can be used for practice swinging motion. In the wide-scale test of 10 athlete swinging states that development tools can be used to practice a rocking motion. A total of 10 athlete swinging states that tools already secure, convenient and standards. A total of five trainers and 4 experts declare that tools can be used for practice swinging motion.

2. Tools "Swing Trainer" effectively used to improve the skills of swinging movement for men's athletes woodball beginners and advanced.

Data analysis and interpretation of data obtained through the activities carried out by researchers carefully analyzed all the data that has been collected, the results of interviews, observation, and documentation. Based on the analysis of research data obtained data about "swing trainer tool can improve motor skills for men's athletes woodball swinging beginners and advanced level". In summary, data from interviews can be classified as follows:

On the small scale test as much as 6 (six) athlete swing states that effective development tools to improve their skills with the ball swinging motion. There is an increase of 23% effectiveness. A total of 6 (six) athlete swing states that tools already secure, convenient and standards. A total of 5 (five) trainers and 4 (four) experts claim that swing aids effectively to exercise a rocking motion. In the wide-scale test of 10 athlete swing states that effective development tools to improve their skills with the ball swinging motion. There is an increase of 23% effectiveness A total of 10 athlete swing states that tools already secure, convenient and standards. A total of 5 (five) trainers and 4 (four) experts claim that swing aids effectively to exercise a swinging motion.

CONCLUSION

The process of model development tool that has gone through several stages, this research resulted in a swinging aid products, named "Swing Trainer". Based on the results of the discussion in this thesis, it can be concluded that: (1) Product model of development tools swinging "Swing Trainer" can be used as a training tool for men's athletes woodball swinging beginners and advanced. (2) Product development model swinging tools "Swing Trainer" effectively used to improve the skills of swinging movement for men's athletes woodball beginners and advanced.

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COPING WITH FAILURES ON ATHLETES: PSYCHOLOGICAL AND ISLAMIC PERSPECTIVES

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Abstract

This paper addresses the problem of failures which athletes would have to face throughout their careers. All athletes desire to win, but in competitions many would end repeatedly as the losers. Failure often becomes source of stress, fear and anxiety, which subsequently hampers performance. Therefore, ability to cope effectively with failure is essential for athletes. Focus of coping with failure is to have right kind of coping strategy to deal with impacts of failure. Generally in psychology, there are four components of coping: problem-focused coping, emotional-focused coping, appraisal-focused coping, and avoidance-focused coping. In addition to those, there is a certain coping strategy that often be used to deal with negative live events: religious coping. In religious country like Indonesia, many people including athletes turn to religion to solve their problems. However, the findings regarding this strategy are mixed and it implicates the adjustability of athletes to face failure. This paper discusses this matter in light of psychology and Islamic perspectives, and gives some recommendations for athletes and coaches.

Keywords: failure, coping strategy, psychology, Islam

INTRODUCTION

For many years, lacking of achievement in sport becomes major concern of Indonesian people. In international level, athletes barely compete well and their achievements lag behind many countries. Past glory in badminton for example is difficult to be repeated by today athletes. In football, for several times national team fails to be the champion and the condition is getting worse after being sanctioned by FIFA. In other sport field, many athletes also suffer due to lack of support, facilities, fund, and career uncertainty. No wonder if many people say that Indonesian's sports are in crisis.

Lacking of achievement basically is resulted from many parties' fault in managing sport. However, athletes often take the blame because they are the executors in the field. Failing to get the targeted position and medals are bad and unwanted events not only for them, but also their families and coaches, supporters and fans. Government and sport management are willing to do anything to improve their records. However, the athletes themselves, the case may be different since failure impacts them most as bad personal experience. Due to failure, athletes may lose their confidence and motivation to face future competitions. Mentally weak athletes may choose to give up and fail forever.

Failure is bad experience in the surface, but inevitable even for elite and high-accomplished athletes. Failure happens to all athletes, but the way athletes deal with it will differentiate its influence to athletes' development. Elite athletes are not people who never experience any failure, but they are able to cope it effectively. Therefore, ability to cope with failure is essential. The duty of coaches thus is not only to train athletes, but teach them about how to handle failure.

This paper is a literature review. It will discuss about the issue under the light of sport psychology and Islamic perspective. Sport psychology has various studies under the topic of

resilience and coping strategies. However, Islamic perspective in this matter would give added value, especially to understand and help Muslim athletes in Indonesia and other countries.

FEAR OF FAILURE: PERSONAL EXPERIENCE OF ATHLETES

Competitive athletes usually have one thing in mind as their main purpose of doing sport: to win and be the champion/ to not be the loser. That defines what success and failure are. Due to that purpose, every athlete has motive to avoid failure and it becomes energizing agent to perform well and achieve targets. Athletes who join sport as professional or engage in competition mostly treat failure as unwanted events.

Failure can take form of being defeated by opponent in a game or performing badly under the targeted position. In broader meaning, failure can mean when athletes experiencing setbacks e.g. suffering an injury or getting older. Failure is somewhat fearsome because of its consequences especially financial impacts. Athletes' salaries, incentives, and bonuses come from becoming a winner. They will not be paid well or do not get good sponsors if they do not perform well. Athletes roll in money in their golden ages, but can be suddenly poor years after. In many cases, athletes are often penniless if they do not have side work or don't receive good salary from their management [1].

Failure is a problem, but fear of failure is troublesome too. Athletes with fear of failure tend to compete only to avoid failure (e.g. defeat) with anticipation of being evaluated and ashamed of the results. High fear of failure is indicated by negative psychological and physical effects such as anxiety and depression. Furthermore, it adds more stress and impairs sport performance [2].

Athletes who are afraid of failure will perceive failure as a threatening. They believe that failure will cause them shame and embarrassment and devalue themselves. Failure makes others lose interest in them and make significant others like families, coaches, and fans upset. For them, failure makes their future uncertain too. The greater they believe these threats, the greater the fear they feel [2]. Subsequently, it only makes their performance worse.

COPING WITH FAILURE

Failure actually is a negative experience, but essential. All athletes definitely ever go through it during their career, but their responses to it determine how this experience would be beneficial or detrimental for them. One thing that differentiates high-accomplished and poor athletes is their ability to cope and adapt with failure as part of their reality.

Coping with failure is a dynamic process that requires the athlete to constantly change their cognitive and behavioral effort to manage (i.e. reduce, tolerate, master) stressful internal and external demands. Appraisal of harm, loss, and threat to athletes' meaningful goal to be successful and be the champion can be followed by negative emotions such as shame, anxiety, and fear. Coping with failure means to cope with negative thoughts and negative emotions [2].

There are four types of coping strategy: problem-focused coping, emotion-focused coping, appraisal-focused coping, and avoidance-focused coping. Those aim to control the stressor which originate from failure or its effects [2] [3].

Problem-focused coping focused on task on hands. It aims to reduce emotional distress by directing effort to alter or manage the stressor (e.g. gathering information, planning, making decisions, acquiring skills) to deal with the problems [2]. For example, when the athlete is aware that

his failure is caused by their lack of training, using problem-focused strategy, he will try to change their habit and spare more time to train.

Emotion-focused coping is employed to reduce emotional distress, especially when athletes perceive nothing can be done to modify the stress (e.g. when the opponent definitely is so strong). Fear and anxiety can be relieved by positive self-talk, seeking social support, or reinterpreting the situation [2].

Avoidance-focused strategy can be divided into two: cognitive avoidance and avoidant action. It attempts to neutralize distressing emotions by the avoidance of dealing with the problem, thereby reducing tension through cognitive and behavioral disengagement strategies (e.g., daydreaming, sleeping, distracting attention) [2]. However, this strategy only works for in short term and is not effective to deal with long-term threats. It is associated with poor psychological adjustment, indicated by poor mental health, negative emotion, and problem with motivation.

The last is appraisal-focused strategy. It refers to appraising or reappraising stressful situations using, for example, logical analysis or situation reframing [3]. Using this strategy, athletes may ask themselves for why they perceive their situation as scary. They rethink over things, for example, since the fellow athletes are the same human like them, so how could the opponent seem so big? Since every elites ever experience defeat, why must defeat to be frightened at?

THE ROLE OF RESILIENCE TO FACE ADVERSITY

What challenges athletes is not only failure to win, but also many setbacks during their career. Top sport performers are known by several resilient qualities. They are: 1) using effective coping strategy when facing defeats, failures, and setbacks, 2) displaying mental toughness, and 3) having appropriate social support around them. Using effective coping strategy, athletes are more able to alleviate negative emotions and stress in sport. Social support serves as buffer for the effect of stress and aids athletes' well-being and performance despite of adversity. Mentally tough athletes tend to show self-belief and focus, train effectively under long-term goal, have capacity to control environment rather than being controlled by it, push themselves to work hard, and compete effectively by handling success and failure [4].

Process of Resilience after Failure

Resilience has three dimensions: resistance, recovery, and reconfiguration. *Resistance* refers to being undisturbed by adversity; *recovery* is being disturbed by adversity, but eventually returning to pre-stress level of functioning; *reconfiguration* refers to being disturbed and not simply returning to pre-stress level, but adopting a new worldview because of adversity [4].

Adaptive reconfiguration is what is needed by athletes to face failure. Several study investigating people experiencing severe adversity (e.g. chronic illness, accident, war) found that many individual not only survive, but gain positive attributes from adversity. Experience of adversity does strengthen resilient qualities. Therefore, failure is not completely bad experience if athletes can persevere and adapt themselves to it [4].

Resilient qualities are obtaining through a process that begins at a point where athletes are in comfort zone. In this comfort zone, athletes are in homeostasis physically, mentally, and spiritually to go through bad or good events. Frequently, athletes are attacked by stressors which drift them

out from comfort zone. Disruption will occur if they lack some protective factors, i.e. resilient qualities (problem solving ability, self-efficacy, self-esteem, etc.) [4].

Once disruption occurs, athletes have to return and reestablish homeostasis by reintegrating themselves. This reintegration effort may happen in four ways: dysfunctional, maladaptive, homeostatic, and resilient. *Dysfunctional reintegration* occurs when athletes deal with adversity and failure through destructive means such as violence or substance abuse. Athletes maybe are so frustrated over their constant poor performances and try to change those conditions by turning to illegal performance enhancing drugs. *Maladaptive reintegration* occurs when athletes make it through adversity but lose important protective factors in the process, e.g. social support. They can continue to play, but with reduced motivation and self-confidence. *Homeostatic reintegration* occurs when athletes make it through adversity but they have neither lost nor gained protective factors. Therefore, they return to their previous level of homeostasis [4].

Resilient reintegration is the most desirable form of reintegration. It occurs when athletes not only make it through adversity, but acquire protective factor in the process. For example, athletes who return from defeat with greater appreciation toward hard work and build stronger work ethic. Athletes who reintegrate resiliently are better prepared to cope with future adversities. Adversity is thus needed to build personal growth and improvement [4].

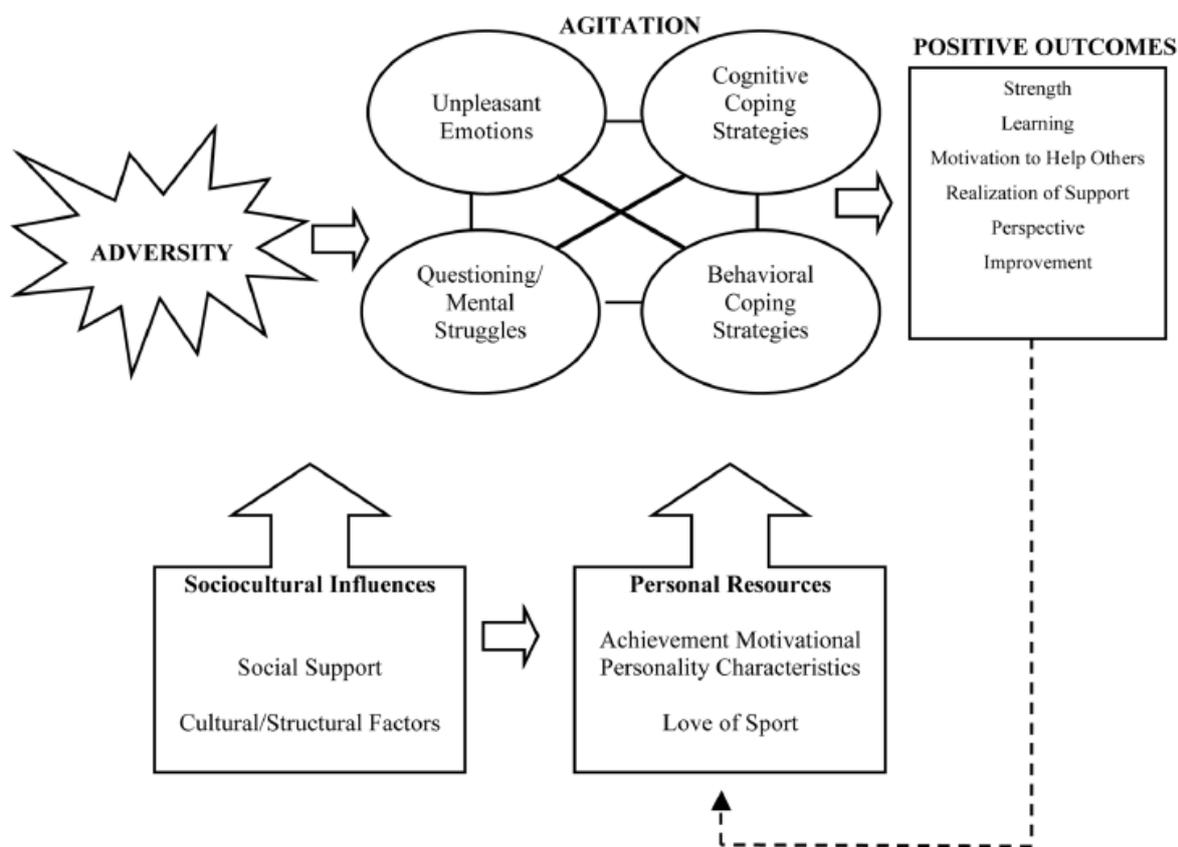


Figure 1. Conceptual model of sport resilience.

Source: [4]

The concept of sport resilience is shown as Fig. 1 above. Failure is a form of adversity which can ignite many unpleasant emotions. Athletes may not only feel fear, but also anxiety, shame, and anger. They may end questioning their self-worth, lose self-confidence, feel neglected by other, and lose confidence toward ability. It causes some mental struggle. However, for true athletes, their goals must be more important than failures. This demand asks for appropriate response so that athletes thus try to cope with that by using behavioral and cognitive coping strategies [4].

From this point, everything begins to look fine. However, there are several factors that influencing the effectivity of coping efforts. First is socio-cultural influence, i.e. social support and culture. The second is personal resources, i. e. achievement motivation, personality characteristics, and love of sport. These factors contribute in athletes' perseverance and mental toughness in facing adversity [4]. Through this mechanism, failure can be essential aspect for athletes' character building. Even though they are defeated, they will not give in. They will come back to compete again. Even though they suffer injuries, they will train again.

How Resilience and Coping Strategies Connected

The essence of resilience is athletes' using of various coping strategies to deal with a wide range of unpleasant experiences, negative emotions, and mental struggles. They do not rely on only one strategy but combine it. They use problem-focused, emotional-focused, appraisal-focused, and avoidance-focused strategies in the right time and in the right place. As adversity comes from time to time, they continuously use coping strategy [4].

Deal with adversity in a long time is not easy matter. Continuity takes much effort and it is indicated by the degree of mental toughness. Mental toughness is athletes' precious personal resource. Resources mentioned included being positive, determination, competitiveness, commitment, maturity, and persistence. Those qualities are crucial for athletes to be positive thinker in appraising their adverse situation [4].

A love and passion for their sport was also important as it provides intrinsic motivation for doing sport whole-heartedly and having balanced views regarding short-term and long-term goals in mind [4]. An athlete should not only think about becoming a winner, but also having a good long record since sporting is their life and profession. Joining competition is only a tool to be a great, memorable, and inspiring athlete. Athletes' orientation should not be too self-centric and they should have concern in future generations.

The Role of Explanatory Style

Ability to recover from failure is an important aspect of resilience. Some athletes rebound after failure, whereas others give up. Other psychological factor determining athletes' reaction toward failure is their explanatory style. *Explanatory style* refers to the way that athletes usually explain bad and good event. There are three kinds of explanatory style: pessimistic and optimistic style [5].

Pessimistic style is indicated by tendency to explain bad events by causes that stable in time ("This defeat is going to last forever"), have global effect ("This failure will destroy all I have done"), and originate from internal self ("This is because of me"). Meanwhile, the causes of good events are explained in opposite way as unstable, specific, and external. Optimistic style is indicated by the

opposite of pessimistic tendency. Optimistic athletes see bad events as unstable, specific, and external; good events as stable, global, and internal [5].

The explanatory styles have correlation with athletes' performance. Optimistic athletes usually perform better than the pessimistic one. This is due to the fact that explanatory style is more than cognitive disposition, but involves emotional component. Pessimistic athletes tend to experience more anxiety and feeling the lack of control over situation. Consequently, these lead to lower expectation of success and poorer performance. Pessimistic athlete explains failure as the result of lacking ability and expects that negative result will continuously happen. Optimistic athlete explains failure as the result of bad strategy or lack of effort, not personal ability, and expects success will come with improvement [5].

RELIGIOUS COPING STRATEGIES

Athletes' resilience process is also influenced by cultural factors. In [4] there is an examination of the role of race on athletes. In an athlete case, growing up as Afro-American, success and overcoming adversity are part of his culture. Race determines social class and Afro-Americans are the less fortunate one in comparison to white people. Due to that reason, many Afro-Americans strive for success through sport.

Various variables are considered as cultural variable. The most important one is religion. People from collectivistic Asian culture are known to more utilize emotional and acceptance coping strategies (e.g. projection, acceptance, religion, and perseverance), while people in individualistic Western societies prefer more active and problem-focused coping strategies when encountering adversity. For Asian including Indonesian athletes, turning to religion (religious beliefs and practices) is important action to deal with adversity [6].

Role of religion and spirituality are now recognized. Sport psychology scientists begin to study the integration of religion and spirituality into sport counselling and consultancy. Spirituality has an important role in fostering excellence in human activities and enhancing health and well-being. Spirituality can improve sport performance too. Athletes' performance enhancement work should be approached holistically integrating athletes' physical, mental, emotional and spiritual dimensions. Many researches under this topic study peak experience in sport, the use of prayer, and spiritual aspect of counseling especially for the development of mental skill for sport [7].

Indonesian athletes can be considered as religious. Therefore understanding how religion and spirituality influence their performance is important. Among religious athletes, the using of religious coping strategy to deal with adversity is widely practiced, e.g. trust and have faith in God, prayer, and ask help and strength from God [8].

According to [8], there are three ways in which religion can be involved in coping. *First*, it can be a part of the elements of the coping process. Religious appraisals are source of explanation for live events. For example, tragedies or defeat can be evaluated as God's plan or unintended by God. Religious coping may be guided by desire for a closer relationship with God too. *Second*, religion can contribute to the coping process. Religious involvement can decrease the likelihood of some deviant behaviors such as drug abuse, alcohol abuse, and non-marital sexual activity. Religion also can help people to have more positive outlook to reframe their adverse situation. *Third*, religion can be a product of the coping process. Increased faith to God was reported followed the events such as the birth of a child, loneliness, emotional difficulties, and work promotion.

Islamic Coping Strategy

For athletes, religion can play major role during their mental struggle. For Muslim Athletes, Islamic coping strategies can be beneficial to help them dealing with failure. From Islamic perspective, every event happened in life is by God's will. Failure can be considered as an unfortunate event (*musibah*). However, that unfortunate event happens without God's permission and every event must contain lessons. This event serves as a test to help a person achieve higher personal quality [9]. For those who believe, God said in Quran Surat Al Baqarah verses 155-157:

We shall certainly test you by afflicting you with fear, hunger, loss of properties and lives and fruits. Give glad tidings, then, to those who remain patient, those who when any affliction smites them, they say: "Verily, we belong to Allah, and it is to Him that we are destined to return." Upon them will be the blessings and mercy of their Lord, and it is they who are rightly guided.

This belief will shape athletes' way of thinking and appraisal toward negative life events. Being patient is not a choice, but religious obligation that will be rewarded nicely with blessing and mercy. This belief helps athletes to face adversity with courage and determination. They believe that this adversity is God's will. Therefore, it will promise many good things in life [9]. This promise also serves as consolation when athletes are experiencing negative emotions. Fear and anxiety can possibly be settled down if the athletes know the nature of the events, not as threat, but a test to be a better sport performer.

CONCLUSIONS AND SUGGESTIONS

Effective coping to failure and to fear of failure, which are sources of stress and anxiety for athletes, are important skill in sport. Athletes who do not possess effective coping skills to deal with these stressors are likely to experience poor performance, negative affect, and may eventually drop out of sport. Knowledge about athletes' coping responses to failure and to fear of failure is beneficial to help athletes overcoming failure-related problems and improving themselves.

Effective coping strategy is one essential aspect of sport resilience. High-accomplished athletes use combination of problem-focused, emotion-focused, appraisal-focused, and avoidance-focused strategies. They also have sources of social support, tough mentality, and love of sport which help them to persevere during the hard times. For religious athletes, coping strategy should accommodate athletes' spiritual need and religious beliefs. Religious coping strategy means turning to religion to ask support from God. Athletes can use prayer to ask for strength and help, to reduce tension or anxiety.

This paper discussed the importance of coping ability to improve athletes' skill and readiness to compete. This literature review suggests scientists in sport science and practitioners to investigate this issue. Future research in Indonesian context should put more consideration on how religion gives much influence in athletes' life. Furthermore, in application, athletes training, coaching, and counselling should promote a holistic approach integrating physical, mental, and spiritual aspects of sporting.

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THE RELATIONSHIP OF INTELLIGENCE QUOTIENT (IQ), EMOTIONAL QUOTIENT (EQ), AND MOTIVATION TOWARDS BASKETBALL SKILLS

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Abstract

The purposes of this research are: (1) to know the relation and contribution between intelligence quotient (IQ) and basketball skills. (2) To know the relation and contribution between emotional quotient (EQ) with basketball skills. (3) To know the relation and contribution between motivation and basketball skills. (4) To know the relation and contribution between intelligence quotient (IQ), emotional intelligence (EQ), motivation and basketball skills. The method of the research used was correlation method. The population in this research was the entire students who participated in the basketball extracurricular activities SMA 2 Bae Kudus. Samples being used were 50 students collected using purposive sampling technique. The data analysis used were correlation analysis, regression analysis and determination analysis test (R^2 test). The conclusions of this research were: (1) There were positive and significant relation between intelligence quotient (IQ) with basketball skills and it contributed as much as 44.6%. It was shown by the correlation (r) of 0.698, p.value of 0.000. (2) There were positive and significant relation between emotional quotient (EQ) with basketball skills and it contributed as much as 48.7%. It was shown by the correlation (r) of 0.668, p.value of 0.000. (3) There were positive and significant relation between motivation with basketball skills and it contributed as much as 37.9%. It was shown by the correlation (r) of 0.616, p.value of 0.000. (4) There were positive and significant relation between intelligence quotient (IQ), emotional quotient (EQ), motivation and basketball skills as well as contributed as much as 72.6%. It was shown by the correlation (r) of 0,852, p.value of 0.000.

Keywords: intelligence quotient (IQ), emotional quotient (EQ), motivation .

INTRODUCTION

Basketball is one of the games that include sports games, sport games including basketball games that use large balls (Farauq 2009: 3). In standard basketball game, each team has five players on the court. Each match is divided into four *quarters*, each of which lasts for 8 to 12 minutes or divided into two rounds, each of which lasts 20 minutes. Each player is allowed to make more than 5 errors, if the player violated at the time of the shot, the player is given two or three free throws if it was on a three-point shots (Oliver, 2007: viii).

Sports basketball hugely needs skills in its practice to be able to give a good performance. Skill is the moving ability of a person on a certain degree. Skilled refers to the degree of success in achieving the objectives effectively and efficiently determined by the speed, accuracy, shape and ability to adapt. Skills can be interpreted as an indicator and the level of proficiency or mastery of a matter that requires motion (Cahya 2012: 8)

Basketball is a complex sport. According to Ahmadi (2007: 13), to be able to have a reliable basketball team, there are three main factors that must be fulfilled, namely: 1. Mastery of basic techniques (fundamental) 2. Security (*physical condition*) 3. Cooperation (patterns and strategies). To be a good player it is necessary to master the fundamentals (basics, techniques and strategies) of a basketball game. With guidance and more in-depth knowledge about the basics of the game and

game rules that apply in the international world, the quality of the game that someone present, will be better and more advanced (Rohim 2008: 10).

A person's success in mastering motor skills determined by the ability and the talent of the person. According to Cahya (2012: 10), he identified about 12 factors that are associated with achieving skills. Those factors are: (1) Sharpness of senses, (2) perception, (3) Intelligence, (4) physical size, (5) Past experience, (6) Undertaking, (7) Emotions (8) Motivation, (9) attitude, (10) factors other personalities, (11) Gender, (12) Age.

From the opinions above it can be concluded that motor skills were not only influenced by physical factors, the learning process, and situational factors alone but were also influenced by psychological factors. According to Wahab (2015: 142), *Intelligence quotient (IQ)* is an index of the relative level of a person's intelligence, as compared to others accordingly. *Intelligence quotient (IQ)* is one element of psychological which means a measure of intellectual ability, analytical (the ability to analyze), and the ratio and logic of a person. According to the pedagogic terms committee (1953), which raised stern opinion on what is meant by intelligence the power to adjust to new situation by using the tools of thinking according the purpose (Walgito 2004: 192).

Root for the word "emotion" is *move*, Latin verb which means "to move, move" plus the prefix "e-" to give meaning "move away", implying that the tendency to act is absolute in emotion. All emotion is essentially the impulse to act, immediate plan to address the problems that have been implanted gradually by evolution (Goleman 2003: 7). *Emotional quotient (EQ)* is one of psychological elements that means a person's ability to control and communicate in two dimensions, i.e., the direction to the inside (personal) and the direction to the outside (interpersonal). Emotional intelligence is very important when one deals with the problems of life. Finding the right solution to problems often requires being able to control the emotions of a person (Finkelor 2004: v).

Motivation is a process that explains the intensity, direction, and persistence of an individual to achieve their goals. Based on the study concerning the definition of motivation from some experts (Krech, 1962; Murray, 1964; Atkinson, 1964; Fernald, 1969; Miller, 1978; Singer, 1972, 1984; Barelson & Steiner, 1980; and Good & Brophy, 1990) an integrative definition can be formulated that motivation is the actualization process of internal generator within the individual to lead the activity, ensure continuity and determine the direction or halauan activities towards the achievement of the goals set (Husdarta 2010: 31). In physical education and sport, Adelman (1974) states that there is no achievement without motivation.

During this time the coaches and players pay less attention to various psychological factors associated with and can support the skills of the players or athletes. Those various factors must be considered to performance and skills of a basketball player can be maximized. Based on the description above, the researcher was interested in conducting research on psychological factors, entitled "**Relationship of Intelligence Quotient (IQ), Emotional Quotient (EQ), and Motivation towards Basketball Skills**".

Formulation of the problem, based on the problems background above, then it can be formulated problems in this study can be formulated as follows: (1) Is there a relationship between the *intelligence quotient (IQ)* with the skills of basketball and if yes how large is the contribution, (2) Is there any relation between *emotional quotient (EQ)* with basketball skills and if yes how large is the contribution, (3) Is there any relation between motivation and skills of basketball and if yes how

large is the contribution, (4) Is there a relationship between the *intelligence quotient (IQ)*, *emotional quotient (EQ)*, and motivation bodies with basketball skills and if yes how large is the contribution?

Research purposes, based on the formulation of the problem that has been stated above, the objectives to be achieved in this study are as follows: (1) To determine the relationship between the *intelligence quotient (IQ)* with basketball skills and level of contribution, (2) To determine the relationship between *emotional quotient (EQ)* with basketball skills and level of contribution, (3) To determine the relationship between motivation with basketball skills and level of contribution, (4) To determine the relationship between the *intelligence quotient (IQ)*, *emotional quotient (EQ)*, and motivation, with basketball skills and level of contribution.

Benefits of the research in the study is (1) This research can be used as inputs and contributions to the readers so that it can be used as an additional source of information and data in the field of sports, especially in the field of sport basketball (2) This research can be used as a guideline or consideration for the gym teacher or coach to select prospective athletes as well as to develop training programs in sport basketball so the skills and achievements can be better.

RESEARCH METHODS

The research method used in this study was correlational method. The objectives of the correlational research was to investigate the extent to which variations in a factor related to variations in one or more other factors based on the correlation coefficient (Narbuko and Achmadi 2012: 48). The population in this study is the overall students of SMA 2 Bae Kudus who joined basketball extracurricular activities. The sample used as many as 50 students were taken by using *purposive sampling*. Variables examined consisted of five independent variables that were: *the intelligence quotient (IQ)*, *emotional quotient (EQ)*, and motivation. The dependent variables were the basketball skills. The instrument used was a questionnaire consisting of *intelligence quotient (IQ)* test developed by Philip Carter, *emotional quotient (EQ)* test compiled by Prasetyo 2010 quoted from Daniel Goleman, and motivation test. Analysis of the data used is the correlation analysis, regression and determination analysis test (R^2 test).

RESULTS AND DISCUSSION

The data resulted from the research was obtained based on the scores on tests that have been done which includes intelligence quotient (IQ) test, *emotional quotient (EQ)* test, and motivation test. After that analysis prerequisite test was conducted that includes normality and linearity tests. Subsequently, hypothesis test with correlation and regression analysis were conducted.

Prerequisites Test Analysis

1. Normality test

Normality test is intended to test the normality of the data distribution to be analyzed. To test the normality of the data *Kolmogorov-Smirnov Test* analysis was used. Data distribution is normal when the significant value of *Kolmogorov Smirnov Test* > 0.05 . *Kolmogorov-Smirnov Test* calculation results obtained by research variables can be seen in following table:

Table Normality Test with *Kolmogorov Smirnov Test*

No.	Variables	<i>Kolmogorov-Smirnov Test</i> Value	P (Sig)	Information
1	<i>Intelligence Quotient (IQ) (X₁)</i>	0.120	0.069	Normal
2	<i>Emotional Quotient (EQ) (X₂)</i>	0.101	0.200	Normal
3	Motivation (X ₃)	0.075	0.200	Normal
4	Skills Basketball (Y)	0.090	0.200	Normal

Sources: Primary data being processed, 2016

2. Linearity test

Linearity test is intended to test whether the data obtained were linear or non linear, if the data were linear then the data could be resumed on the parametric test with regression techniques, but if the data were not linear then non-linear regression was used. Linearity test used variance analysis technique for regression or F test with the test criteria is if the significance <0.05 the data is revealed linear, otherwise if the significance of > 0.05 data were declared non linear. The calculations results of linear test obtained by research variables can be seen in the following table:

Table Linearity test

No.	Variable	Flinear	P value (Sig)	Information
1	<i>Intelligence Quotient (IQ) (X₁) with Basketball Skills (Y)</i>	51.524	0,000	linear
2	<i>Emotional Quotient (EQ) (X₂) with Basketball Skills (Y)</i>	52.149	0,000	linear
3	Motivation (X ₃) with Skills Basketball (Y)	38.157	0,000	linear

Sources: Primary data being processed, 2016

Hypothesis testing

1. Product Moment Correlation Analysis

Based on the testing results of the hypothesis of the relationship between independent variables *intelligence quotient (IQ)*, *emotional quotient (EQ)*, motivation, with basketball skills as the dependent variable, *product moment correlation* formula were used and the following results were obtained:

Table *Product Moment Correlation*

No.	Variable	Correlation Value (r_{xy})	P value (Sig)	Information
1	<i>Intelligence Quotient (IQ) (X₁) with Basketball Skills (Y)</i>	0.698	0,000	Positive and significant correlation
2	<i>Emotional Quotient (EQ) (X₂) with Basketball Skills (Y)</i>	0.668	0,000	Positive and significant correlation
3	Motivation (X ₃) with Basketball Skills (Y)	0.616	0,000	Positive and significant correlation

Sources: Primary data being processed, 2016

2. Multiple Correlation Analysis

Hypotheses Testing concerning the relationship between *intelligence quotient (IQ) (X₁)*, *emotional quotient (EQ) (X₂)*, and motivation (X₃), with basketball skills (Y) multiple correlation test was used (R_{y123}). The test results of multiple correlation relationship between *intelligence quotient (IQ)*, *emotional quotient (EQ)*, the motivation, the basketball skills obtained a value of 0.852 with p value (sig) of 0.000 to p <0.05 indicates that there is a significant

relationship between the *intelligence quotient (IQ)*, *emotional quotient (EQ)*, and motivation with basketball skills.

3. Multiple Linear Regression Analysis

Based on the calculation results of multiple linear regressions the following equation was obtained:

$$Y = 3.978 + 0.821X_1 + 0.177X_2 + 0.113X_3$$

Information:

Y = Basketball Skills

X_1 = *Intelligence Quotient (IQ)*

X_2 = *Emotional Quotient (EQ)*

X_3 = *Motivation*

The regression coefficient value of *intelligence quotient (IQ) (X₁)*, amounting to 0.821 with a positive sign, meaning that if the *intelligence quotient (IQ) (X₁)*, an increase of the skills of basketball student will also increase by 0.821.

The regression coefficient value of *emotional quotient (EQ) (X₂)*, amounting to 0.177 with a positive sign, meaning that when the *emotional quotient (EQ) (X₂)*, an increase of the skills of basketball student will also increase by 0.177.

The regression coefficient value of motivation (X_3), amounting to 0,113 with a positive sign, meaning that if the motivation (X_3), an increase of the skills of basketball student will also increase by 0,113.

4. Model Significance Test

Model significance test results obtained F value of 40.602 with p.value (sig) of 0.000 to p <0.05 indicates that regression linear form obtained can be used to make inferences about the relationship number of variables being studied were *intelligence quotient (IQ)*, *emotional quotient (EQ)*, the motivation, basketball skills.

5. Determination Analysis Test (Test R²)

Analysis of determination (R² test) was used to determine the percentage of the effect of the independent variable (X₁, X₂, ..., X_n) simultaneously to the variable dependent (Y). Analysis of the calculation results of the determination (Test R²) can be seen in Table as follows:

Table Results Analysis of Determination (Test R²)

No.	Variables	Correlation Value (r_{xy})	R Square
1	<i>Intelligence Quotient (IQ) (X₁)</i>	0.698	0.487
2	<i>Emotional Quotient (EQ) (X₂)</i>	0.668	0.446
3	<i>Motivation (X₃)</i>	0.616	0.379
6	<i>Intelligence quotient (IQ) (X₁), emotional quotient (EQ) (X₂), and motivation (X₃), with basketball skills (Y)</i>	0.852	0.726

Sources: Primary data being processed, 2016

R² (R Square) value of *intelligence quotient (IQ)*, *emotional quotient (EQ)*, and motivation, weight is 0.726 or 72.6%. It shows that the percentage of influence / contribution of *intelligence quotient (IQ) (X₁)*, *emotional quotient (EQ) (X₂)* and motivation (X_3), body towards basketball skills (Y) as much as 72.6% and the remaining 27.4% is influenced by other variables not included in this research model.

DISCUSSION

Discussion of the results of this study provides further interpretation of the results of data analysis that had been done before. Based on the hypothesis testing has resulted in the conclusion that the analysis can be described in further detail as follows:

1. Relations and Contributions between *intelligence quotient (IQ)* with Basketball Skills

Based on the analysis of the correlation between *intelligence quotient (IQ)* with basketball skills obtained a value of 0.698 with p.value (sig) of 0.000 to $p < 0.05$. The contributions provided by *intelligence quotient (IQ)* of the basketball skill that is equal to 48.7%. It shows that there is a positive relationship and contribution between *intelligence quotient (IQ)* and basketball skills.

The word 'intelligence' is derived from the Latin word "intelligenre" which means connecting or uniting with one another (to organize, to relate, to bind together). *IQ* is essentially a measure of the level of intelligence (Khadijah, 2006).

The results of this study demonstrate and prove that the psychological aspect which is the level of *intelligence quotient (IQ)* is an element that has an important role to basketball skills, especially in mastering and analyzing various movement skills in basketball. To be able to own and control skills in basketball requires a good level of intelligence as well. In addition one can also identify and analyze the shortcomings and weaknesses of the basketball skills movement being practiced so it can be used to correct or improve the possessed skills.

2. Relations and Contributions between *emotional quotient (EQ)* with Basketball Skills

Based on the analysis of the correlation between *emotional quotient (EQ)* with basketball skills obtained a value of 0.668 with p.value (sig) of 0.000 to $p < 0.05$. The contributions provided by *emotional quotient (EQ)* on the basketball skill is equal to 44.6%. It shows that there is a positive relationship and contribution between *emotional quotient (EQ)* with basketball skills.

Controlling emotions is very important for a person's life because it is through controlled emotions then someone will be able to control himself well, so that a person has calmness and accuracy in doing various things. If someone can identify, control, and deliver an emotion in the right and positive direction, then the person is said to be intelligent in his emotions. By using aspects of emotional intelligence properly, automatically the good individual attitudes will arise as well. People are bad at their ability to manage emotions will continuously fight melancholy feelings, while those who are smart can bounce back much faster than the decadences and downfalls in life (Goleman 2003: 58).

The results of this study indicate that the psychological aspect which is the level of *emotional quotient (EQ)* is one of the elements that play a role in the basketball skills. *Emotional quotient* is a person's ability to manage the behavior and control of various aspects of emotions he has in order to control and direct himself well. Basketball skills require good emotional control and self-direction in order to perform a movement with a focus so that the result being done will also be good. According to Goleman (2002: 48) emotional self-control and restraint towards the satisfaction and control of impulse is the cornerstone of success in various fields, and being able to adjust in the "flow" allows the realization of high performance in various fields.

3. The relationship and Contribution between motivation to Basketball Skills

Based on the analysis of the correlation between motivation and obtained basketball skills a value of 0.616 with p.value (sig) of 0.000 to $p < 0.05$. Contributions given by motivation on basketball skills, namely 37.9%. It shows that there is a positive relationship and contribution between motivation to basketball skills.

Motivation is defined as an impulse that comes from within or from outside of the individual to perform an activity that can guarantee the continuity of the event, and can determine the direction, the direction and the amount of effort that was deployed to perform activities so as to achieve the goals that have been set (Komarudin 2015: 24).

The results of this study indicate that psychological aspects which is motivation is an important element in basketball skills. Motivation is a force that can drive a person to do an activity to achieve the goals, it can also be seen as the driving force that causes a person to do something to achieve the goals. Without the presence of a base or a strong desire and drive then one would not do a thing seriously and optimally. Therefore, to be able to perform basketball skills properly and optimally, high encouragement or motivation is needed. Without motivation, the basketball skills being done can not be maximized. In physical education and sport, Adelman (1974) states that there is no achievement without motivation.

4. Relations and Contributions between *intelligence quotient (IQ)*, *emotional quotient (EQ)*, and Motivation with Basketball Skills.

Based on the analysis of the correlation between *intelligence quotient (IQ)*, *emotional quotient (EQ)*, and motivation with basketball skills obtained a value of 0.852 with p value (sig) of 0.000 to $p < 0.05$. The contributions that the *intelligence quotient (IQ)*, *emotional quotient (EQ)*, *motivation*, *limb muscles power*, the height of the basketball skill that is equal to 72.6%. It shows there is a positive relationship and contribution between *intelligence quotient (IQ)*, *emotional quotient (EQ)*, and motivation with basketball skills.

The results showed that the entire psychological element, namely *Intelligence quotient (IQ)*, *emotional quotient (EQ)*, and motivation altogether are the components that can support the basketball skills. Thus, to be able to master the basic skills of basketball properly and optimally, basketball players must maximize these components properly.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSION

1. There is a positive and significant relationship between the *intelligence quotient (IQ)* with basketball skills, meaning that the higher the level of *intelligence quotient (IQ)*, the higher the basketball skills. This is evidenced by the correlation value of 0.698 with p.value (sig) of 0.000. *Intelligence quotient (IQ)* contributed 48.7% of the basketball skills.
2. There is a positive and significant relationship between *emotional quotient (EQ)* with basketball skills, meaning that the higher the level of *emotional quotient (EQ)* the higher the basketball skills. This is evidenced by the correlation value of 0.668 with p.value (sig) of 0.000. *Emotional quotient (EQ)* contributed 44.6% of the basketball skills.
3. There is a positive and significant relationship between motivation and skills of basketball, meaning that the higher the higher the motivation of basketball skills. This is evidenced by the

correlation value of 0.616 with p.value (sig) of 0.000. Motivation contributes 37.9% to the basketball skills.

4. There is a positive and significant relationship between the *intelligence quotient (IQ)*, *emotional quotient (EQ)*, and motivation, which means the higher the *intelligence quotient (IQ)*, the higher the level of *emotional quotient (EQ)*, and the higher the motivation, the higher skills of basketball. This is evidenced by the correlation value of 0.852 with p.value (sig) of 0.000. *intelligence quotient (IQ)*, *emotional quotient (EQ)*, and motivation together contributed 72.6% of the basketball skills.

SUGGESTION

Efforts to improve the quality of the ability of a basketball player or athlete, election for good players candidates should be conducted, namely with regard to psychological factors, not only physical factors alone, especially viewed from the factors of *Intelligence quotient (IQ)*, *emotional quotient (EQ)*, and the motivation of the players, because these factors have a relationship and a significant contribution to basketball skills. For further researchers in order to organize the consideration of this research by using other populations, both in quantity and quality of the player. In addition to better pay attention and look at other factors that affect basketball skills so that the results achieved over the maximum of the research that has been done.

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**APPLICATION OF IMAGERY LEARNING MODEL ACHIVEMENT LEARNING BADMINTON
STUDENTS SEMESTER VI PENJASKESREK STUDY PROGRAM JPOK FKIP UNS****Khalida Nawa Aprilia¹, Saptakunta Purnama²**

Sebelas Maret University

¹dilacuyy_cuyy@yahoo.co.id, ²saptakunta_p@yahoo.com**Abstract**

The purpose of this study was to determine: Application of imagery and conventional learning models to student learning achievement in the sixth semester badminton Prodi *PENJASKESREK JPOK FKIP UNS*. The model of learning which is more effective imagery and conventional badminton on learning achievement of students of sixth semester study program at *PENJASKESREK JPOK FKIP UNS*. Type of study is a quasi experimental study. The data analysis technique used in this study is T Score, reliability test, normality test, homogeneity test and test-t. The results of data analysis show the following: In terms of the process, indicated by the results of the data analysis. Analysis of the data with observations of student activity sheet in the learning process during the 16 sessions, that most of the students included in the category of 52.7% enough. Students with both categories once amounted to 13.1%. Students with good category are 34.2%. While the results of learning with conventional learning models that are included in both categories once amounted to 7.9%, both categories of 28.9%, 63.2% category enough. It can be concluded that the learning model imagery gives greater influence to the improvement of learning achievement badminton skills. Conclusions of this study are: there are application of imagery and conventional learning models to the improvement of learning achievement badminton skills in the sixth semester students Prodi *PENJASKESREK JPOK FKIP UNS*. Imagery learning model is more than conventional model of learning on learning achievement of students of sixth semester badminton Prodi *PENJASKESREK JPOK FKIP UNS*.

Keywords: Imagery, Conventional, Badminton Skills

INTRODUCTION

Physical education is a process of a person as an individual and community members who do consciously and systematically through various activities in order to acquire skills and physical abilities, growth, intelligence, and character formation. The main purpose of education is to develop individuals into individuals who are creative, inventive, and able to adjust to the environment. Physical education is essentially a process of education that utilizes physical activity to produce a holistic change in the quality of the individual, both in terms of physical, mental, emotional, intellectual, social, moral and aesthetic. In addition to the positive effect of physical education should be able to support the development of cognitive, affective, and psychomotor ideal for students.

One of the teaching materials are provided to students of sixth semester study program *PENJASKESREK JPOK FKIP UNS* is a game of badminton. Badminton is a sport game in its implementation as a batsman playing racket and shuttlecock as an object that was hit. The essential thing is to be able to play badminton master all kinds of basic techniques. By mastering the basic techniques of badminton will be able to support his appearance to make it better so that the learning outcomes achieved better. The essential thing is to be able to play badminton master all kinds of basic techniques. In the sport of badminton there are various basic techniques, including technical service, smash, lob, drop, and footwork. Various techniques punches in the game of badminton is: (1) the short service, (2) lob, (3) smash, (4) dropshot, and (5) chop, (6) drives, and (7) netting. "Fifth the

basic techniques of badminton game to be mastered shuttlers to support or achieve the goal of the game. Efforts to improve the skills of badminton blow for beginning students needed to teach the right way. An educator is required to have creativity in teaching skills of badminton, so that learning objectives can be achieved.

To improve the quality of skills of badminton a protege or a student who is still low, it is necessary to attempt a teacher to improve the skills of badminton, badminton skills so the quality will increase as expected. Efforts to do the teaching is to use imagery and conventional learning. Imagery is a learning by imagining, thinking about or describe specific situations. This kind of learning are generally not been implemented by the teachers in the learning program for students or their students. This is due to many foreign teachers on the concept of learning techniques imagery. Learning imagery here the goal is to exercise patience, courage, sportsmanship, self-confidence, motivation, management of emotions, including goal setting and imagery are psychological aspects are very important in sports coaching and must be trained from an early age as well as physical learning or technique. Implementation of the imagery in the field of learning does not mean that this learning can completely replace a real learning appears in the physical demonstration, but both must be administered in a single unit or should be complementary to optimize / maximize student achievement. One of the additional learning that educators can use to train students by using the conventional form of learning in which the teacher provides the learning process in accordance with the actual situation. With teachers knowing forms of learning that will be given to students, then teachers will use some form of learning that will help improve engineering skills of badminton with imagery and conventional forms of learning.

Judging from the implementation of the study subjects who had previously taught badminton, of learning that have been conducted have not shown optimal learning results. Not all students have the technical skills of badminton good punch. The learning result is not optimal badminton skills are worth exploring contributing factors, whether internal conditions and external conditions or methods of teaching are conducted less precise. Stroke technique that has not been good badminton skills will have an impact on the appearance of a person in playing badminton. Low blow technique badminton skills students need to be improved. So learning that have been implemented over the years need to be evaluated.

The focus of attention of researchers in connection with the implementation of learning skills courses badminton badminton activities, especially where students are many and facilities existing infrastructure in this case is the number of balls and badminton courts are available there. Besides, lectures limited time is also an obstacle in improving the skills of badminton. Based on the problems mentioned above background for the title of the study, "The Effect of Instructional Model imagery Against Badminton On Student Learning Outcomes Semester VI Prodi *PENJASKESREK JPOK FKIP UNS*".

METHOD

The method used is the method Quasi Experimental Design. This design is often referred is quasi experimental study for a glimpse at the true experimental but not the same, with respect to the control variables, the possibilities can be difficult once pure experiment.

This research subject is taken by the overall number of students *PENJASKESREK FKIP UNS*, VI semester of are two categories of students which is not included in the sample of the research that

the student coaching badminton achievement and students who attend the club. Of the total population totaling 82 students there are 4 students who attend coaching buluangkis achievement, and two students who attend the club. To produce pure learning so simpel used were 76 students from the number of student population penjaskesrek FKIP UNS VI semester of 2014. For the division of group preceded by preliminary tests badminton skills, then the results were divided into 2 groups. The division of the group in this study by ordinal Conventional pairing: group 1 (K1) and group 2 imagery (K2).

Analysis of the data used in this study include:

1. Prerequisites Test Analysis
 - a. Reliability Test
 - b. Normality Test
 - c. Homogeneity Test
2. Effectiveness test

RESULTS AND DISCUSSION

DATA DESCRIPTION

Quasi Experimental Research is taking place from April to July 2014. The aim of this PEK to see the effectiveness of the learning model imagery on student results. As research subjects are students *JPOK FKIP UNS VI* semester. As an Experimental Group amounted to 30 students and the Control Group amounted to 38 students, which distribution group using ordinal pairing. This study was conducted using 4 RPP for 16 meetings.

RELIABILITY OF DATA

Reliability checks are intended to determine the stability of the value of the tests conducted.

Table 1. Summary of Test Reliability Data

test results	Item test	Reliability	Category
preliminary tests	Long Service	0.67	fair
	Smash	0.65	fair
	Lob	0.72	fair
	Short Service	0,62	fair

From the table above it is known that, the value of reliability of the results preliminary tests long service is at 0.67 which is included in the category of fair. The value of reliability of the results preliminary tests smash amounted to 0.65, which is included in the category fair, the short service is at 0.62 which include the category fair. And the value of reliability of the results preliminary tests lob was at 0.72, which is included in the category fair. In interpreting the test reliability coefficient category, using the guidelines of the reliability coefficient table Book Walter, Mulyono B (2001: 22), namely:

Table 2. Table Range Category Reliability

Category	Reliability
Once high	0,90 – 1,00
High	0,80 – 0,89
Fair	0,60 – 0,79
Less than	0,40 – 0,69
Not Significant	0,00 – 0,39

TESTING REQUIREMENTS ANALYSIS OF VARIANCE

Prior to the data analysis, necessary to test requirements analysis. Testing requirements analysis done of the normality and homogeneity test.

1. Normality Test

Prior to the data analysis needs to be tested distribution normality. This research data normality test used *Lilliefors* models. Results of data normality test performed on each group are as follows:

Table 3. Summary of Results Analysis Data

Treatment Group	N	L _{count}	L _{tabel}	Conclusion
K ₁	38	0.0822	0.144	normality
K ₂	38	0.1138	0.144	normality

From the results of normality were performed in group 1 (K1) obtained L_{count} value = 0.0822. Where the result is smaller than the numbers rejection limit at 5% significance level is 0.144. It can be concluded that the data K1 including the normal distribution. From the results of normality conducted in Group 2 (K2) obtained L_{count} value = 0.1138. Where the result is smaller than the numbers rejection limit at 5% significance level is 0.144. It can be concluded that the data K2 also includes the normal distribution.

2. Test Homogeneity

Homogeneity test is intended to determine the variance of the similarity of the two groups. If both groups have the same variance, then when will the two groups are different, the difference is caused by differences in average ability. Results of homogeneity test data between groups 1 (K1) and group 2 (K2) as follows:

Table 4. Summary of Results Homogeneity Test Data

Group	N	SD ²	F _{count}	F _{table 5%}
K ₁	38	372.600		
K ₂	38	373.614	0.997	1.730

From the results of the homogeneity test to be obtained F count = 0.997. While with db = (N1-1) opponent (N2-1) = 37 opposed to 37, and a significance level of 5% figure F table = 1.730. It turned out that the value of F_{count} is smaller than F_{table}. Since F_{count} < F_{table}, the null hypothesis is accepted. It can be concluded that the K1 and K2 has a homogeneous variance. Thus, if later between K1 and K2 there is a difference, the difference is actually due to the difference in the average value obtained.

RESULTS DATA ANALYSIS

1. Test Treatment Given Before Difference

Before the treated group formed in the research, tested the differences first. It is intended to know the differences in the two groups, as long as the treated departs from the same state or not. The result of the difference between K1 and K2 before given are as follows:

Table 5. Summary of Preliminary Test Results Differences in the K1 and K2

Group	N	M	M _d	t _{count}	t _{table 5%}
K1	38	180.32	1.13	0.255	1.993
K2	38	179.18			

T test that is done it can be concluded that the value of t obtained at 0255, while db = n-1 = 37-1 = 37 and 5% significance level, the null hypothesis rejection limit the numbers in the table t is 1,993. It turned out to be smaller than the numbers null hypothesis rejection limit. Thus the null hypothesis is accepted, which means that there are no significant differences between the results of preliminary tests badminton skills in group 1 and group 2. Therefore, when after being treated there is a difference, the difference is actually due to the difference in the effect of the treatment given.

2. Test Given Differences After Treatment

In this study, subjects were given treatment 16x meetings. In this case the treated K1 and K2 Learning model Conventional treated imagery learning model, and then do the final test. From the final test results in each group are then test the differences, the results are as follows:

a. The result of differences in preliminary tests and the final test in group 1, namely:

Table 6. Summary of Differences Test Results Test Results Preliminary and Final Tests in Group 1

Test	N	t _{count}	t _{table 5%}
Pre Test	38		
Post Test	38	7.835	1.993

T-test carried out can be obtained t value of 7835, which turned out to be the value greater than the value t_{table 5%} ie 1,993. Thus the null hypothesis is rejected, which means that there are significant differences between the results of the initial test and final test results in group 1. Therefore, after receiving treatment Conventional learning model increased learning outcomes badminton skills in group 1 convincingly.

c. Preliminary Test Results Difference Test and Final Test in Group 2

Table 7. Summary of Differences Test Test Results Preliminary and Final Tests in Group 2

Test	N	t _{count}	t _{table 5%}
Pre Test	38		
Post Test	38	11.053	1.993

T test carried out can be obtained t value of 11 053, which turned out to be the value greater than the value t_{table 5%} is 2,228. Thus the null hypothesis is rejected, which means that there are significant differences between the results of the initial test and final test results in group 2. Thus after receiving treatment increased imagery models badminton skills in group 2 convincingly.

c. Test Results Final Test Differences in Group 1 and Group 2 are:

Table 11. Summary of Test Results Final Test Difference Between K1 and K2

Group	N	t _{count}	t _{table 5%}
K ₁	38		
K ₂	38	2.163	1.993

T-test carried out can be obtained t value of 2,163 that turned out to be the value greater than the value t_{table 5%} is 1,993. Thus the null hypothesis is rejected, which means that after being treated there are significant differences between the results of the final tests on K1 and K2.

d. Difference Percentage Improvement

To determine which group has a better percentage increase, held calculation of the difference percentage increase in each group. The value difference badminton skills improvement in percent in the K1 and K2 are as follows:

Table 12. Summary of Results Calculation Value Difference blow Badminton Skills Improvement in Percent K1 and K2.

Group	N	Mean Pretest	Mean Posttest	M _d	Percentage increase
K ₁	38	180.316	215.711	35.395	19.63 %
K ₂	38	179.184	224.82	45.658	25.48 %

From the above results it can be seen that K1 had an increase of 19.63% badminton skills. While K2 has a badminton skills improvement of 25.48% It can be concluded that K2 has an increasing percentage of badminton skills greater than K1.

CONCLUSION AND SUGGESTION

CONCLUSION

Based on the results of research and data analysis has been done, it can be concluded as follows:

Application of imagery learning model for learning outcomes on student badminton *PENJASKESREK* VI semester. Learning model application imagery is shown by the results of data analysis observation of the learning activities of students in 16 sessions most of the students included in the category of pretty much as 20 students or by 52.7%. Students with excellent category as many as five students or 13.1% . Students with both categories as many as 13 students or 34.2% of the students. As for konvensional group, it can be seen that most of the students included in both categories as many as 11 students or 28.9%. Students with excellent category as many as three students or 7.9%. Students with sufficient category as many as 24 students or by 63.2%. It can be concluded that the imagery learning model provides a major influence on learning outcomes badminton skills and conventional learning model can improve learning outcomes badminton skills but the results are less than the maximum.

- a. The effective learning model imagery on learning outcomes badminton in VI semester students Prodi *PENJASKESREK JPOK FKIP UNS*. ($T = 2,553 > t_{table} = 1,993$).
- b. Imagery learning model is more effective than conventional learning model for learning outcomes badminton in VI semester students Prodi *PENJASKESREK JPOK FKIP UNS*. This show that increase learning outcomes with better imagery than conventional learning outcomes increase with Group 1 (the group treated with conventional learning models = 19.63%) < group 2 (the group that got the learning model imagery) = 25.48

SUGGESTION

- a. In choosing the type of model of learning, especially to improve learning outcomes badminton skills are good, should choose the type of model of learning that stimulates belajarmahasiswa capabilities so that results can be increased belajarketerampilan badminton well.

- b. In an effort to improve learning outcomes keterampilanbulutangkis, teachers can use imagery and Conventional modelpembelajaran as both are proven to improve learning outcomes badminton appearance despite studying with modelpembelajaran Imajerilebih good influence.

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DIFFERENCE IN THE EFFECT OF DIRECT INSTRUCTION (DI) AND TEACHING GAME FOR UNDERSTANDING (TGfU) APPROACH TOWARD THE RESULT OF PLAYING BASKETBALL BASED ON THE STUDENT'S INTEREST

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Abstract

The objective of this research is to determine: (1) The difference in the effect of DI and TGfU approach towards the result of playing basketball. (2) The difference in the result of playing basketball between students who have high, medium and low interest in basket ball. (3) The effect of the interaction between the learning approaches and interest in the result of playing basketball. The research used an experimental method of 2 X 3 factorial design. Research population were class XI student of SMA N 1 Cipari, Cilacap regency, amounting to 80 students. The sampling technique used purposive sampling, amount of samples taken were 30 students. Intake of data about playing basketball with test of playing basketball. Intake of data through Games Performance Assessment Instrument (GPAI). Intake of data about interests of students using a questionnaire. Data analysis techniques in this research used analysis variance of two lines and range test of Newman Keuls, at a significance level of 5%. Conclusion: (1) There were a significant difference between DI and TGfU approach towards the result of playing basketball. Effect of TGfU approach were better than the DI approach. (2) There were significant differences in the results of playing basketball between students who have high, medium and low interest. Improvement in playing basketball at students who have high interest that better than those who have medium and low interest. (3) There is a significant interaction effect between learning approach and interest in the game of basketball. (A) Students who have high interest and are more suitable if given TGfU approach. (B) While students who have low interest in basketball is more suitable to use DI approach.

Keywords: DI, TgfU, GPAI

INTRODUCTION

Learning is a continuous activity from planning to evaluate the learning outcomes. A study should consider various factors that affect the process and the product. These factors, among others; competence, materials, media, and assessment. After taking account of these other things that must be understood is the curriculum, approaches, models, strategies, methods and styles of learning which is a continuum with spectrum. Thus, in a study can not highlight one and ignore the other aspects. To arrange a learning to be cascading and has good continuity. In Indonesia, there are three models of the curriculum that taken from Fogarty (1991) namely connected, webbeb and integrated. Curriculum model of conected lowering the learning-oriented approach or a teacher-centered (teacher centered approach). While the integrated curriculum model, lowering the learning oriented approach or student-centered approach. Each of the two approaches have a lot of models. Models of teacher centered approach is the approach of Direct Instruction (DI). DI is very popular in the 1960s developed by Zig Engelmann. In physical education learning DI become a model of approach that the most widely used by educators because it is easy to apply. While one of student centered approach models is Teaching Games for Understanding (TGfU) and many others. The

development of TGfU approach models that focuses on meaningful games are considered more effective for students in achieving the learning objectives. TGfU first appeared introduced by Bunker and Thorpe (1982).

TGfU is a pedagogical model of the game, based on the aim to produce a greater understanding of all aspects of the game, while increasing the level of physical activity, involvement, student interest and enjoyment in physical education lessons. According to Griffin, Mitchell, and Oslin (1997; in Metzler, 2000), simulation activity (or other forms of the game) needs to reflect the integrity of the game and evocative situations to focus on tactics skills development. The meaning reflects the intended, are forms of the game in the simulation is a realistic situation that will be faced by students in the form of the actual game. Students also need to be constantly awakened and they motivated to focus on the tactics problems faced. TGfU placing emphasis on play, where tactical and strategic issues proposed in the modified game environment, students can finally make a decision. Putting the learning focus on student in game situations in which cognitive skills such as tactics, decision-making and problem solving are essential. TGfU is a holistic learning approach that encourages learning based on the students.

The effectiveness of learning physical education is determined by the selected learning approach by teachers on the basis of the teacher's knowledge about the nature of skills or tasks of movement that the students will learn (Rahayu, 2013: 102). The selection of DI learning approach models because the model is identical to learning that is mostly done by physical education teachers in Indonesia. DI is a learning approach that focuses on the goal to achieve the competency. This approach is very good in improving the technical ability of students in a learning material. Physical Education Teachers in general have a tendency to use the same way to teach Physical Education. It is not just to make an impression of teaching Physical Education as a boring routine activity, but also away from the practice of learning to be creative and innovative (Agus Kristiyanto, 2012: 15).

Factors supporting the achievement of learning goals are very much, both of which come from outside of the student and from the student (Setiowati 2010: 2). Factors of outside students, among others, socio-economic, teachers, the proportion of time for learning, environmental infrastructure and so on, while the factors that came from inside the student are motivation, interests, talents, physical conditions, attitudes and habits of students in learning. Interest is one of factors in learning, interests associated with an interest in object or a particular activity. Slameto (2003: 180) argues that the interest is a taste of prefer and sense of belonging to something or activity, without being told. Interest is basically the acceptance of a relationship between one-self and one outside of ourselves. The stronger the relationship, the greater the interest. Students' interest towards basketball are vary because of many factors, both factors from the students themselves or from outside the environment. Knowledgeable interest of students can facilitate teachers in designing the learning.

This research was conducted to determine (1) the difference influences of DI and TGfU approach toward the result of playing basketball. (2) The difference of influence between students who have low, medium and high interest toward the result of playing basketball. (3) The interaction between the learning approaches and students' interest towards the result of playing basketball. Theoretically this research is expected to put forward the principle of efficiency and suitability of the use of physical education learning approach with the selection of the curriculum. In addition, with this research is expected to be a reference and comparison to other researchers who conduct

research in the field of teaching physical education. The results of this research can be used to develop new theories related to teaching physical education, especially secondary level. In practical terms this research can be used for physical education teachers to implement instructional practices, so that not only develops the basic techniques of playing basketball, but were able to increase the understanding of the game of basketball.

METHOD

The research type used an experimental research. Experimental research aims to find out the possibility due to the cause effect toward a condition or phenomenon which researched. Eksperimental research can be interpreted as a study that objective, systematic and controlled to predict or control the phenomenon. Experimental research aims to investigate causality (cause and effect relationship), by exposing one or more of the experimental groups and one or more conditions of the experiment (Danim, 2002). The nature of experimental research that tried something to determine the influence or effect of a treatment or treatment. Arikunto (2002: 4) reveals that the experiment is a way to find a causal relationship between the two factors that intentionally inflicted by researchers through eliminate or put aside other factors that could interfere.

The research design used in this research is the research design of 2 x 3 factorial that is to determine the variable effect and the combination of the variable level, and the effect of the interaction between these factors toward the increased ability of PJOK basketball game material in class XI student of SMAN 1 Cipari, Cilacap regency,

According Sudjana (1994: 124-128), experimental design based on 2 x 3 factorial is where the variables in this research include two independent variables manipulative (DI and TGfU approach) and three independent variables attributive (interest in basketball that are high, medium and low) that affect the ability of playing basketball class XI in high school.

	Independent Manipulative	Learning Approach	
		TGfU (A1)	DI (A2)
Independent Attributive			
High interest in basketball(B1)	A1B1	A2B1	
Medium interest in basketball (B2)	A1B2	A2B2	
Low interest in basketball (B3)	A1B3	A2B3	
Result of playing basketball			

Information :

- A1B1 : Group of students who use DI approach with high interest in basketball
- A1B2 : Group of students who use DI approach with medium interest in basketball
- A1B3 : Group of students who use DI approach with low interest in basketball
- A2B1 : Group of students who use TGfU approach with high interest in basketball
- A2B2 : Group of students who use TGfU approach with medium interest in basketball
- A2B3 : Group of students who use TGfU approach with low interest in basketball.

About a sample, Sugiyono (2009: 80) explains that the sample is part of the number and characteristics of the population. In the process of sampling in the field of education experimental research, there is no standard benchmark to be used as a reference in the sampling of the population provided. The number of samples in this research are some of the population, namely the determination of the total population by random sampling. Sampling with purposive random sampling technique by giving equal opportunities to boys and girls. Population was class XI SMA Negeri 1 Cipari amount to 180 students. Then the sampling technique is used to take 30 students that divided into 2 groups.

To collect data from a sample research is needed tool in the form of tests. The proper test in order to get the results of students' ability to play basketball accurately that is through test to play basketball with the actual regulations. When the test is given, the instrument is required to record a student's ability to play basketball. The research instrument was a tool when researchers used a method (Arikunto, 2002: 126). In order to get the student's ability to play basketball correctly, will require an instrument namely Game Performance Assessment Instrument (GPAI) that was developed by Mitchell and Oslin (1999). Data of Interest obtained from a questionnaire that divided into four categories, namely; (1) Often, (2) sometimes, (3) rarely, (4) never. The results of the questionnaire consists of 42 questions which are then divided into three groups.

Game Performance Assesment Instrument (GPAI)

GPAI are special templates that can be adapted into various types of games to assess the ability of the students. Assessment were taken pretest and posttest. GPAI includes seven common components of the game are: basic techniques, adjustment, decision making, ability to execute, support, protection and protect or mark.

When using GPAI researchers identified the seven components that are applied to the game and weigh one or more criteria in each component indicating the decision and appropriate tactical performance. In this study, researchers focused on three aspects of performance in each component: decisions are made (appropriate or not appropriate), the ability to execute (appropriate or not appropriate), and support (appropriate or not appropriate). Then observe each student in the lessons of game and recorded the suitability or unsuitability and efficiently or inefficiently of an event of knowledge and tactical performance on these components.

Table 1. Aspects taken from Overall Components

Aspect	Criteria
Making decision	1. Players tried to pass the ball to the open player or a good position. 2. The player trying to score points as possible.
Ability to execute	1. Reception: control the pass and adjust the ball 2. Dribbling: Passing or mislead opponents 3. Passing: Ball hit the target
Support	4. Shooting: ball into the opponent's basket. placement in a suitable position either attacking or defensive.

Here is how to calculate student performance:

Table 2. How to calculate student performance

variable results	calculation
(Game Involvement / GI)	(Number of appropriate decision-making) + (number of inappropriate decisions making) + (number of efficient executions skills) + (number of inefficient execution skills) + (number of appropriate movement support) + (number of inappropriate movement support)
(Decisions made index/ DMI)	(number of appropriate decisions making) / (Number of appropriate decisions making + the number of inappropriate decisions making)
(Skill execution index/ SEI)	(number of efficient executions skills) / (number of efficient executions skills + number of inefficient executions skills)
(Support index/ SI)	(number of appropriate movement support) / (number of appropriate movement support i + number of inappropriate movement support)
(Game Performance / GP)	(DMI + SEI + SI) / 3

RESULTS AND DISCUSSION

The research data was obtained from a sample of 30 students of class XI SMA Negeri 1 Cipari, Cilacap Regency 2015/2016 with test to play basketball and the measurement techniques of GPAI. Tests were performed twice, before treatment (pretest) and after treatment (posttest).

Table 2. Result of student's performance

Variabel Atributif	No.	Variabel Manipulatif						Total Variabel Atributif
		DI			TGfU			
		Pretest	Posttest	increase	Pretest	Posttest	increase	
High interest	Jumlah	2.319	3.590	1.271	2.318	4.379	2.061	12.607
	Rerata	0.464	0.718	0.254	0.464	0.876	0.412	0.333
	SD	0.022	0.062	0.053	0.017	0.049	0.038	0.094
Medium interest	Jumlah	2.007	3.153	1.146	2.092	3.810	1.718	11.062
	Rerata	0.401	0.631	0.229	0.418	0.762	0.344	0.286
	SD	0.031	0.032	0.010	0.012	0.053	0.046	0.068
Low interest	Jumlah	1.775	2.911	1.137	1.857	2.868	1.011	9.412
	Rerata	0.355	0.582	0.227	0.371	0.574	0.202	0.215
	SD	0.022	0.049	0.035	0.013	0.058	0.055	0.045
Total Variabel Manipulatif	Jumlah	6.101	9.655	3.554	6.267	11.058	4.791	
	Rerata	0.407	0.644	0.237	0.418	0.737	0.319	
	SD	0.052	0.074	0.037	0.041	0.138	0.100	

Based on the above table it can be seen that the TGfU approach have better improvement with an average increase of 0.319 compared to the DI approach with an average increase of 0.237. While students who have a high interest in basketball has an average increase of 0.333, students who have medium interest in basketball was having an average increase of 0.286 and students who have low interest in basketball has a lower average increase of 0.215. For more details, the following was the overall view of the average value of playing basketball with GPAI measurement techniques:

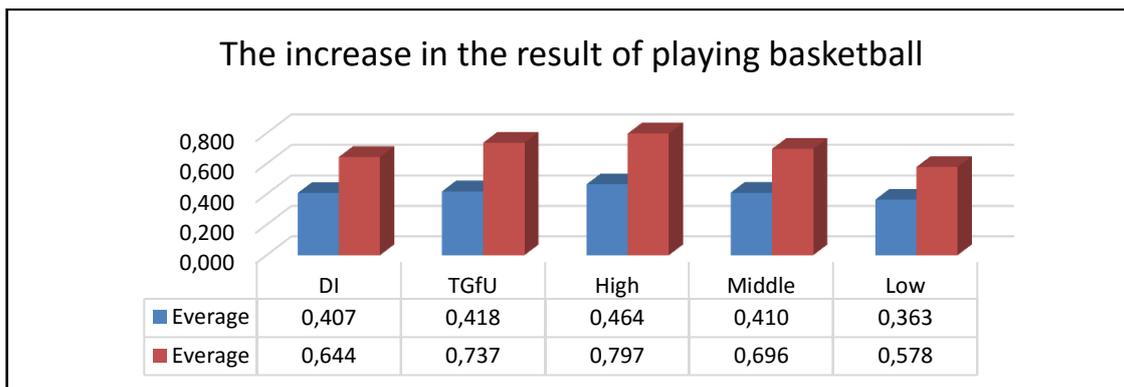


Figure 1. Histogram of average value in *Pretest* dan *Posttest*, the result of playing basketball of each group based on the learning approach and interest level in basket ball.

From the results of posttest, it can be seen that TGfU group with high interest in basketball had an average result of playing basketball the largest among the other groups, namely 0.876 with an average increase of 0.412. The second group is a TGfU group with a medium interest in basketball had an average result of playing basketball namely 0.762 with an average increase of 0.344. The third group is a DI group with a high interest in basketball had an average result of playing basketball namely 0,718 with an average increase of 0.254. The fourth group is a DI group with a medium interest in basketball had the result of playing basketball at 0.631 and had an average increase of 0.229. The fifth group is a DI group with a low interest in basketball that had an average result of playing basketball at 0.582 and had an average increase of 0.227. The last group is a TGfU group with low interests in basketball that had an average result of playing basketball at 0,574 with an average increase of 0.202.

The approach of DI and TGfU give effect to the result of playing basketball. If the group of students who received the DI approach and the TGfU approach compared, it can be seen that the group treated with TGfU approach, have increased result of playing basketball at 1.34 higher than in the group with DI approach. Then, if the group of students who have high, medium and low interest in basketball compared, it can be seen that the group of students who have a high interest in basketball has increased result of playing basketball at 1.18 higher than in the group of students who have a medium interest in basketball and groups of students who have medium interest in basketball are having an increase in the result of playing basketball 1.19 higher than in the group of students who have low interest in basketball.

The effectiveness of the use of learning approaches to increase the result of playing basketball influenced by the high, medium and low interest in basketball owned by the students. Based on this research, it turns out that students who have a high interest in basketball with TGfU approach has increased result in playing basketball at 0.412. While students that have a high interest in basketball with DI approach has increase result at 0.254. Students who have medium interest in basketball, with TGfU approach has increased result of playing basketball at 0,344 better than the students with a medium interest in basketball that use DI approaches at 0.229. While students that have low interest in basketball lower with DI approach has increased result of playing basketball at 0.227 better than students who have low interest in basketball with TGfU approach at 0.202.

Research hypothesis testing is conducted based on data analysis and interpretation of the analysis of variance. Newman-Keuls range test was taken as average test measures after Anava.

Table 3. result of Anava

Source of Varians	dk	JK	RJK	Fo	Ft
Average	1	1,001	1,001		
A	1	0,523	0,523	15,3128	* 2,62
B	2	0,594	0,297	8,6972	*
Interaction (AB)	2	0,371	0,186	5,4418	
Error	24	-0,819	0,034		
Total	30	1,670			

The research results showed that the DI approach has distinct improvement with TGfU approach. This is evidenced from the value of $F_{count} = 15.31 > F_{table} = 2.62$. Thus the null hypothesis (H_0) is rejected. Which means that the DI approach has distinct improvement with TGfU approach can be accepted as true. From advanced analysis obtained that TGfU learning approach have a better improvement than the DI approach, with an average increase in each are 0.319 and 0.237.

The research results showed that students who have a high interest in basketball have increase of playing basketball that differet with students who have medium interest in basketball, it is also different with students who have low interest in basketball. This is evidenced from the value of $F_{count} = 8.69 > F_{table} = 2.62$. Then the null hypothesis (H_0) is rejected. Which means that students who have high interest in basketball have an increase of playing basketball that different from the students who have medium interest in basketball and students who have high and medium interest in basketball have an increase of playing basketball that different from the students who have low interest in basketball can be accepted as true.

Based on the research results showed that the interaction between learning approach and the level of interest in basketball is very meaningful. Because of $F_{count} = 5.44 > F_{table} = 2.62$. Thus the null hypothesis is rejected. There was a significant interaction between the type of learning approach and the level of interest in basketball

In this research, both in preparing the study of theory, implement learning approaches, as well as in data collection in the field and various attempts have been conducted, in order that the research results really fit with the objectives to be achieved, but there are several factors as variables intervening that can not be controlled so that the results of the study has several weaknesses, including:

1. This research only conducted in SMA Cipari 01, Cilacap regency, particularly in class XI, with the sample that is relatively limited, so that this research has not sufficiently to be generalized nationally.
2. There is a possibility of control samples are also doing the same treatment with the group treated because some samples there that joined the basketball ekstrakurikler thus affect the validity of the treatment groups.
3. During the implementation of the research, sample was not garrisoned, so other factors that will affect the results, such as nutritional factors, breaks and other experiences will supposedly affect the results.

4. Control of the other elements that can influence the improvement of the result of playing basketball, as an element of psychological conditions other than the interests of students, physical condition and motion ability, is not taken into account so that these variables could affect the research results.
5. Intake of data was less than the maximum because of the difficulty to equal perception by the assessment team. Assessment in physical education practice is very difficult to do because it is not biased repeated. Supposedly in assessing physical education videotaped so that the assessor can appropriately provide the missing votes.

CONCLUSION AND SUGGESTION

Based on data analysis and discussion that has been described, it can be concluded as follows:

1. There is influence between DI and TGfU approach towards the result of playing basketball. Effect of increase in the result of playing basketball posed by DI approach, the average increase was 0.254 while TGfU approach the average increase was 0.412. TGfU approach was better its influence on the result of playing basketball with a difference of 0.158.
2. There is a significant effect, between a group of students that have a high interest in basketball, medium interest in basketball and low interest in basketball toward the increase of basketball learning outcomes. Comparison of the average increase in the result of playing basketball on a group of students who have a high interest in basketball 1.18 higher than in the group of students who have medium interest in basketball, while the ratio of the average increase in the result of playing basketball on a group of students who have a medium interest in basketball was 1.19 higher than in the group of students who have low interest in basketball.
3. There is an interaction between the learning approaches and interest in basketball towards the result of playing basketball, because of the analysis results showed that $F_{count} = 5.44$ is greater than $F_{table} = 2.62$ at the 5% significance level. Based on this research, it turns out that students who have a high interest in basketball with TGfU approach has increased result in playing basketball at 0.412 better than students who have a high interest in basketball with DI approach at 0.254. Students who have medium interest in basketball with TGfU approach has increased result in playing basketball at 0.344 better than students who have medium interest in basketball with the DI approach at 0.229. While students who have low interest in basketball with DI approach has increase result in playing basketball at 0.227 better than students who have low interest in basketball with TGfU approach at 0.202.

Suggestions that researchers can convey in this study as follows:

1. Considering that the usage of TGfU approach is better in increasing the result of playing basketball, then TGfU approach should selected by physical education teachers in the choice of learning approaches in order to achieve the learning objectives.
2. In the increase of result in playing basketball, in addition to the selection of appropriate learning approach should also consider the psychological component that can support its success. Physical education teachers should not overlook the high-low factors of interest in their students. Due to the high level of interest that will be optimal in playing basketball than the students who have low interest.

3. Assessment is very complex depending on the competencies and goals to be achieved. To determine the level of success in a game of test and measurement techniques must be precise. For the measurement of the game would be more appropriate to use GPAI.

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DRILL MACHINE "AW_2016" ON VOLLEYBALL'S MOTOR SKILL TRAINING

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Abstract

Practice quality demands good equipment availability. Drill Machine volleyball "AW_2016" is a set of tools for athletes to practice volleyball motor skills. The result of this burst of tools used to practice skills of receiving the service, pass / receive attacks, blocking, and smash. This tool can be used to practice the motion of volleyball because it is safe and convenient.

Keywords: practice, volleyball, tools

INTRODUCTION

Volleyball is a sport played by two teams, in a field that is separated by a net. The aim of the game is the ball able to pass through the upper net to be able to fall and touch the floor on the opposite field, as well as to prevent the same effort from the opponent. Each team able to play three bounces to return the ball perfectly. In volleyball, the team won a rally gained one point. If the team is doing a service able to win the rally, the team will earn one point and are entitled to carry out the next service, as well as the players moved one position in a clockwise direction. A variety of basic skills is essential to be learned and mastered to bounce the ball as technical principles of volleyball. Through a long practice and continuously, volleyball athletes learn, master and improve their movement skills, either in the form of a service, passing or receiving, assists, smash, and blocking, which is required in defense and attack tactics in volleyball.

In the process of training to learn motor skills, the coach has an arduous task. Model training for athletes in learning motor skills is a drilling (repetition movements) with the help of a coach. The coach has an average training time from 2 to 2.5 hours and used up to smash the ball, to repeat, as well as the coaches also in the formation of practice in turns. These models have unfavorable views, based on, the duties and functions of the coach, because besides as a partner, coaches have a responsibility as an evaluator and motivator in training. The appearing problem is the model of this practice uses unstable hitting ball in motion learns of volleyball skills. There are no sports activities without the support of the practice facility. Good facilities are needed in elite sports, support of adequate equipment and supplies affect the quality of training.

Volleyball is clear that now is growing rapidly, much faster and become more sophisticated. One example is the emergence of the development of jump-serve and back row attack on serve and spike motor skills, a factor that is much more dominant and make the volleyball game has changed. This means that the coaching needs to be accompanied by adequate training process, including infrastructure at volleyball practice movement skills. In developed countries, many volleyball practice using science and technology innovation. Practice is performed with tools of innovation in science and technology, one of which is a volleyball thrower tools. Volleyball thrower tool is a set of machines that work mechanically to throw / toss the ball. The ball, bounced out of the tool, is used for the benefit of volleyball practice.

Volleyball thrower tool manufactured and marketed today, including "AirCat Volleyball Machine" of Airborne Athletics USA, Inc. 1800 East Cliff Road, Suite 11A Burnsville, MN and "Attack Volleyball Machine" from the Attack Volleyball, Sport Attack USA, 40 Verdi, NV (Region Asia in Shibita-cho, Miyakonojyou-shi, Miyazaki, Japan). Two of these machines are some of the tools for volleyball ball thrower that have been produced and used to assist in volleyball. Developed countries use science and technology innovation, the ball thrower tool, to support the success of the practice, to improve achievement, and help learn volleyball motor skills.

In Indonesia, it has developed AW_2016 volleyball drill machine. An innovation of science and technology of tools to learn the skills of motion practices in volleyball. So it needs a study on how to apply and to what extent the usefulness of these tools in practice movement skills of volleyball. Elite sport is very unique, because the performance results achieved are always measurable and observable, even served in an open and accountable in public, broadcast by the media (print and electronic) and recorded as a sports achievement data. Therefore, according to Rusli Lutan (2013: 5), behind the coaching process highly desirable sports coaching growth mind-set that is able to emphasize the efforts and hard work ethic, as a reflection of the character of a champion, or a culture of accountability that emphasizes process of improvement continuously and systematically.

Elite sport cannot develop on its own and thus require the synergy of all parties concerned, in order to ensure the sustainable development of sport. The weakness of sustainable development is contrary to the demands of sporting achievement, which will only be successful when the principle of long-term development are met. Rusli Lutan (2013: 33) mentioned that as a system, elite sports coaching involve a number of major components and the results of research that uncovers at least 10 major components, called pillars. The ten pillars are financial support, organizational and policy structures integrated sports, socialization and the talent search, development grassroots such as the identification and development of talent, development elite groups such as reward systems and support in post-career, **sports infrastructure such as an practice facility**, providing coaches, development and the quality of training, the quality of competition as national and international standards, **the scientific research and technology of sports**, and media and sponsorship environment.

As is often argued by experts, "Development of elite sport should begin at an early age to achieve peak performance, which takes place through the coaching process that is sustained for 10-12 years, or at least 10,000 hours of practice." Therefore, the implementation of sports coaching achievements emphasize on process, rather than the product (result). Furthermore, it should be created the environment and consider the factors that support the quality of training athletes, so that athletes learn, practice, repeat the movement and be able to master the skills of attack and defense. Practice quality not only depends on the coach, but on the interaction of many factors that can affect the performance of athletes. Bompaa (2009: 8) stated that the factors which affect the quality of the practice are: a) the knowledge and personality of the coach, b) **the facilities and equipment**, c) **discoveries of science supporting the training process**, and d) a match or competition. All that relates reciprocity with the athlete's ability based on the motivation and talent.

AW_2016 volleyball drill machine are a system that aims to throw balls are used to practice movement skills of athletes in training receive-serve, pass / dig, set-up, block and spike volleyball. AW_2016 volleyball drill machine capabilities are able to throw as much as 900 times throw per hour, lasting 3 hours used continuously, can provide precise and steady throw, the maximum throw

speed of 98.3 km/h. This volleyball tools can meet the need for athletes to practice volleyball motor skills. The workout facility as one contributing factor that determines the quality of practice include equipment or supplies. Thus, to create a quality workout, the club coaches and trainers must consider the availability of adequate equipment or supplies for athletes in training.

Volleyball practice motor skills are about how athletes can master the movement of receiving the service, passing, assists, smash, and blocking, so that the movement is made effectively and useful to play with the ball regularly over the net well. Cooker (2004: 98) mentioned that measures movement skills gained by Fitts and Posner's Three-Stage Model are: 1) Cognitive Phase, 2) Associative Phase, and 3) Automation Phase.

The first step is the cognitive phase, in this phase the athlete was introduced to a new movement skills to develop an understanding of the needs of the motion. In this step the athlete tries with different strategies, see and feel things that hinder and support the movement. The second step is called associative phase. In this phase the athletes start selecting movement skills to achieve the purpose of the motion. Characters that appear at this stage, that is focused on the strategy chosen motion, a lot of repetition to master the strategies motion movement, and improvement occurs slowly. Changes in motor skills can be seen by an increase in the appearance, and athletes have a strategy in motion that is possible and selected. The appearance looks to be more consistent and occur the rate of decline of motion errors. The third step is described as the phase of automation. In this phase will form a high-level performance and strategy of motion have become automatic movement. Characteristic of this phase are: 1) The final stage of practicing the motion is characterized by being able to make a move automatically, 2) can perform the movement without being affected, but still pay attention to anything else, 3) in the execution of movement, have a lot of memory in the central nervous, 4) this stage is not all athletes can achieve it, 5) automatic movement is not necessarily efficient.

The application of sports science in Indonesia now starts to grow. However, it is not accompanied by the application of high technology, so as in its application did not optimal. Ali Maksum (2012: 22) stated that narrow understanding has led to the study of sport science did not develop optimally. That understanding relates to the study of sport science are simply understood as the science of motion and practice. Another study is not considered a sport science field. That view needs to be clarified, because the sport science has progressed far left that understanding.

According to Rusli Lutan (2013: 47), the function of the technology of sports is looking for innovations in coaching. If you do not get to that level, at least the application of science and technology is needed to provide information to make the right decision in training. In a further development of science and technology, the existing technology makes sports activity is no longer a strenuous activity. Various tools are ready to become "weapons" supporters.

In the Act of the Republic of Indonesia Number 3 of 2005 on National Sports System chapter XIII article 74 clause (3) and (4) relating to the Development of Science and Technology of Sports stated that the central government, local government, and / or community must develop science and technology in a sustainable manner to promote national sports. Science and technology development is carried out through **research**, assessment, **technology transfer**, dissemination, scientific meetings, and cooperation among research institutions, both national and international, which has specialized sports science and technology. And the results need to be disseminated and implemented to advancement of the sport.

METHODS

The method used in the design of trials in the volleyball drill machine "AW_2016" aims to look at the usability, safety, and comfort of this tool. A number of 40 volleyball athletes involved as test subjects by using the volleyball drill machine "AW_2016" in training learn movement skills in volleyball. Data were obtained through interviews after the respondent tried to use it and analyzed with descriptive percentage.

RESULT

Application of Tool

The ability from machine drill volleyball "AW_2016" and its application to practice volleyball, ie 1) The movement skills receive service, such as providing throw with the kind of round ball spins and without spin like a service from the opposing team as well as the respondents try practicing to master the motor skills in receiving ball, 2) skills motion to receive smash, such as providing throw like an attack in volleyball with the kind of round ball spins and without the spin and the respondent tried practicing to master the motor skills to survive attacks from the opposing team, 3) assists motor skills, such as giving a ball like passing in volleyball with the kind of round ball spins and without the spin and the respondent tried practicing to master the motor skills or assists passing ball so that the ball can be struck by the striker, 4) motor skills smash, such as giving the ball like an assist from teammate in volleyball with the round ball without spin and the respondent tried practicing to master the motor skills to strike with a variety of bounce, and 5) motor skills blocking, such as giving the ball like a strike in volleyball game with the round ball spins and spin and without the respondent tried practicing to master the skills of movement for blocking the opposing team's attack.

Feasibility of Tool

Assessing the feasibility of the tools is provided by the subject. The results of that survey, which is (a) all respondents (100%) stated that the machines drill "AW_2016" can be used to practice movement skills in volleyball because this tool can be used to assist trainers in the training process, the ability of drilling, and can be used to practice the motion basis, are three answers to the most often mentioned by the respondents, (b) all respondents (100%) stated that the machines drill "AW_2016" safe to be used to practice movement skills in the absence of physical contact or touch between tools and athletes during tool is used in the training process, (c) all respondents (100%) stated that the drill machine "AW_2016" conveniently used for volleyball practice motor skills because of the speed, direction and angle of throw from this machine can be set.

DISCUSSION

Machine drill volleyball "AW_2016" can meet the need for throw ball during practice movement skills, can set the angle, direction, and speed of the ball, can be used to practice movement skills receive the serve, pass / dig, set-up, block and spike, as well as economic. Practicality and effectiveness of this tool is shown from the results of interviews with 40 respondents who have tried this tool. From interviews indicate that the drill machine volleyball "AW_2016" useful to practice volleyball. The top answer given by respondents indicated these tools can help coaches in volleyball training process because it has the ability to throw the ball. This tool is able to throw the ball constantly and steadily, so has the nature of the drilling to meet the needs of throw during

practice. Meeting the needs of throw balls used by athletes while practicing motor skills or techniques in volleyball. This condition is used by coaches and athletes to meet training needs. Thousands pitch generated by this tool and is used by athletes to repeat the movement as a process of training, this is called drilling. Repetition of movements with the ball throw outcome from the tools to practice a variety of motor skills or techniques in volleyball. Volleyball drill machine "AW_2016" safely used for volleyball practice, this can be seen from the the answers to most from the the respondents in the absence of physical contact or touch between the tool and athletes for use in the training process. It is derived of the ability of tools that can be positioned, the type of throw, and targets. In addition, the ability to set the direction of throw, angle of throw, and altitude is a factor of avoiding physical contact during these tools are used in the process of volleyball practice. The ability of speed, direction, and angle of pitch that can be set is a factor volleyball drill machine tools "AW_2016" convenient to use. The ball is thrown with a choice of speeds between 0-98 km/h, and hurl always on target as a result of setting the direction and angle of throw to make the results can be used to meet the needs of defense and attack tactics. The results of throw used to practice the serve receive, block, and pass / dig for defensive tactics. Practice set-up and spike are attacking tactics that can be trained with this tool. The indirect effect of the use of these tools is related to physical condition. This refers to the relatively rapid repetition in every performance athlete motion as a result of the results of the drill machine "AW_2016". This situation demands a good stamina athletes to always show a good performance during practice as the demands of practice.

Practicing volleyball motor skills is a long process that follows the stage of Fitts and Posner. Athletes get to know, understand, and control of motor skills while receiving service, receive an attack, assists, hit the ball and do the blocking using this tool is based on the cognition phase, the association phase, and then phase of automation. The process of starting a movement of the emergence of external or internal signals where go through the brain nerves which then causes contraction of a muscle or muscles group. Lutan (1988: 240) states that the contraction evoke sensory information (response-produced feedback) of the muscles and / or of movements generated by muscles. The feedback is regarded as excitatory information as well as other stimulus such as light or sound, which then serves as trigger or motivation for the next contraction. In the next phase, the of muscle contractions also generate feedback responses that stimulate contractions of the third, and so on until a series of full contraction. The origin of the feedback circuit that generates the next response could come from various sources including from strands of muscle, joint receptor, or derived from sight and hearing.

Resources (stimulus) comes through hearing or sight, then processed in the brain in a way recognizable and identifiable in advance with the input characteristics, then your body will respond well in the form of a motion. Exposure information processing in practice movement skills in volleyball of these tools can be explained as follows: first, the athlete catches the ball through the information from sensory organs (eyes, ears, and so on). Some of the information is filtered (ignored) on a sensory level, then the rest is put into short-term memory (consciousness). Short-term memory has a limited capacity for maintenance information so that its content must be processed in such a way (by repetition or training), if it will not disappear quickly. If this is performed, the information from short-term memory can be transferred into long-term memory. Long-term memory is important in the training process. Long-term memory storage area is containing factual information

(declarative knowledge) and information on how to do things (procedural knowledge). The end of this process is output, the motor skills receive the service, receive attack, assists, hitting and blocking in volleyball.

In Indonesia, the volleyball drill machine "AW_2016" entered as the new tool category. These categories are based on: 1) Machine drill "AW_2016" is a replacement tool that is completely different from existing tool (a tool of the same type but using the new model). That the international community has been using a ball thrower machine to practice movement skills in volleyball, and volleyball drill machine "AW_2016" is different from existing models, both the shape and the material; 2) Machine drill "AW_2016" is a primitive tool, a new tool for certain groups but in a market more, this tool is not a new tool again. Ball thrower machines have long been used by developed countries, and in Indonesia the tool is not yet marketed; 3) Drill machine "AW_2016" is a cost-effective tool, a new tool that provides the same performance but at a low cost. This tool uses local materials and components so that the product price is lower than the existing product, with the same performance that can throw a ball that can be used to practice volleyball motor skills; 4) drill machine "AW_2016" is a new tool that is the result of previous product development, through its own research and development efforts.

CONCLUSION AND RECOMMENDATION

Volleyball drill machine tools "AW_2016" is an innovative practice, especially practice facility that supports athletes to practice movement skills in volleyball. This tool has the ability to provide thousands of throw, so it can be used by athletes in the process of continuous practice and demands a long training period.

Conclusion of this study is the model can be used to practice movement skills for volleyball athletes. Recommendations put forward is this model can be used by coaches and athletes as an alternative tool to practice movement skills in volleyball.

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MASSAGE ON LOWER EXTREMITIES BEFORE PRACTICING

Wisnu Mahardika

Abstract

The objective of article was to examine the effect of massage in the performance of lower extremities before practicing. Every subject conducted the following activities successively: massage, stretching, and taking a rest. After massaging and stretching, taking a rest can reduce the muscle tension and pain in foot muscle contraction. Conducting Swedish massage for 10 minutes on posterior lower limb and 5 minutes on anterior lower limb will reduce the pain on the foot during practicing, thereby improving the muscle performance during practice.

INTRODUCTION

Athletes do practice to improve their physiological and psychological capacities before both practicing and competing, despite no scientific evidence supporting it. Many types, intensities and durations of practice ensure the difference of physiological and psychological changes within the body. Statically, the athletes do stretching after practicing because it is easy, safe and they believe that no muscular tension occurs compared with stretching. However, recent studies show that the static practice encounters the explosive decrease and high-speed movement capacity such as power, strength, vertical jump, speed and reaction time. Practice can often result in various levels of musculoskeletal, nervous, and metabolism system fatigue. A wide range of discomfort or illness and inflammation can be related to practice and it is dependent on frequency, intensity, duration, and practice type done. After it is done intensively, it can result in discomfort and pain related to intracellular disorder in muscular structure, sarcolemma, and extracellular matrix leading to prolonged muscular dysfunction and beginning the muscular pain (Gregory, David, Kawamoto, Drinkwater, Behm and Button, 2015: 5).

In addition to stretching, physical practice can be used as supplement to massage. Many claims about massage, but only few are supported by empirical data related to good mechanism or effect. The mechanism of massage has been categorized into biomechanics, physiologic, neurologic and psychological. Some data have shown that massage and stretching results in decreased motor activation unit and reduces muscular rigidity as evidenced by muscular contraction. However, the existing data has been inadequate. In the term of athletic performance, the muscular pain incidence can result in negative consequence. Muscular pain and muscular structure and adipose tissue damage can lead to the change of muscular function. This change can substantially reduce the optimal performance of athlete. In addition, the painful muscle will impact negatively on sprint, power, high jump and drop jump athletes (Gregory, David, Kawamoto, Drinkwater, Behm and Button, 2015: 5).

In Arabaci's (2008: 553) study, Wiktorsson-Moller et al. (2005) states that 6-15 minute petrissage with relaxation purpose will reduce muscular tension. Goodwin et al. (2007) found that 15-minute petrissage indicated with lower finger tip and managed well before practice does not affect significantly the performance of sprint. Hunter et al.'s (2006) study shows that lower part of body indicates the reduced power in the first muscular contraction. The massage on hamstring muscle will increase various passive movements on hip and leg joint. Arabaci (2008: 553) states that

massage reduces muscular tension. In a soccer game, Charlie plays in injury condition, and massage is one component making him keep playing, and it makes his team experience good change (Fritz, S., 2013: 5).

In addition, there is no agreement about type, style, application, duration, intensity applied, or application time before practice or competition. As a result, the effect of pre-massage on the performance can still be inferred because it is still limited. Before massaging, check first the anterior and posterior effect of lower extremities before doing practice compared with static practice after massage and practice without massage or stretching procedure. For that reason, this research aims to examine the effect of massage on the pre-performance of lower extremity after practice.

DISCUSSION

Massage art has been existing since some centuries ago and it impacts on human body continuously. Massage can reduce fatigue in posterior thigh, quadriceps and gluteus. Massage can relax muscle and improve its flexibility by reducing the agonist muscle tension.

Massaging procedure

Many practices, athletes and sport therapists use Swedish-type massage. This research employs Swedish massage technique in massaging procedure. This Swedish massage includes 5 manipulations: *effleurage*, *friction*, *petrissage*, *vibration* and *tapotment*. The massage applies to: (1) posterior lower extremity for 10 minutes and (2) anterior lower extremity for 5 minutes. The massaging on posterior lower extremity is done on gluteal muscle group, thigh and posterior leg. Otherwise, the massage on anterior lower extremity is done only on anterior thigh. The massage on posterior lower extremity is done between ankle and hip, but that on anterior lower extremity is done between knee and hip. Therefore, the massage is done more strongly on posterior lower extremity than that on anterior one.

Massaging technique is done on posterior and anterior lower extremities. Manipulation is generally applied from the lower area to the upper one. Massage is done on two legs both right and left, simultaneously by two therapists massaging using baby oil. Therapists (massagers) massage themselves first to feel the massaging stress (pressure) on posterior lower extremity when they are laying down on vulnerable position and on anterior part when they are laying down in supine position. The massaging technique can be seen in Table 1.1 and 1.2.

Table 1.1. The procedure of Massaging Posterior Lower Extremities

No.	Massaging Technique	Rate	Time (duration) In seconds
1	<i>Effleurage</i>	30-40 strokes/min	45
2	<i>Friction on trochanter major</i>	90-100 circle/min	10
3	<i>Friction (circular) performed with the thumb (left hand, right hand, two hands together)</i>	60-70 circle/min	50
4	<i>Friction (circular) performed with the other four fingers (left hand, right hand, two hands together)</i>	60-70 circles/min	50
	<i>Friction (circular) performed with the palm (left hand, right hand, two hands together)</i>		
5	<i>Deep friction</i>	60-70 circles/min	50
	<i>Friction on achilles tendon</i>		
	<i>Stroking on achilles tendon</i>		

No.	Massaging Technique	Rate	Time (duration) In seconds
6	<i>Comb friction</i>	40-50 circles/min	20
7	<i>Octave friction (medial, intermediate, lateral)</i>	50-60 circles/min	20
8	<i>Petrissage (circular kneading with palm)</i>	40-50 strokes/min	20
9	<i>Petrissage with two hands (kneading medial thigh)</i>	30-40 strokes/min	50
10		60-70 circles/min	50
11	<i>Cutting petrissage with two hands (medial thigh)</i>	60-70 strokes/min	20
	<i>Petrissage on twisted leg</i>		
12	<i>Stroking on twisted leg</i>	60-70 strokes/min	20
	<i>Tapotment – hacking</i>		
13	<i>Vibration – shaking</i>	60-70 strokes/min	45
	<i>Effleurage</i>		
14		60-70 strokes/min	20
15		45-50 strokes/min	20
16		240-260 contacts/min	45
17		60-70 shakes/min	20
18		40-50 strokes/min	45

Source: Arabaci, 2008: 551

Table 1.2 The Procedure of Massaging Anterior Lower Extremities

No.	Massaging Technique	Rate	Time (duration) In seconds
1	<i>Effleurage</i>	30-40 strokes/min	30
2	<i>Friction (circular) performed with the thumb (left hand, right hand, two hands together)</i>	60-70 circles/min	30
	<i>Friction (circular) performed with the other four fingers (left hand, right hand, two hands together)</i>		
3	<i>Friction (circular) performed with the palm (left hand, right hand, two hands together)</i>	60-70 circles/min	30
4	<i>Deep friction</i>	60-70 circles/min	30
	<i>Comb friction</i>		
	<i>Octave friction (medial, intermediate, lateral)</i>		
5	<i>Petrissage (circular kneading with palm)</i>	40-50 circles/min	15
6	<i>Cutting petrissage with two hands (medial thigh)</i>	30-40 strokes/min	25
7		60-70 circles/min	30
	<i>Tapotment – hacking</i>		
8	<i>Vibration</i>	60-70 strokes/min	20
	<i>Effleurage</i>		
9		60-70 strokes/min	20
10		240-260 contacts/min	30
11		60-70 shakes/min	10
12		40-50 strokes/min	

Source: Arabaci, 2008: 551

Stretching

The target of muscle in static stretching is the six groups of muscle on lower extremities: *plantar flexors*, *hip extensors*, *hamstrings*, *hip flexors*, *adductor* and *quadriceps femoris*. The subject firstly positions his lower left leg on stretching position slowly and attentively. When the joints

achieve the threshold of movement ranges and pain, stretching is done for 20 seconds. After 10-second break, the same stretching is done on lower right extremity for 20 seconds. Thus, one stretching practice is done entirely for 40 seconds on both right and left lower extremities. Rest period of 10 seconds is given in the attempt of preparing the next stretching subject. This stretching practice is done in three sets (three sets x six static stretching practices x 40 second-stretching and 10 second-break). Overall, the stretching lasts for about 15 minutes.

Traditionally, athletes perform warming up session before physical activity or competition. It aims to improve physiologic, biomechanical and psychological performance of athletes. However, coaches, athletes, and sport scientists have not determined yet the best procedure of warming up. Generally, coach and athletes apply jogging and static stretching during warming up session. Static stretching before practice (particularly increasing stretching duration) reduces the explosive performance of speed and power practice. Swedish massaging technique is carried out for 10 minutes on posterior lower extremity and 5 minutes on anterior lower extremity after warming-up session with degraded performance. Otherwise, massage improves the flexibility of hip joint. In addition, for massaging intervention, stretching and other interventions are required.

Stretching is not far different from massaging intervention. The 15-minute static stretching improves the flexibility of hip joint. There is no difference of athlete performance found between before and after practice. There is a decrease in power after intervention compared with that before intervention in massage condition. Petrissage with 6-15 minute duration is aimed at relaxation and comfort, reducing muscular tension. The massage with 15-minute duration on lower extremity before warming up does not exert significant effect on the performance of practice. The massage on knee muscle group can improve the hip movement. Similarly, massage can encourage the flexibility of plantar flexors. However, the massage on knee muscle group is not related to the improved performance. The stretching is more effective than massage as the method of improving the movement on lower extremity joint. The massage results in an extending muscle. Firstly, mechanic factor involves viscoelastic muscle property can affect the muscle tension length. Secondly, nervous factor includes reduce muscle activation or changing reflex to sensitivity. The basic mechanism underlying the extending muscle leading to the reduced power is related to the muscle's improved compliance that can change muscle tension, shortened distance and increased speed of sarcomere, and reduced energy production due to power speed.

The longer the skeletal muscle, the lower is the number of cross-bridges actin and myosin. Regarding the role of *viscoelastic* muscle or stiffness muscle and high-speed movement capacity or flexibility, the role of massage can reduce muscle stiffness. In addition, nervous mechanism also contributes to reducing the capacity of high-speed movement and improving the flexibility.

1. Healing Stage with Massage

During acute injury stage, massage is an important thing in naturally healing process (Simancek, J.A., 2013: 63). The process of healing injury or infection is so complicated that needs an interaction for the coordination between blood vessel, cellular and chemical components. Healing usually occurs in acute, sub acute and post acute. Acute stage is the initial stage of inflammation in which the cell is damaged resulting in vasoconstriction and dilatation, liquid accumulation between cells (edema), and the attraction of thrombocyte and leukocyte moving rapidly. Tissue exudates begin to be created; it can improve the form of blistering liquid, pus and other materials showing

immunity system activity. This stage is dependent on the severity of lesion; this acute stage can last for 1-3 days or longer.

Sub acute stage can be called proliferative stage; it is the stage when certain cells accumulate and work to fill in the damaged tissue. Cells begin to grow into new endothelial capillary tissue to supply granulation tissue, frame for new cells. When the damage affects more deeply into the layer, new fibroblast collagen fiber will rotate. At the same time, leukocyte moving more slowly begins to remove the dead pathogen and other cellular ruins. Sub acute stage can last for 2 to 3 weeks, dependent on severity and depth of lesion and the healing capacity of the injured one.

Post acute stage is also called maturation one; this stage is the one when new collagen changes, in which collagen occurs during recovery, collagen becomes solid and parallel. In other words, if muscle, tendon or ligament is injured and scrape tissue is accumulated and if the structure extends, the new collagen fiber can result in fiber injury.

Healing stage can be done by means of massage. In the presence of massaging technique, lymph will be used for acute inflammation when there is no infection. Post-acute inflammation managed carefully with massage can be used to improve the retardation or damage, to improve circulation and to reduce infection and inflammation in post-acute stage. The massage for every healing stage is made in different ways. The massage in each stage can be seen in Table 1.3.

Massage can be used for treatment and has no chemical effect on the body of those massaged. However, massaging should be done carefully and corresponding to correct technique because massage can improve the risk of injury when it is not done well and correctly.

Table 1.3 Body Tissue Healing Stage and Massage Intervention

Stage 1 Acute Inflammatory Reaction	Stage 2 Sub acute Repair and Healing	Stag 3 Chronic and Maturation (Postacute)
Characteristics		
Vascular changes Inflammatory exudates Clot formation	Growth of capillary beds into area Collagen formation Granulation tissue; caution necessary	Maturation and remodeling of scar Contracture of scar tissue Alignment of collagen along lines of stress forces (tensegrity)
Phagocytosis, neutralization of irritants Early fibroblastic activity	Fragile, easily injured tissue	
CLINICAL SIGNS		
Inflammation Pain before tissue resistance	Decreased inflammation Pain during tissue resistance	Absence of inflammation Pain after tissue resistance
MESSAGE INTERVENTION		
Protection Control and support of effects of inflammation Passive movement midrange	Controlled motion Continued development of mobile scar Cautious and controlled soft tissue mobilization of scar tissue along fiber direction toward injury	Return to function Increase in strength and alignment of scar tissue Cross-fiber friction of scar tissue coupled with directional stroking along lines of tension away from injury
General massage and lymphatic drainage with caution; support of rest with full-body massage (3 to 7 days)	Active and passive, open- and closed-chain range of motion, midrange. Support of healing with full-body massage (14 to 21 days)	Progressive stretching and active and resisted range of motion; full range. Support of rehabilitation activities with full-body massage (3 to 12 months)

Source: Fritz, S., 2013: 12

CONCLUSION

Massage is carried out using Swedish massaging technique for 10 minutes on posterior lower extremity and 5 minutes on anterior one affecting the practice because massage improves muscle compliance and can restrict crossbridge coupling. The long massage duration may not be recommended for practice. Future research should pay attention to the effectiveness of shorter duration and many types and frequencies of massage manipulation for their utility before practice using explosive, high-speed movement. In addition, the best practice program should be determined.

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THE RELATIONSHIP BETWEEN THE FIGHTING EXPERIENCES WITH THE EMOTIONAL QUOTIENT IN PENCAK SILAT ATHLETES IN SPARRING CATEGORY PPLP CENTRAL JAVA

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Abstract

In coaching science, there are 4 (four) factors that needs to be done for an athlete to earn achievement, they are physical control, technical control, mastery of strategy, and mental. However among all four, the one that often be underestimated is mental. While according to David Gulman, IQ only accounts 20% of success and the other 80% is determined by emotion. Fight a duel is one way to provide training to athlete, with duel athlete will acquire certain emotional condition such as: anxious, worry, self confidence, courage, happy, affraid, etc and athlete will learn to control and finally able to overcome various emotion turmoil that affect the mental condition. Based on that explanation, the problem defined in this study is: whether there is a relationship between the experience through fighting a duel with the Emotional Quotient (EQ) in the Pencak Silat Athetes in the sparring category under the Guidance PPLP Central Java 2016?. The research aims to determine the relationship between the experience through fighting a duel with emotional Quotient (EQ) in the Pencak Silat Athletes in sparring category under the Guidance PPLP Central Java. The research methods used in this study is surveying the entire population of atheles who are under the guidance PPLP Central Java, which consist of 10 athletes. There are 2 (two) research intruments, they are: 1) Fighting experience, proven with certificate, each certificate then divided and coded according to its level.2) Questionnaire, to determine athlete's level of emotional quotient, statistical analysis technique to be used to draw conclusions is regression analysis with significance fomula short at the level of 0.05. The result of this study indicated that obtained t value of 3.638 with significance level $0.007 < 0.05$. this means the working hypothesis which says there is a relationship between the experice through fighting a duel with the emotional quotient (EQ) in the pencak silat athletes in sparring category under the guidance PPLP Central Java in 2016, proved to be/ is accepted. Conclusions in this study is that, there is a signficant relationship between the experience through fighting a duel with the emotional Quotient (EQ) in the pencak silat athletes in the sparring category under the guidance PPLP Central java in 2016. It is recomended to coaches, teachers and sport club manager to conduct sparring training to give enough fighting experience to athlete, so their emotional quotient (EQ) will be better.

Keywords: Emotional Quotient (EQ) Pencak Silat.

**FUTSAL EVALUATION OF THE ENGINEERING UNIVERSITY TRAINING
PROGRAM DIPONEGORO SEMARANG**

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Abstract

Futsal game is played by two teams of five players in each team. This study aims to carry out an evaluation on the implementation of the training program in Futsal engineer Diponegoro University of Semarang. She drew interest from researchers to conduct research into the implementation of the training program that was done from futsal coaches to athletes ukm genius Diponegoro Semarang University. Researchers collect data using interviews and observation. Informants including coaches and athletes from Futsal ukm Engineering Diponegoro Semarang University. Based on the data collection that the implementation of the training program are not totally in accordance with the procedure by which athlete ukm genius University Diponegoro Semarang each workout just do futsal play as usual and Without correction of the coach, the infrastructure used is also not maximized, which increases the capacity of each individual the coach did not do optimally. The results showed that the implementation of the futsal training program conducted by athletes UKM genius University Diponegoro Semarang is going well and a maximum of results. The coordinating athlete coach can produce results as the correction and evaluation of the gaps of each individual that can affect the performance and ability of the athletes themselves may mean that the achievements of each individual will be able to Increase significantly with co-ordinated coaching coaches to athletes. The results of the data obtained by the results of the data and the actual facts on the ground that the training program implemented by the coach proved to effectively implement the futsal training program. The conclusion of this article athletes experience performance improvement by implementing the futsal training program tailored to the abilities and conditions of each athlete, as well as the principle of gradual training suppression load.

Keywords: Implementation of the exercise program, Futsal, SME Engineering Diponegoro University Semarang.

INTRODUCTION

Sport is a part of daily human activities that are useful to train physically and spiritually in good health. So far, sport has contributed positively and significantly to the improvement of public health. Besides exercise also play a role in improving the nation's ability to implement a system of sustainable development that achieve the realization of paths through olahraga achievement.

In accordance with the terms of sporting achievements mentioned above, sporting achievements of sports coaching and development potential to a person who makes in a planned, gradually and through skill in order to achieve high performance. By doing sports activities, a person must also have a good physical condition to be able to do sports activities achievements without experiencing excessive fatigue; on the contrary, if a person has a physical condition is not particularly good bad then someone will have Struggling to do sports activities are causing excessive fatigue, One branch of the sporting feat is futsal, through futsal, teenagers have taken many advantages, especially in terms of physical, mental and social growth. What people do futsal play is basically the same, namely to get pleasure, gain physical condition and get optimal functioning. The maximum

course achievement also formed with the exercise program which was planned and structured with the adjustment needs of the athletes themselves.

Preparing the training program is an important task of a coach. Exercise program must be organized in a systematic manner and in accordance with the needs of the athletes. The success or failure of the goals to be achieved depends on the exercise program done in advance so that the results will be seen during the current futsal game. Know-how or ability of individual techniques greatly affect the game of futsal as a whole and without exception. If individual techniques are combined collectively futsal game will be easier to execute a tactic and strategy that is well-formed and conceived. Excellent technique must be owned by a futsal player to achieve the greatest achievement.

Benefits of the exercise program basically aims at a number of things such as: 1) Preparing an exercise program is one of the leaders of activities organized activities to get peak performance of a sport, 2) In order to avoid accidental factors in achieving excellence in sport, 3) effective and efficient use of time, money, effort to achieve objectives, 4) to identify obstacles quickly, and (5) supervising the production of the exercise program will clarify the direction and objectives to be achieved, (6) as a means of control if predetermined objectives have been achieved Or not.

Thus, researchers are interested in using athletes samples from ukm Engineering Diponegoro University to evaluate the achievement of results from the exercise program which was given the title of "Futsal program evaluation exercise on Some Engineering University Diponegoro Semarang".

Futsal is a game played by two teams, each composed of five people. "According to JustinusLhaksana (2011: 7), futsal is a game that is very fast and dynamic. Futsal is a team sport, large community will raise the level.

In terms of quantity, futsal is played by many people and the futsal phenomenon will increase rapidly. Seen from the other side in terms of quality, the majority of futsal players a lot of play for leisure, so the futsal basic sports lovers are still many shortcomings. Thus, the need for futsal sports enthusiasts have the basic techniques in futsal. It can be obtained either from reading even given a training will increase the knowledge of the basic techniques in futsal.

Futsal relies mainly on individual skills and quite minimal to rely on tactics and strategy. Modern futsal has to be done. Modern soccer futsal is a game with its players are taught with very fast ball circulation in attack and defense, in addition to the circulation of a player without the ball or the moment is right, (JustinusLhaksana, 2011: 28).

Therefore, he needs the ability to master the basic game of futsal. The technique of basic futsal that are passing, controlling, feeding the stomach (flaking), dribbling and shooting. In addition to the basic ability of the technique to play futsal, indoor soccer team players must have a good strategy game by playing opposite team game to win the game. Own strategy artiannya is a ploy or a state of mind that is used to achieve long-term goals. The long-term goals in accomplishing the sport simply and solely is to achieve victory or to become champion.

The exercise program is a substance or activity that should be implemented in practice. Either in form to form physical conditions, techniques and strategies. To determine the exercise program should be based on several factors that can support the success of the exercise. Implementation of the exercise program right and adapted to the athletes' abilities to improve the quality of the athlete to the maximum. One thing that must be maintained in the preparation of the training program is to

determine the objectives of the exercise beforehand or the targets to be achieved. It is very important for athletes to be able to practice with the motivation to achieve the goals.

METHOD

The research was conducted during the month with the methods used in this research is the method of qualitative research methods that are used in this study to examine the state of natural objects where the researcher is a key instrument.

This study uses the multiple regression model to analyze the data. Using in-depth interview technique, in-depth interview technique is an interview conducted in order to learn more about what is in the mind / heart, viewpoints, and meaning behind the words of The unknown by observation. The validity of data in the use of search methods is enhanced by the use of triangulation of data sources and then testing the validity of data analysis.

RESULTS AND DISCUSSION

On the basis of the discussion on the training program at UKM Futsal, it can be the following results:

Futsal Coaching Program OnSme Engineering University Diponegoro have clarity in setting up development that is based on facts and data in accordance with field data.

Entry Futsal SME Management Engineering Diponegoro University has excellent graphics, this can be seen from the data obtained.

Process implemented in the development of SMEs Futsal Engineering Diponegoro University consists of aspects of the implementation of training programs, wellness, transportasi, and good coordination and in accordance with the procedure in athletes with the board The government, the coach and the surrounding community.

Product covering sports coaching at UKM Futsal IngénierieDiponegoro Semarang University by successful aspect of the coaching program which includes the possibility of playing futsal and success in the competition.

CONCLUSION AND SUGGESTION

The evaluation of training programs conducted by SMEs Futsal Engineering Diponegoro University has the result which was considered a success in creating the exit from the entry into the process which aims to form a product in this case, Futsal engineering team of the Diponegoro University has become a berkompentensi futsal team and able to achieve the envisaged achievement. The success of this program can not be separated from their execution infrastructure and human resources in Futsal technical SMEs who have a commitment and understanding of the principles of delivery of training.

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STRATEGY BUILD HUMAN-RESOURCE SOLDIER COACHING THROUGH PHYSICAL EXERCISE

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Abstract

The role of military to a country very important, military in this case of an army is the spearhead enforcement sovereignty a country. One of the aspects that should be owned by soldiers army is aspects physically excellent , with the physical appearance prime was found health condition soldier the military that the able to move quickly , strong and having endurance good. To move quickly , strong and has endurance a soldier army do not rely on only latihan-latihan where exercise was routine training that relies souldier specifications special skills like exercises shoot , swimming , run and sebagainya , but there is an innovation exercise to achieve physical fitness in general. To form physical prima required a method of physical exercise varies and be conducted regularly and program. A strategy to improve health condition army soldiers include: (1) the need for guidance physical exercise planned and program, (2) the need for facilities to exercise health condition, (3) the need for variation and methods to avoid boredom exercise, and (5) the need for time provided to practice health condition.

Keywords: strategy , health Phisycal , army soldiers

INTRODUCTION

Military world is identical with discipline, patriotic, hard, strong and fit .And it was something very nature aligned with tasks and responsibilities as a state sovereignty. It is of course achieved by exercise continuous, whether physical, mental and spiritual. Training and weight of course need human resources (resource) quality. Recently we often we heard of a news less satisfactory for the army soldier , after a series of activities tests health or physical, often occurs of problems related to the physical condition of that causes of sudden death after undertaking test and in the midst of implement physic test. This has been a problem why it repeated happened and why to be happened , preparation what they should be carried by foot soldiers so as to have physical nice menghadapai duty daily and to prepare face the field of battle. Since the progress of science and technology that eases soldier tni do work that is demanding not much moving , let alone already concerning bustle and lack of time to do the activity of sport .Thus the body will adjust these conditions so that the body will decrease physical ability. According to Brigjen TNI Dody Usodo (2016), explains that his exercise program developed are based on a cycle training exercise been carried out by army and has not shown any an innovation and creativity from satuan the development of exercise so impressed completed only responsibility in accordance with programs a routine and give evidence budget is accountability. Next it has been said that the course of practice has not yet had significant influence to improve the quality of a unit of soldiers and their professionalism (Lembaga Kajian Pertahanan Untuk Kedaulatan RI).

One of the aspects that should be owned by soldiers army is the physical performance excellence, with the physical appearance it can be discovered health condition soldiers tni able to move quickly, strong and having endurance good.To move quickly, strong and has endurance a soldier army do not rely on only latihan-latihan where exercise was routine training that rely on specific skills keprajuritan specifications, but there is an innovation exercise to achieve physical

fitness in general. A test that have been carried by foot soldiers army is the test kesemaptaan pertaining to health conditio , power, speed, durability, agility, flexibility, coordination, accuracy, and reaction .See connection kesemaptaan tests conducted, so the coaching physical exercise should be based on guidance physical overall consisting of item-item above.

Profile The National Army Of Indonesia.

The main task army is enforce state sovereignty, maintain the unity of the territory of the unity of Indonesia based on pancasila and undang-undang Dasar Republic of Indonesia in 1945, and protect and all the people and the spill blood Indonesia from the threat disruption in the unity of the nation.The role, functions and tasks army (first Abri) also changed in accordance with undang-undang number: 34 years 2004.Army serve as a country in the field of defense in doing their based on policy and country political decision.Army as a defense of the country, serves as: an antidote against any form of a military threat and threats armed from outside and domestic of sovereignty, whole region, and the safety of the nation, penindak for every form of threats aforesaid above, and restoring force against security conditions country that is because security chaos (<https://tniad.mil.id/index.php/sample-page-2>)

Physical Health

Health condition is the body ability to do the activity without resort to experience fatigue which means and still has reserves of energy to do other activities are Muhajir (2004), health condition is ability and ability of body adapt the (adaptation) against the release of physical that was put to him (of work done colloquial) without incurring excessive fatigue .The exercise of physical fitness is the type of physical exercise physical through the movement of a limb or the movement of the body as a whole , with a view to improve and maintain health condition. There are 10 element components authors health condition: the power (strenght), endurance (endurance), power a muscle (of muscular power), speed (speed), power pliable (flexibility), agility (agility), coordination (coordination), balance (balance, the accuracy of (accuracy), and the reaction (reaction).Benefits exercise health condition among other: a) maintain or increase of degree health condition (physical fitness), b) to improve their performance athletes, c) increase productivity work, d from injured during performs activities severe physical, e) to improve skills, strong and efficient in its movements, f) improve the ability systems circulation and work the heart, g) a response that fast of an organism our bodies when at any time required, h know the development of physically students, i) as one ingredient input in put a value lessons education physical health of sports.Factors that affects health condition among other: a) genetic (Departemen Kesehatan RI).

The quality of exercise did not depend to one factor but also from bermacam-macam factors not less important in achieve a feat.Besides the ability, talent and motivation athletes itself, also knowledge and personality coach, facilities and equipment, the discovery of the that helps in the (Bompa,) 1990. Exercise sport is activity sitematis in a long time, improved progressively and individuals that lead to function and cirri-ciri fisiologik psikologik man to target appointed.It was revealed the fact that the process reached the crowning achievement need an extended period and a great deal of struggle, in accordance with guidelines of sports ditekuni to achieve a standard appointed (Astrand and Rodahl, 1986).

Physical exercise can provide changes in all the functions system the body. A change that occurs in training held called response, while change due to regular practice and planning according to the principles of exercise called adaptation. The changes physiological due to physical exercise, relating to the use of energy by the muscle, form and methods and principles exercise exercised (Brooks and Fahey, 1985).

3 Preparation Physical Exercise

In an exercise program preparations to physically fitness and especially achievement important is:

- Prepare physical generally (general physical preparation = gpp) generally preparation physical require a long time when compared to stage the biomotorik. Higher work of someone athletes capacity, easier and he adjust on improving exercise held is constantly. And to better understand tuntuna sports concerned needs to be done physical special preparation.
- Preparation special physical (specific physical preparation = spp) preparation special physical grounded in preparation general physical. Athletes are required to reach high achievement and forced to develop otot-otot and enersi specifically to the exercise. In any exercise program were supposed to be determined first system enersi predominannya (predominant energy system). In addition, in order to understand about predominant energy system needs to be known how ebenarnya providing enersi in the body or is the concept enersi held (energy continuum concept).
- The ability special biomotor (perfection of specific biomotor abilitis). The purpose of exercise here is to improve and refining gerakan-gerakan specifically and the athletes to meet its demands of the sports chosen. Nosseck (1982) argue that finally sport technique it is very important to achieve achievement.

DISCUSSION

Coaching the need for physical exercise that s wired up and well-planned good.

Observation in the field, that test kesemaptaan conducted has not yet had an effect that significant in raise a soldier physical performance. Tests the ability of kesemaptaan be used as an excessive burden for the majority of soldiers, so that for the soldiers which does not conduct preparation of exercise with righteous shall be a burden psychological that led to the emergence of signs of anxiety and stress as we face a pt test. In fact a pt test this is a test that routinely carried out three or four times a year. In order to successfully test needs to be a planning in physical exercise that s wired up planned manner systematically.

Program planning physical exercise is the process of planning for draw up a matter, burden, target and methods at every stage to be performed in every stage exercise. Any process an exercise in sports always needed exercise program, whether they are physical or skill. In the preparation of the course of practice need to pay attention to and consider a variety of factors, among others know biodata soldier consisting of age, the ability early (a pre-test), characteristic of a kind of exercise, and measures the preparation of the course of practice. The main target of exercise is the process of into a better direction, of them to improve the quality of physical, functional equipment the body, and quality of psychic.

There are some things to be done and considered in composing exercise program, exercises so that targets can be achieved in accordance with the expected. As for the measures among other:

(a) Time (schedule) the implementation of the test of time yet the implementation of a test scheduled to routinely, the announcement of spatially sudden tests less more about one week prior to the implementation of the influence on test preparation soldier especially in physical preparation. TNI (Indonesian National Army) for the soldiers who used to do exercises regularly may not impact the psychology that excessive, but if any soldiers who are not ready then schedule that impressed sudden will cause excessive stress. Because of that instructors must plan and arrange a program of physical test in planning and periodic. The purpose of this test is to know the fitness of corporeal soldier TNI and the target of fitness soldier who is getting increased from time to time.

(b) Diagnosis the ability early (pre test). Before arranging exercise program, instructors need to know first the state of every soldier who will be exercise. For that the test is conducted diagnosis the ability early by conducting tests the ability of to soldiers. Diagnosis aims to know the level capability owned every warrior, so that in determining burden exercise will exactly corresponding the situation. In addition a pre-test also determine the advantages and disadvantages of the ability soldiers, so that the state of being is weak priority exercise program that needs to be improved, while the is strong emphasis on maintenance the ability to fitness.

(c) Targeting and load of the purpose of drafting exercise program is to improve the quality of skill, fitness muscle, and fitness energy soldiers. Targeting relating to the test kesemampuan, so that in arranging exercise program always stepped back from the convention of tests. The determination of the exercise in accordance with a pre test and purpose to be achieved. The individual in determining the exercise must be executed tightly because every warrior have this ability different from one another, so that the burden of exercise given different with another. Thus a pre test is very important to know the state of the soldiers and the burden exercise accurate according to the ability of individuals.

(d) periodisasi physical exercise. Tujuan physical purpose is to increase fitness energy and fitness muscle. Is mainly periodisasi exercise divided into of the transition period, a period of preparation, and the period of tests.

The Necessity of Supporting Training Facilities Fitness For The Soldiers Army

Soldiers the military that the have good health condition will be capable of performing duty keprajuritan quickly, reactive and strong. The burden on the carried by foot soldiers tni with bear and bring your rifles a long barrel who weighs in of 15 kg and hold a backpack s 10 kg more, need a special exercises in order that the body able to adjust burden which he brought. This of course not just training stomach crunches, back-up and pull-up, but have to practice a burden (weight training) that can be stimulate muscle to adjust burden. Organ the human body tending to have always been able to adapt on changes in the area. Exercise caused the process of adapting on an organ the body, but the body need a certain period (a break that the body can adapting all load during the process exercise. If burden be increased progressively with, so organ the body would adjust on changes in well to things. Exercise would cause changes in a network in the body gradually in line with the rate encumbering given. Exercise load or weight is a training exercises power use some help equipment from outside the body useful to stimulate muscle to form the body desirable on demand. Exercise this burden included in the exercise of power. The benefit of exercises power is to improve the muscles and the network so it would affect to the speed, muscle security, coordination, power explosivel, kelentukan and agility Sukadiyanto, 2000: 90). Clear, that through the exercise its (weight

training) would increase komponen-komponen as strength, security, power and coordination can adjust the body. Training facilities burden needed to support fitness soldiers, hopefully with a practice that leads to the force used for the ability shoot, raised and forth will help soldiers implement its performance without any exhaustion that means due to the influence of the exercise encumbering a planned and arrayed well .

The Need For Variation In Planning Physical Exercise

Cross-train needed to prevent the emergence of signs of boredom in training .Instructors needed to be have ideas creative and innovative in arranging cross-train that leads to the exercise of certain. Without reducing matter exercise, instructors can make cross-train pleasant, not impressed monotonously and encouraging even though it actually material dilatihkan quite hard.Variasi-variasi exercise created and applied in innovative ways be able to keep the maintenance physical or mental soldiers, in order that the boredom practicing can be avoided.Method selection and the types of exercise be an alternative to avoid soldiers from think saturated.

A Method of Endurance (Endurance) Can Increase Fitness .

A term of durability in the world of sport known as organs of the body ability to fight fatigue during the event of the activity or employment .Components biomotor durability generally used as one yardstick to determine the level of physical fitness. The relationship between durability and physical performance among other: add the ability to do work activity in a continuous manner with high intensity and in a long time, the ability to shortening the time of the restoration (recovery), the ability to receive the burden of exercise more weight , longer, and varies. A method of exercise endurance is a way that is done to improve the resilience of someone. Resilience in train in the target of energy , hence pentahapan conducted exercises according to a pyramid .In the form of a pyramid pentahapan exercise shows that train element before anothe, must be preceded by exercise endurance especially the ability of aerobic.

Method continuous exercise (constantly) generally activity of continuous load of the longstanding Long or short time encumbering hanging from ever activities performed .The longer time needed , the more length of time needed to the load or exercise , so instead .The continuous exercise using the run, swimming, or bicycle tracks and over long distances (long time).

There are two kinds of a form of exercise continuous , namely: exercise continuous with high intensity (quickly and the intensity of low (slowly). Exercise in a continuous with high intensity (80-90 % of the pulse maximum) about use vo2 max 70-80 % to the objective is to increase the ability to the excitative anaerobic (anaerobic threstold) .Exercise in a continuous with the intensity of low (70-80 % of the pulse maximum) using vo2 max 55-70 %, targeting improve the ability aerobic. Technically the implementation of the practice at second this method is the same, but it is menu different dosisnya the training program. The following are presented in table comparison guidelines menu the course of practice between a method of exercise continuous with high intensity and methods exercise continuous with the intensity of low as quoted from Rushall and Pyke (1992).

Fartlek Method

A method of fartlek it means way of exercise with using many technical the speed of low, moderate and high .Fartlek is a form of exercise a run that done by means of paths, jog , sprint, and

the road for continuous. The following is an example exercise fartlek with duration exercise 45 minutes. Its implementation started by jog for 6 minutes as warming, then interspersed run sprint 50-60 meters, continued the usual road minute and jog three minutes, then runs away sprint 50-60 meters so on until the implementation time 45 minutes.

To distinguish between a method of fartlek with high intensity and low, especially on the form of a series of exercise carried out. To the method fartlek with the intensity of low its shape run accompanied the road, a jog, interspersed sprints, and the road is available continuously. While fartlek with high intensity only be conducted by way of a jog between 30 metres that interspersed run away quickly (sprints) between 80 to 100 meters. Continues to be long duration of the training the higher intensity, or the longer the mileage run sprints (the intensity the training the higher. This method as cross-train to exercise is not boring.

Method Interval Exercise

A method of exercise intervals is a method of the most appropriate to improve the quality of physical the prajutir. To the method exercise intervals prefer the time of the intervals (break in that between set to running or swimming). The main target of this exercise is on fitness energy. Understanding time intervals is a break interworking in a set of the implementation of the exercise. Break can be activities such as the way or jog light to moderate. While the ratio intervals are comparisons between the time during training with the rest. Example: 1: 2, it means do run for 30 seconds with breaks 30 seconds x 2 (60 seconds). Set is a training exercise granted a break, for example one set of consisting of a 200-meter run done on the 6 remedial. Repetition is the sum intervals labor set. The following guidelines in writing menu the course of practice intervals put forward by Bowers and Fox (1988).

CONCLUSION AND SUGGESTION

Activities performed by soldiers army very heavy, it needs a training physical exercise routine. Coaching physical exercise would need the program planning exercise planned well and systematic, besides training facilities to improve strength badly needed to train soldiers military force. In addition exercise program varying would have motivation soldiers to fix fitness. Exercise fitness as durability, power, speed, flexibility and coordination needed to raise health condition army soldiers. Innovation and modification by an instructor fitness deemed necessary to physical development monotonous and can significantly improved health condition soldiers. With efforts to improve health condition army soldiers, expected fitness troops would rise and when running a test kesemaptaan have been with good preparation to avoid ef.

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PSYCHOLOGICAL STAGES OF SKILLFUL MOTOR BEHAVIOR ACQUISITION BASED ON MAURICE MERLEAU-PONTY'S PHENOMENOLOGY OF THE BODY

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Abstract

Merleau-Ponty's phenomenology of the body is one of the most dominant philosophical conceptualizations of the body which is often referenced extensively and intensively by various author from various fields as a basis for explaining a range of topics, including the field of sports research. A crucial task for sport research is to understand and explain the processes and conditions underlying skillful motor behavior. This article presents arguments to answer this crucial task for sport research and create a philosophical-psychology model. It starts by elaborating one of conceptualizations of motor skills in sport, namely the information-processing approach to skills, and then it briefly reconstruct psychological stages of skill acquisition based on Merleau-Ponty's phenomenology of the body. One objective is to identify the critical skill components necessary for athlete, to identify the psychological properties of the motor skills acquisition in sport, and thus in the future enable the development of a realistic training to stimulate and to increase this acquisition.

Keywords: Psychological Stages, Skillful Motor Behavior Acquisition, Maurice Merleau-Ponty, Phenomenology of The Body

THE DEVELOPMENT MODEL OF THE BASIC TECHNIQUES OF EXERCISE AND PHYSICAL EXERCISE ON FUTSAL PLAYERS LEVEL INTERMEDIATE

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Abstract

The lack of the basic technique skill and physical ability in intermediate futsal players became the matter of the current issue. The coaches suggested that the basic techniques and physical ability of futsal are the weak part of intermediate level players. The lack of specific exercise that aimed at improving the skills of basic techniques and physical ability levels intermediate futsal players becomes the reason of this weakness. The method uses in this research is the developmental research method. The result showed that basic technical skill is group experiment $t_o = 232.379 > t_{table} = 4.032$, control group $t_o = 36.368 > t_{table} = 4.032$. The physical ability of futsal, the power of group experiment $t_o = 47.222 > t_{table} = 4.032$, control group $t_o = 47.558 > t_{table} = 4.032$. The ability of group experiment $t_o = 79.915 > t_{table} = 4.032$, control group $t_o = 68.935 > t_{table} = 4.032$. The speed of group experiment $t_o = 107.573 > t_{table} = 4.032$, control group $t_o = 41.029 > t_{table} = 4.032$. The strength of group experiment $t_o = 164.841 > t_{table} = 4.032$, control group $t_o = 82.839 > t_{table} = 4.032$. Based on the results of the research, it can be concluded that the product development exercises model of basic techniques and physical exercises for Futsal players in intermediate level proved effectively improve the skills of basic techniques and physical ability on levels intermediate futsal players in the city of Malang.

Keywords: training model, basic techniques of futsal, physical exercise futsal

INTRODUCTION

Today, a futsal sport is not something strange or unfamiliar on wide community ears, almost everyone can play futsal. "The futsal sport grows rapidly across the country in recent years. This rapid development is very useful, it is because futsal has some positive aspects that will encourage conventional football development" (Scheunemann, 2011:9). Futsal is derived from Spain "Futebol Sala" which means room soccer. However, there is a difference between the two that stand out. Futsal is a "game that quickly with the short time with narrow space" (Tenang, 2008:68). Therefore, in a futsal need a player who has the speed and agility. In addition to the conditions of the futsal field which is so small increase the goals possibility. In terms of the relatively small field almost no room to make mistakes. Therefore futsal needs good cooperation between players through an accurate passing, not just to get past opponents.

The futsal athletes must be mastered the basic technique of futsal, these techniques is a technique that supports the rhythm to create a good game and is one of the factors that can win the game. According to Lhaksana (2011:5) "in futsal sports, the players also learn to play more accurate in terms of the basic techniques, such as control, passing, dribbling, and shooting". In addition, according to Hermans & Engler (2011:23-41) the Futsal players have to a good skill in some basic techniques, such as "ball reception (reception of the ball), dribbling and ball control (herding and controls the ball), passing (pass the ball), shooting, feints and trick (trick and fake motion), goalkeeping technique (technique goalkeeper)". Then, beside mastered all basic technique, good

tactics and strategy the players must have a good physical condition because in futsal match, demanding the players to move into mobile in hiking field. "The fewest number of players in a futsal team becomes the very crucial thing that causes the players have to survive and attack" (Tenang, 2008:20). In addition, according to the Scheuneman (2011:10) "game of futsal walking quickly where all players are required to always be involved in either attack or survive, thus endurance at the same time speed player honed well".

The good physical condition will support players to play nice in the field; moreover, it can support the player's concentration and focus during play. "Playing futsal demands an active role and high concentration and prima stamina of the player" (Tenang, 2008:63). The Futsal athlete has to keep and pay attention to the development of the physical condition it is very important because without a good physical condition athletes cannot do the exercise perfectly. According to Harsono (1988:100), "some physical components that need to be noticed to develop is a cardiovascular endurance, strength, endurance, muscle strength, flexibility, speed, stamina, agility and power". Then, the aspects that required in physical training model in the game of futsal are, "endurance (endurance), strength (strength), speed (speed), gentleness (suppleness), coordination (coordination)" (FIFA, 2012:69-71). Furthermore, in a book written by Lhaksana (2011:17-18) States that "the following components of physical condition is a must owned by futsal players are endurance, strength, speed, agility, explosive power, flexibility, accuracy, coordination, balance, and reaction. The dominant physical exercise component owned by futsal players is endurance, strength, speed and course without leaving physical components of others. "In addition Martens (2012:235) stated that "the estimation of energy and muscle in futsal sport are high energy aerobic and anaerobic fitness with medium muscular fitness flexibility, medium strength, medium to high endurance, high speed, moderate to high power".

In improving the ability model practice of futsal players, the coaches can use a variety of ways in delivering it. The coach can use the board strategy; use the practice field directly, through the audio-visual media to utilising electronic media. The Delivery and exposure model exercises can be done in various ways, including by way of using electronic media. The advances in technology are indeed inseparable with the development and progress in the world of sports. The task of the coach to transfer and explain the program and the purpose of the exercise become easier using the electronic media. One of the functions of electronic media in the explanatory model of exercise is able to use the media flip book maker.

Flip book maker media is one of the expected media, which can help someone to save the book in a digital form and access a wide range of matters relating to the science, of course with an interesting display of serving. "Flipbook maker is one piece of software that can be used to present the module in the electronic display" (Wijayanto & Zuhri 2014:626). According to Sugiyanto et al in Rasiman (2001:37) "flipbook maker is software used to create the look of a book or other materials into a digital flipbook-shaped electronic book". In addition, Wijayanto in Rasiman (2001:37) States "Flipbook maker is software that has the function to open each page in a book. The final result can be saved in a format .swf, .exe, .html".

In the process of making the learning and exercise models easier, that module has been made into flip book maker media which can also give to the players so that the players can learn its own training models already made. Flip book maker media can also be accessed through a variety of media, such as computer and electronic laptop.

The benefits of this research are expected to add a new reference on training model of the basic techniques and physical exercise futsal, and can be used to the maximum by all the lovers of the sport of futsal. It is also hoped that this study can serve as a guide for subsequent exercises giving the futsal teams that foster futsal athletes.

METHOD

This research uses development research methods (research and development), which uses procedural development methods from the Borg and Gall (1983:775), this research has 10 steps, that are; research and information collecting, planning, develop preliminary The product, preliminary field testing, main product revision, main field operational testing, product revision, operational field testing, the final product revision, dissemination and implementation.

Then, the researcher does some stage of research as follows. The first stage analyses the necessity and draw up the development draft and product manufacturing-based media flip book maker. The second stage, testing by the expert (the expert judgement), a product test stage I (small groups) with samples of 12 players SM Futsal Academy, revision products I, revision product II, product test stage II (a large group) and a sample of 24 players futsal in Bina Harapan Setia (BHS), product revision III. Data analysis product test is using analytical techniques descriptive percentage analysis, each analysis base on the approach used by using percentage (%). The third stage, the effectiveness test (experimental) product with compare group experiments and control group, with a total sample of 24 players SM Futsal Academy and Bina Harapan Nusantara (BHS). 24 futsal players divided into two groups, 12 players for the basic techniques of futsal (6 players group experiment and 6 players control group) and 12 players for group physical exercise futsal (6 players group experiment and 6 players control group). The draft design use pre-test and post-test design by choose the group at random (two group randomise pre-test and post-test). The counting procedures of the results of the effectiveness test the product (experiment) using t-test (test of significance).

In this study, there are two data collection techniques are, the qualitative approach and quantitative approach. Qualitative approach using two steps, namely data analysis and data validity checking while for a quantitative approach using descriptive analysis techniques percentage and significance test by using t-test.

RESULTS AND DISCUSSION

1. Stage one

Necessity analysis is analyze the results of the interviews with the futsal coach, from the result of the first collected information the researcher found that mastery skills and physical abilities of the basic techniques of Futsal players in intermediate level are weak. The coach suggested that the basic techniques and physical ability of futsal are weak to be mastered by the players at the intermediate level. It is also affected by the lack of specification of the given exercises specifically aimed at improving the skills of basic techniques and physical ability of futsal players in intermediate levels. In addition, the coaches also argued that the condition where that futsal players cannot learn the basic technique quickly, the players are also often difficult to understanding the physical exercises material because it is often constrained by the everyday activities of the players so that this make the physical condition of the players is bad.

The first stage is necessity analysis; the coach suggested that the basic techniques and physical ability of futsal are the weakest ability of futsal players in intermediate levels. It is also affected by the lack of specification of the given exercises specifically aimed at improving the skills of basic techniques and physical ability levels intermediate futsal players. In addition, the coaches also argued that the poor of learning of Futsal players in intermediate level in basic techniques of futsal, the players are also often difficult to understanding the physical exercises material because it is often constrained by the everyday activities of the players so that this resulted in the physical condition of the players is bad.

2. Stage two

In this second stage, the researcher does some product test. Product testing begins with evaluation from the experts, do the test in a small group and large group testing.

Table 1. The Results of the Evaluation Expert Futsal

No	A h l i	Skor		Skor	Persentase	Ket
		Minimal	Maksimal	Hasil		
1	Ahli Futsal I	44	220	188	85,45 %	Valid
2	Ahli Futsal II	44	220	201	91,36 %	Valid
	X				88,40 %	Valid

The results of the evaluation conducted the expert futsal players obtained average value 88.40%, with details 85.45% from the futsal expert I and 91.36% from the futsal Expert II. The two experts assessing futsal with answer the scale of assessment with 44 question.

Table 2. The Results of the Evaluation Expert Physical Exercise

No	A h l i	Skor		Skor	Persentase	Ket
		Minimal	Maksimal	Hasil		
1	Ahli Latihan Fisik	48	240	200	83,33 %	Valid
	X				83,33 %	Valid

The results of the evaluation conducted expert physical exercise gained average 83.33%. Experts assess physical training by filling out the assessment scale which amounted to 48 grains of matter.

Table 3. The Results of the Evaluation Expert Media

No	A h l i	Skor		Skor	Persentase	Ket
		Minimal	Maksimal	Hasil		
1	Ahli Media	30	150	124	82,66 %	Valid
	X				82,66 %	Valid

The results of the evaluation conducted an expert media obtained an average value of 82.66%. Media experts are tested by filling out the scale of assessment to 30 grains of matter.

Table 4. The Results of the Evaluation Expert Media

No	Aspek	Skor Minimal	Skor Maksimal	Skor Hasil	Presentase	Ket
1	Uji Coba Kelompok Kecil (n=12)	1104	5520	4352	78,84 %	Cukup Valid
2	Uji Coba Kelompok Besar (n=24)	2208	11.040	9307	84,30 %	Valid

While the results of the evaluation of the test sample with a small group of 12 futsal players are 78.84% (quite valid) while testing a large group with a sample of 24 players futsal is 84.30% (valid).

The product testing that does to gain evaluation, feedback or suggestions to the consummation product exercise model about the basic techniques and physical exercises before doing this test futsal effectiveness of the product. The product test starts with the test by the futsal expert, physical exercise expert and media expert. The result of the expert's evaluation can interpret as that the product of development model of basic technique and physical exercise and it proceed to the group test stage. The test stage with small group involves research subject 12 players from SM futsal academy. The test on a small group is a stage intended to seek feedback and suggestion from futsal athletes in intermediate level in Malang. Based on the evaluation result on the small group, it found that the design of the product development model the basic techniques exercises and physical exercises at the intermediate level of futsal players could be tested on next stage, the test in large groups. The test with large group involves 24 futsal players from Bina Harapan Setia as a research subject. This test head for to know the currency of the eligibility of product more broadly so that the researcher know levels of effectiveness of this model. The result from the test on large group shows that the design of the product of developmental model of basic techniques exercise and physical exercise on the futsal players in an intermediate stage can apply in effectiveness product test stage(test experimental product).

3. Stage three

The third stage is effectiveness product test (experimentation) with the results of the study is as follows.

Table 5. The Basic Futsal Technique Result

Test	Group	N	Test Result		Different Value	t _o	t _{table} α 0.01	Conclusion
			Pre Test	Post Test				
Futsal Basic Technique	Experiment	6	7,80	7,20	0,60	232,379	4,032	t _o > t _{table} Significant
	Control	6	7,87	7,61	0,26	36,368	4,032	t _o > t _{table} Significant

Based on the results in table 1, it is know the result test of basic futsal technique are, experimental group t_o = 232.379 > t_{table} = 4.032 (significant), while the control group t_o = 36.368 > t_{table} = 4.032 (significant).

Table 6. Futsal Physical Abilities Test Results

Test	Group	N	Test Result		Different Value	t_o	T_{table} α 0.01	Conclusion
			Pre Test	Post Test				
Futsal Physical (Power)	Experiment	6	13,44	14,03	0,59	47,222	4,032	$t_o > t_{table}$ Significant
	Control	6	13,38	13,72	0,34	47,558	4,032	$t_o > t_{table}$ Significant
Futsal Physical (agility)	Experiment	6	98,99	96,58	2,41	79,915	4,032	$t_o > t_{table}$ Significant
	Control	6	101,08	99,76	1,32	68,935	4,032	$t_o > t_{table}$ Significant
Futsal Physical (speed)	Experiment	6	20,62	18,59	2,03	107,573	4,032	$t_o > t_{table}$ Signifikan
	Control	6	20,68	19,73	0,95	41,029	4,032	$t_o > t_{table}$ Signifikan
Futsal Physical (strength)	Experiment	6	229,25	278,40	49,15	164,841	4,032	$t_o > t_{table}$ Signifikan
	Control	6	227,85	258,60	30,75	82,839	4,032	$t_o > t_{table}$ Signifikan

Based on the results in table 2, it is know the result test of futsal physical ability are, the power of group experiment $t_o = 47.222$ $t_{table} > 4.032$ (significant), whereas the control group $t_o = 47.558$ $t_{table} > 4.032$ (significant). The agility of group experiment $t_o = 79.915$ $t_{table} > 4.032$ (significant), whereas the control group $t_o = 4.032$ $t_{table} > 68.935$ (significant). The speed of group experiment $t_o = 107.573$ $t_{table} > 4.032$ (significant), whereas the control group $t_o = 41.029$ $t_{table} > 4.032$ (significant). The strength, group experiment $t_o = 164.841$ $t_{table} > 4.032$ (significant), whereas the control group $t_o = 82.839$ $t_{table} > 4.032$ (significant).

The third stage is the product effectiveness test apply on futsal players from SM Futsal Academy and Bina Harapan Setia (BHS) futsal team with the purpose of knowing the effectiveness of product development to be formulated into final product results and further utilisation of practice for implementation in the future. The mechanism of implementation of the experimental results of this product is done by comparing the two groups, the group experiment and the control group and then takes the result. The method to take the results of experiment product uses the instrument skills test, which in this case is the basic technique skills and physical exercise on the level of intermediate futsal player. Based on a comparison of the results of the counting of the tests in the table above, improved test results for more group experiments showed significant increases compared to the control group. The ultimate test is obtained after the application of exercise program, an exercise of the model has been made on each group. An exercise program in each group is different from the material side exercises conducted. For the Group of experiments using an exercise program in which contains the product model of exercise developed by researchers, whereas the control group using exercise programs conventionally. For the final results, it can be concluded that the product model exercise can improve the results of basic technique and mastery of the skills of physical ability levels intermediate futsal players in the city of Malang.

CONCLUSION AND SUGGESTION

Conclusion

Hasil evaluasi dari ahli futsal memperoleh persentase sebesar 88.40 %, dari ahli latihan fisik memperoleh persentase sebesar 83.33 % dan dari ahli media memperoleh persentase sebesar 82.66 %. Uji coba kelompok kecil dengan hasil persentase sebesar 78.84 % sedangkan hasil uji coba kelompok besar 84.30 %, dapat diinterpretasikan bahwa rancangan produk pengembangan model latihan teknik dasar dan latihan fisik pada pemain futsal tingkat *intermediate* dapat diuji cobakan pada uji efektifitas produk.

Based on the results of research that has been done with three stages, flip book maker media products in the form of a model exercise basic techniques and physical exercises futsal shows that product model this exercise can improve the results of basic technique and mastery of the skills of physical ability levels intermediate futsal players in the city of Malang. It is after do the research starts from the first stage (the study of analysis), the second stage (product test) and third stage (test the effectiveness of products or product experiments).

Suggestion

1. Coach, model selection exercise in accordance with the principles and characteristics of the players training so as to facilitate the players to receive this type of training is given so that the basic techniques in the game of futsal can be quickly mastered and improved. Besides setting exercise should be taken seriously because of the provision of this type of training should be focused on training objectives to be achieved so that players can master the technical and physical improvement occurs maximally.
2. Futsal players, before the model practice basic techniques and physical exercise is expected futsal players understand the characteristics of the model this exercise so that players can be easier to do this type of training and the training process can run well and can increase the basic engineering skills and physical abilities futsal. Besides, the player must perform heating and cooling according to the motion characteristic of this type of training basic techniques and physical exercise futsal, this is to avoid the risk of injury to the players.
3. Further research, for researchers who want to develop this type of training at the beginner level, intermediate and professionals are expected to consider the needs in the field and the characteristics of the athlete, in addition to more attention to the approach method interesting exercise, to avoid boredom in athletes, as well as the need to be considered in the preparation of training programs in order to pay attention to the components in the exercise, so as to support the acceleration of capabilities and achieve peak performance at the right time. In addition to the model exercise of a physical nature should be made according to the situation on the pitch during a match and for this type of training techniques that are the basis of better focus on those aspects that are needed and the model of training is made as easy as possible so that when implementation can be easily understood and do.
4. The parties involved in the field of coaching and teaching futsal namely coach futsal, gym teacher, futsal players and stakeholders involved in developing and promoting the sport of futsal in order to use the media flip book maker as one of the references the use of media in the learning process and coaching.

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**STUDENTS OF FACULTY OF SPORTS SCIENCE UNIVERSITAS NEGERI SURABAYA
HAD FAIR CATEGORY ON GYM BALL KNOWLEDGE TEST**

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Abstract

Gym ball is a sport tool that using to train part of the body such as the buttocks, thighs, lower back, abdominals, shoulders, and chest. Ideally, a student in the faculty of sports science have a very good knowledge about the gym ball. The purpose of this study to determine the knowledge of students of the Faculty of Sports Science, University of Surabaya on device characteristics, types of exercise, techniques and general knowledge about the gym ball. The method in this research was quantitative descriptive using questionnaire instrument covered by the Guttman scale. The samples were 60 people from the education of sports coaching, physical education and sports science department. It concluded that the average knowledge of gym ball equipment was 9,08 included in a good category, the type of exercise gym ball was 5,24 included fair category, knowledge of training techniques was 2,60 included in a fair category, and general knowledge of gym ball was 2,62 included in poor category.

Keywords: Gym ball, Knowledge, Students

INTRODUCTION

The development of sport in the world is growing very rapidly. Including the development of information, science, technology, art, culture, and human rights so rapidly that require readiness of all parties to be able to adapt to all conditions that exist (Kemenpora, 2014). This is particularly evident with their sports activities undertaken by the community, both from the bottom, middle or elite, is no exception ranging from children, teenagers, adults and elderly. Sport not only for recreation but also beneficial to reduce the likelihood of children grow into obese adults and less healthy (Cassidy et al 2009).

Many benefits are obtained through the sport, one of the benefits is to maintain health and improve physical fitness, a smooth blood flow and strengthens the muscles of the body, especially when exercise is done regularly. Regular exercise is beneficial for physical and mental health, and provides protective factor decrease onset of mental health problems, as well as strengthen the heart and muscles, prevents disease, contributes to weight loss and provide extra energy to accomplish everyday tasks (Nelson, 2016).

Based on observations at several lecturer of physical fitness in Faculty of sports science related to the use of sports facilities in the building Achilles Sport Science and Fitness Center (ASSFC) FIK Unesa it is known at a glance that students only use weight training machine, treadmill and aerobics exercises, but in fact there is one tool that still has not been used in the learning process is a gym ball. The gym ball is a sports tool commonly found in the centres of fitness exercises. Its use is very flexible. Can be done in a standing position, squatting, sitting, prone, and supine. The focus of the exercise on the part of the body such as the buttocks, thighs, back, abdominals, shoulders, chest up. Gym ball made of rubber latex and able to withstand loads up to 120 kg (Santoso, 2013). Use of

the gym ball is very effective to train the muscles supporting posture, abdomen and back, so that makes a person look more upright and trained.

Swiss ball or gym ball is recommended as a means of exercise to improve joint position, posture, balance, and neural feedback. However, proper training intensity are difficult to obtain for wearing swiss ball work, while strengthening exercises on machines are usually done to encourage a high level of muscle activation. (Sundstrup, et al, 2012). Swiss ball was shown to reduce back pain and disability when compared to core stability exercises on the floor. Thus, doing core stability exercises on a swiss ball reduces pain and low back pain disability (Balakrishnan et al, 2016).

Many benefits are obtained through the gym ball exercise as it says (Ashadi, 2015), among others:

1. Increase the balance

Spherically round then make the ball easier to slide and easy to change position easily and unstable. Therefore, using gym ball for exercise requires the ability to balance themselves continuously and control the muscles of the body with gym ball well so that the ball remains in place.

2. Engaging the core muscles of the body to the maximum

In the gym ball exercises, abdominal and back muscles are forced to actively from time to time engaged in efforts to reach a balanced position and maintain the position of the body that does not move or fall. Very effective for abdominal and back muscles.

3. Reduce the risk of injury

Use of the gym ball can improve the stability of the spine and peripheral joints so as to minimise the risk of injury to the body.

4. Increase muscle strength

With some variations of movement and additional tools, example is a dumbbell effective to train the muscles of the body besides the abdomen and back, the chest, arms and legs.

Based on observations at several lecturer that taught fitness subject in Faculty of sports science related to the use of space Achilles Sport Science and Fitness Center (ASSFC) it is known at a glance that students only use weight training, treadmill and aerobics, but in fact there is one tool that is still not used in the learning process ie gym ball.

FIK Unesa students very likely will pursue internship experience or while working in the fitness centre or aerobics. In addition, they are required to master a variety of sports equipment such as the use of dumbbells, barbells and also gym ball even sports that do not use tools. The fact that there is FIK Unesa have facilities such as gym ball equipment that has not been optimally used in lectures of fitness and aerobics. While the gym ball gaining popularity and is widely used as tools in the areas of sports fitness centre and frightening gymnastics, and is not known how well the knowledge of FIK students about gym ball exercise and equipment. The impact of students do not have the basic knowledge and skills about physical exercises with the gym ball tools.

From the above explanation can be concluded that the problems that there are some students who do not understand about the exercise equipment gym ball, but the evidence was not strong enough to declare that the students do not know about the gym ball. It is the question of whether the condition is true in Nikken Unesa like that, not knowing the true facts and there is no real data about Nikken student knowledge about exercise equipment gym ball. Therefore it is necessary to study to get the facts about the real conditions of knowledge about the gym ball. Thus

obtained solution found by the research conducted to obtain real data about FIK Unesa student knowledge about gym ball exercise and equipment so that research results can be used as a reference for follow-up in lectures.

METHOD

This study uses a quantitative research with descriptive approach. The method used in the retrieval of data this study is a survey research that seeks to uncover the facts and the actual conditions in a scope of a number of subjects and the research that takes a sample with the criteria that have been determined using a questionnaire as a means of collecting basic data using Guttman scale.

Subjects in this study were FIK students Universitas Negeri Surabaya of 2013 classes which have been programmed fitness courses. The study only took a few sample of the student population has been programmed fitness courses that some 60 people covering of sports coaching department of 20 people, 20 people majoring in physical education and sports science 20 people. Accordance with the opinion of Arikunto (2006), which states that if the subject is less than 100, better taken all to study using population studies. If the amount of the subject is greater than 100 can be taken between 10-15% or 20-25% or more. In this study, samples were taken by using purposive sampling Sampling traits and characteristics are known in advance based on the characteristics and properties of the known (Infallible, 2012). Furthermore, the data in this study were analysed using mean and percentage calculations.

RESULTS AND DISCUSSION

The first part is the knowledge gym ball sports equipment consisting of 14 questions, for the second part namely the knowledge types of gym ball exercise consists of 12 questions. Part three about knowledge of gym ball exercise technique consists of 6 questions and part four is common knowledge that studies gym ball consists of nine questions. Thus, the overall total as much as 41 question questionnaire questions. Each number in the corresponding number of respondents in each part and criterion scores has been determined, then the total number of parsed using the formula mean scores and percentages. The number of respondents in this study were 60 respondents are 2013 students from FIK Universitas Negeri Surabaya these include:

Table 1. Profile of the sample research

Department	Responden	Σ Male	Σ Female
Sport Coaching	20	16	4
Physical Education	20	17	3
Sport Science	20	20	0
Total	60	53	7

Samples were taken in this study who is a student who has been programmed fitness courses from three courses that exist in the environment in FIK Unesa. Based on the above table it is known that the majority of the samples in this study male sex with a percentage of 88.33%. While 11.67% were female. It corresponds to the fact that in the environment that the majority of students FIK Unesa male sex. Furthermore, based on the answers obtained from the sample, it can be divided into four parts: the knowledge of students about the tools gym ball, student knowledge about the type of

exercise gym ball, the student's knowledge of training techniques gym ball and a general knowledge of students on the gym ball. First, it will show the results of the student's knowledge about the tools gym ball in table 2.

Table 2. Students knowledge of gym ball tool

Category	Score	Frequency	Amount	Mean	Percentage
Very Good	11,3 - 14	6	77	1,28	10,0
Good	8,5 - 11,2	33	322	5,37	55,0
Fair	5,7 - 8,4	19	137	2,28	31,7
Less	2,9 - 5,6	2	9	0,15	3,3
Poor	0 - 2,8	0	0	0	0
Total		60	545	9,08	100%

Based on the answers of 14 questions on the sub student knowledge about the tools gym ball in Table 2 it is known that the average student knowledge FIK Universitas Negeri Surabaya on gym ball equipment for 9.08 included in both categories with a percentage of 55%. Furthermore, will be shown the results of the student's knowledge about the type of exercise gym ball is shown in Table 3.

Table 3. Students knowledge of exercise types on gym ball

Category	Score	Frequency	Amount	Mean	Percentage
Very Good	9,7 - 12	1	10	0,16	1,7
Good	7,3 - 9,6	3	25	0,41	5,0
Fair	4,9 - 7,2	37	224	3,73	61,7
Less	2,5 - 4,8	14	50	0,83	23,3
Poor	0 - 2,4	5	7	0,11	8,3
Total		60	316	5,24	100%

Based on the answers to 12 questions on the sub student knowledge about the tools gym ball in table 3, it is known that the average student knowledge FIK Universitas Negeri Surabaya on types of exercises on the gym ball for 5.24 included in the category enough with a percentage of 61.7%. Furthermore, will be shown the results of the student's knowledge of training techniques gym ball is shown in Table 4.

Table 4. Students knowledge of exercise technique on gym ball

Category	Score	Frequency	Amount	Mean	Percentage
Very Good	4,9 - 6	2	10	0,17	3,3
Good	3,7 - 4,8	14	56	0,93	23,3
Fair	2,5 - 3,6	17	51	0,85	28,3
Less	1,3 - 2,4	16	32	0,53	26,7
Poor	0 - 1,2	11	7	0,12	18,3
Total		60	156	2,60	100%

Based on the responses of six questions on sub student knowledge about the tools gym ball in table 4 it is known that the average student knowledge FIK Universitas Negeri Surabaya on technique exercises on the gym ball 2,60 included in the category enough with a percentage of 28.3%. Furthermore, will be shown the results of the general knowledge of students on the gym ball is shown in Table 5.

Table 5. Students general knowledge of gym ball

Category	Score	Frequency	Amount	Mean	Percentage
Very Good	7,3 - 9	1	8	0,13	1,7
Good	5,5 – 7,2	2	13	0,22	3,3
Fair	3,7 – 5,4	15	64	1,07	25,0
Less	1,9 - 3,6	23	58	0,97	38,3
Poor	0 - 1,8	19	14	0,23	31,7
Total		60	157	2,62	100%

Based on the responses of nine questions on the sub student knowledge about the tools gym ball in table 5 it is known that the average general knowledge of students FIK Universitas Negeri Surabaya on the gym ball of 2.62 included in the poor category with a percentage of 38.3%. The first question is based on variable data (14 questions), variable second question (12 questions), variable third question (6 questions), and variables to the four questions (9 questions) at getting the results as follows:

Table 6. Perbandingan Beragam Pengetahuan mahasiswa tentang Gym Ball

Aspect	Mean	Percentage	Category
Knowlegde of gym ball tool	9,08	55,00 %	Good
Knowledge of exercise types on gym ball	5,24	61,70 %	Fair
Knowlegde of exercise technique on gym ball	2,60	28,33 %	Fair
	2,62	38,33%	Less

Based on table 6 it is known that the general level of knowledge of students on the gym ball into the category enough. This shows that students still need to increase their knowledge about the gym ball. Overview average yield of knowledge tools, types, techniques and general knowledge is more clearly seen in figure 1.

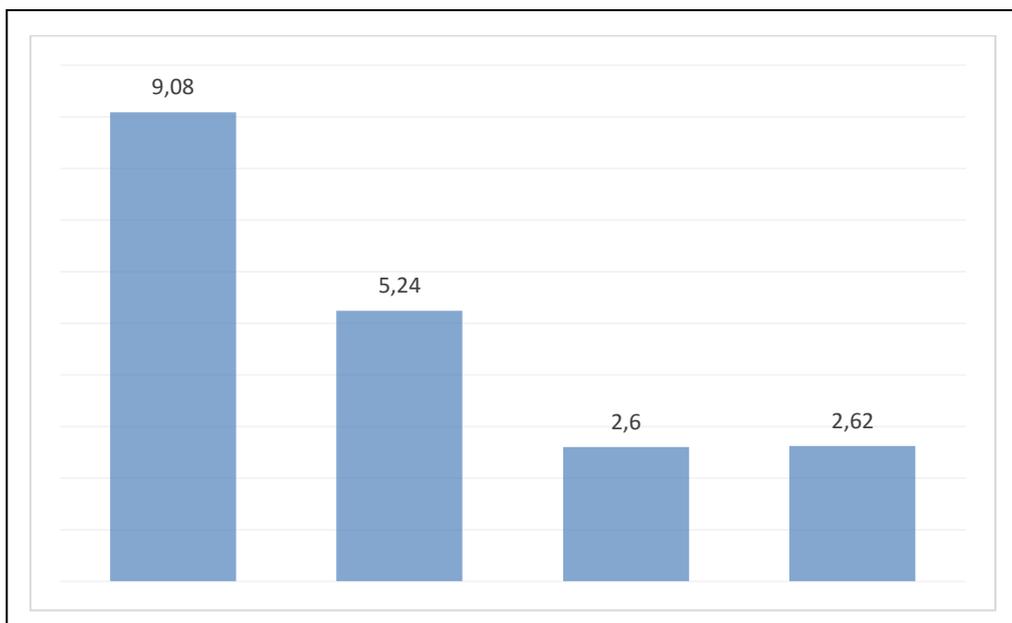


Figure 1. Comparison of the average value of student knowledge about the gym ball

Furthermore, based on the results of the data in Figure 1 which includes the student's knowledge about the tools gym ball (1), the student's knowledge about the type of exercise gym ball (2), the student's knowledge of training techniques gym ball (3) and the general knowledge of students on a gym ball (4) it is known that the highest level of knowledge about the knowledge of the tools gym ball, whereas the lowest knowledge possessed by students is common knowledge about the gym ball. Next will be discussed one by one as shown in the next article.

The gym ball is a sports tool which is used in many different areas of the body that are used for strength training, balance, orthopaedic rehabilitation, physical fitness, flexibility, physical education, special education, and childbirth (CUG, 2012). Based on the results of the category, it can be concluded that the average knowledge of FIK student on gym ball equipment belongs to the category "Fair" with an average of 3.71 and a percentage of 40.00%. The impact of the fact that if the 7th semester of FIK student that will soon pass not know sporting goods gym ball in detail feared during an internship or working on the fitness then he will not master and difficulty answering the questions being asked members about gym ball equipment. This will decrease the sense of trust and questioned the competency of the graduates.

Gym ball was shown to reduce back pain and disability when compared to core stability exercises on the floor. swiss ball or gym ball exercises in reducing pain and low back pain disability (Balakrishnan, et al, 2016th). Based on the results of the inferred category average the knowledge of FIK student on the type of exercise gym ball belongs to the category "Fair" with an average of 2.45 and a percentage of 43.33%. The impact is that if students want to work in a gym or aerobics studio did not know about the type of exercise gym ball is feared later on when giving examples of exercises do not understand about the type name of the exercise so that members underestimate his capabilities.

The gym ball equipment shaped round balls made of rubber with a diameter between 45-85 cm (22-34 inches), known by another name, namely the exercise ball, exercise ball, pilates ball, swiss ball, exercise ball, fitness ball, therapy ball, yoga ball, balance ball, or the ball body (Walter, 2012). Based on the results, we conclude category average FIK student knowledge on the gym ball exercise techniques including the category of "Fair" with an average of 0.85 and a percentage of 28.33%.The impact is that if students want to work in a gym or aerobics studio did not know about the training techniques gym ball is feared later on when giving examples of exercises do not understand about the movement of even the correct order at the time of exercise gym ball so that members underestimate his capabilities. Historically, gym ball was first invented in Italy in 1963 as a toy gymnastics by an engineer Aquilino Cosani during the early 1990s, used as a rehabilitation and then moved into the arena of fitness and commonly used by physical therapists, athletic trainers, coaches and other health professionals to exercise, sit down, stretch, sport specific training, and much more (exercise ball, 2016).

Based on the results inferred category average FIK student knowledge on general knowledge that studies gym ball belongs to the category "Poor" with an average of 0.97 and a percentage of 38.33%. The impact is if the student is not a lot to read about knowledge gym ball is feared there are people around or at the time of the internship or work in the area of fitness were asked about the gym ball and he can not answer if not embarrassed when he graduated from the sport did not know about the update sport tools. It is also caused by several factors, one of which can be seen is a lack of curiosity to know, deepen and many students who do not know the functions and benefits that exist

on gym equipment ball if used sport when the tool was very useful to improve dynamic balance, flexibility, reaction time and muscle strength and reduces the tendency to fall in older women (Irez, 2011). In terms of the role of the lecturer is highly recommended to fix a way to motivate students to improve the quality of learning tools gym ball.

CONCLUSION AND SUGGESTION

Conclusion

Results of research on student knowledge of FIK Universitas Negeri Surabaya on gym ball sports equipment, it will be concluded that:

1. Knowledge of gym ball tool found to have an average of 9,08 and a percentage of 55,00% based on the classification criteria included in the good category.
2. Knowledge of the type of gym ball exercise found to have an average of 5,24 and a percentage of 61,70% based on the classification criteria included in the fair category.
3. Knowledge of gym ball techniques found to have an average of 2,60 percentage amounted to 28.33% based on the classification criteria included in the fair category.
4. General knowledge of gym ball found to have an average of 2,62 percentage amounted to 38,33% based on the classification criteria included in the less category.

Suggestion

Based on the description of the research, the findings and conclusions of the above, it can be put forward the following suggestions:

1. In general, many students who know about the sporting goods gym ball but these tools have not been used by FIK students to exercise, especially during the lecture, the lecturer is expected to provide knowledge about the gym ball so that when students are working in the gym or gymnasium may have qualified experience.
2. FIK Unesa Students is still much less know about the types of exercise gym ball, feared after graduating from college to work in the fitness have not qualified experience will make students not confident to work on the fitness.
3. Many students are confused in the gym ball exercise techniques due to the lack of gym ball knowledge through lectures and reference books no gym ball Indonesian language that makes the students more and more lazy to read a foreign language.
4. Enthusiastic students in learning the gym ball very little because many students who do not know about the uses and benefits of using the gym ball sports equipment, there are some professors who are expected to provide knowledge gym ball so that students can at least know and depth.

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INFLUENCE MODEL OF EMOTIONAL INTELLIGENCE AND PHYSICAL EXERCISE OF FOOTBALL SKILLS

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Abstract

The purpose of this research is to find out the influence of different use of physical exercise models and emotional intelligence with the football skills. The method used in this study is an experiment with a factorial design 2x2 (ANOVA). The research was carried out in SMAN 4 Garut with a population of 56 students. The instruments used were the emotional intelligence test, physical condition of football test and football skills test. Data processing used Statistical Product and Solution Service program version 20.0 on a significant level of $\alpha = 0,05$, Kolmogorov Smirnov Test, Test Levene Independent Sample t Test, and test of ANOVA. Based on the analysis of the data there are several results showed. First, there is no significant influence in applying different models of physical exercises between using a ball and without using a ball on football skill. Second there is an interaction among practice models, emotional intelligence, and football skills: there is no significant influence in applying different models of physical exercises between using a ball and without using a ball on football skills to a group of student who have high emotional intelligence and neither to a group of student who have low emotional intelligence. Last however, there is a significant influence between high and low in emotional intelligence of football skill.

Keywords: physical exercise, emotional intelligence and football skills

INTRODUCTION

Perkembangan sepakbola dikalangan pelajar terutama di SMAN 4 Garut sangat didukung oleh sekolah dengan memfasilitasi siswa yang mempunyai potensi dalam bidang sepakbola untuk menjadi pemain profesional melalui dukungan dan pemberian fasilitas salah satunya dibuktikan dengan seringnya diadakan pertandingan antar pelajar. Secara umum sepakbola lebih banyak menuntut keterampilan, sehingga dalam keterampilan dasar sepakbola terdapat berbagai gerakan sebagaimana diungkapkan Sucipto, dkk (2000, hlm. 8-9) yaitu, diantaranya gerakan berpindah tempat, seperti lari kesegala arah, meloncat atau melompat, meluncur, gerakan-gerakan yang tidak berpindah tempat, seperti menjangkau, melenting, membungkuk, meliuk, gerakan menendang bola, menggiring bola, menyundul bola, merampas bola, dan menangkap bola bagi penjaga gawang, atau lemparan kedalam untuk memulai permainan setelah bola keluar lapangan. Berdasarkan pengamatan dilapangan, baik latihan maupun bertanding siswa masih kurang konsisten dalam mengontrol emosinya. Selain kurangnya mengontrol emosi, juga kurangnya fisik untuk mendukung siswa pada saat bermain selama dua kali 45 menit. Hal itu bisa dilihat di dalam setiap latihan dan saat pertandingan, serta keterampilan siswa dalam menguasai teknik sepakbola. Dengan demikian terdapat problematika yang masih belum terpecahkan yaitu, belum terkontrolnya emosional saat bermain dan siswa tidak setabilnya kondisi fisik atau cepat lelah. Dampaknya seringkali pemain lambat mengambil keputusan saat menerima maupun memberikan bola kepada rekannya, dan momen kapan bola di *dribbling*, *passing* maupun *suting* kurang tepat, sehingga problem ini harus segera diselesaikan. Seorang pemain sepakbola yang memiliki kecerdasan saja masih belum cukup,

tetapi juga harus dibarengi dengan kematangan emosinya. Ada pemain yang mempunyai kemampuan inteligensi tinggi tetapi memperoleh prestasi yang relatif rendah, namun ada pemain yang walaupun kemampuan inteligensinya relative rendah, tetapi dapat meraih prestasi belajar yang relatif tinggi. Fakta lainnya menurut Geoleman (2000, hlm. 45) menjelaskan bahwa:

Kecerdasan emosi merujuk pada kemampuan untuk memotivasi diri sendiri dan bertahan menghadapi frustrasi, mengendalikan dorongan hati dan tidak melebih-lebihkan kesenangan, mengatur suasana hati dan menjaga agar beban stres tidak melumpuhkan kemampuan berfikir dan berempati.

Definisi tentang kecerdasan emosi atau biasa disebut dengan *Emosional Intelligence (EI)* menurut Mayer (2001, hlm. 33) merupakan sebuah bentuk kecerdasan yang melibatkan kemampuan memonitor perasaan dan emosi diri sendiri atau orang lain, untuk membedakan keduanya dan menggunakan informasi ini untuk menuntun pikiran dan tindakan seseorang. Indikator untuk mengetahui tingkat kecerdasan emosi menurut Geoleman (2000, hlm. 51) diantaranya yaitu:

Self awareness (penyadaran emosi diri, *self assessment*, percaya diri), *social awareness* (empati, orientasi servis, penyadaran organisasi), *self management* (kontrol diri, mempercayai dan dipercaya, disiplin dan tanggung jawab, kemamuan adaptasi, dorongan berprestasi, inisiatif), *social skill* (membangun hubungan dengan orang lain, mempengaruhi, komunikasi, manajemen konflik, kepemimpinan, katalis perubahan, membangun ikatan, kerjasama dan kolaborasi). Khususnya pada orang-orang yang murni hanya memiliki kecerdasan akademis tinggi, mereka cenderung memiliki rasa gelisah yang tidak beralasan, terlalu kritis, rewel, cenderung menarik diri, terkesan dingin dan cenderung sulit mengekspresikan kekesalan dan kemarahannya secara tepat.

Perasaan emosi memegang peran penting dalam hidup manusia. Semua gejala emosional seperti: rasa takut, marah, cemas, stres, penuh harap, rasa senang, dapat mempengaruhi perubahan-perubahan kondisi fisik seseorang. Perasaan atau emosi dapat memberi pengaruh-pengaruh fisiologik seperti: ketegangan otot, denyut jantung, peredaran darah, pernapasan, berfungsinya kelenjar-kelenjar hormon tertentu. Sehubungan ini semua maka jelaslah bahwa gejala psikis akan mempengaruhi penampilan dan prestasi atlet. Emosi dapat berpengaruh terhadap penampilan atlet, seperti dijelaskan Gropper (2000, hlm. 256), konsisten atau kemantapan penampilan merupakan hasil dari konsistensi emosional. Pemain yang keadaan emosinya tidak stabil selama permainan akan mendapati bahwa penampilan mereka juga tidak stabil. Semakin naik turun keadaan emosi pemain selama permainan, semakin kecil kemungkinan tingkat penampilan mereka dapat distabilkan pada kemampuan puncaknya. Banyak faktor yang mempengaruhi keterampilan sepakbola, salah satu, yang memiliki peranan penting dalam mendukung keterampilan sepakbola adalah kondisi fisik, melalui keterampilan yang diperoleh dari hasil latihan, seorang pemain dituntut untuk bermain bagus dan mampu menghadapi tekanan-tekanan yang terjadi dalam pertandingan. Oleh karena itu, kondisi fisik yang baik merupakan kunci keberhasilan dalam berbagai cabang olahraga.

Mengenai pentingnya kondisi fisik Harsono (1977, hlm. 153) mengungkapkan bahwa :

Kondisi fisik atlet memegang peranan yang sangat penting dalam program latihannya. Program latihan fisik haruslah direncanakan dengan baik dan sistematis dan ditujukan untuk meningkatkan kebugaran jasmani dan kemampuan fungsional tubuh sehingga memungkinkan

atlet untuk mencapai prestasi yang lebih baik. Kalau kondisi fisik baik maka: 1) akan ada peningkatan dalam kemampuan system sirkulasi dan kerja jantung, 2) akan ada peningkatan kekuatan, kelentukan, stamina, kecepatan, dan komponen kondisi fisik lainnya, 3) akan ada gerak yang lebih baik pada waktu latihan, 4) akan ada pemulihan yang lebih cepat dalam organ-organ tubuh apabila sewaktu-waktu respon demikian dilakukan.

Kondisi fisik sangat menentukan kualitas dan kemampuan atlet untuk mencapai tuntutan prestasi yang optimal. Semakin jelas bahwa kondisi fisik memegang peranan penting dalam meningkatkan prestasi atlet. Untuk menunjang keterampilan sepakbola seseorang harus dibekali dengan teknik yang baik, sebagai penunjang keberhasilan dalam pelaksanaan aktivitas yang terkandung pada cabang olahraga tersebut. Menurut Harsono (2007, hlm. 2) bahwa: teknik ialah model yang harus kita ikuti waktu mempelajari suatu gerakan tertentu. Seorang yang memiliki teknik dasar bermain sepak bola yang baik tentu akan memiliki teknik bermain yang baik pula dalam permainan sepak bola tersebut. Sehubungan dengan hal tersebut Sucipto, dkk (2000, hlm. 17) mengungkapkan bahwa beberapa teknik dasar yang perlu dimiliki pemain yaitu: 1) menendang (*kicking*), 2) menghentikan (*stopping*), 3) menggiring (*dribbling*), 4) menyundul (*heading*), 5) merampas (*tacling*), 6) lemparan kedalam (*throw-in*), dan 7) Menjaga gawang (*goal keeping*). Menerapkan taktik dalam permainan dibutuhkan syarat-syarat seperti kondisi, fisik, kemampuan teknik, stabilitas mental, dan kecerdasan. Mental merupakan kemampuan seseorang dalam, berpikir, berimajinasi sehingga memungkinkan terciptanya gerakan yang efektif. Kemudian hal ini diperkuat Jacobson (1930; dalam Mahendra 2007, hlm. 258) dukungan yang sangat awal tentang hubungan antara pikiran (*mind*) dan gerakan (*movement*) selama pembayangan mental. Menurut ulasan diatas bahwa ketika siswa atau atlet membayangkan ketika mereka bergerak seperti ketika melakukan aktivitas gerak melakukan *dribbling* berpasangan dalam bentuk permainan sehingga nantinya mampu melakukan aksi yang sudah direncanakannya. Berdasarkan uraian di atas maka penelitian ini difokuskan secara mendalam berdasarkan kajian ilmiah dengan tujuan agar dapat meningkatkan keterampilan siswa dengan judul penelitian: Pengaruh Model Latihan Fisik dan Kecerdasan Emosi Terhadap Keterampilan Sepakbola.

Rumusan Masalah

1. Apakah terdapat pengaruh model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola terhadap keterampilan sepakbola?
2. Apakah terdapat interaksi antara model latihan fisik dengan kecerdasan emosi terhadap keterampilan sepakbola?
3. Apakah terdapat perbedaan pengaruh model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola terhadap keterampilan sepakbola pada kelompok siswa yang memiliki kecerdasan emosi tinggi?
4. Apakah terdapat perbedaan pengaruh model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola terhadap keterampilan sepakbola pada kelompok siswa yang memiliki kecerdasan emosi rendah?
5. Apakah terdapat perbedaan pengaruh kecerdasan emosional tinggi dan kecerdasan emosional rendah terhadap keterampilan sepakbola?

Tujuan Penelitian

1. Mengidentifikasi pengaruh model latihan fisik menggunakan bola dan model latihan kondisi fisik tanpa menggunakan bola terhadap keterampilan sepakbola.
2. Mengidentifikasi apakah terdapat interaksi antara model latihan fisik dengan kecerdasan emosi terhadap keterampilan sepakbola.
3. Mengidentifikasi pengaruh model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola terhadap keterampilan sepakbola pada kelompok siswa yang memiliki kecerdasan emosi tinggi.
4. Mengidentifikasi pengaruh model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola terhadap keterampilan sepakbola pada kelompok siswa yang memiliki kecerdasan emosi rendah.
5. Mengidentifikasi perbedaan pengaruh kecerdasan emosional tinggi dan kecerdasan emosional rendah terhadap keterampilan sepakbola.

Manfaat Penelitian

Secara teoritis dapat memberikan sumbangan teori konseptual untuk memecahkan masalah mengenai pengaruh model latihan fisik dan kecerdasan emosi terhadap keterampilan sepakbola. Secara praktis dapat dijadikan sumbangan keilmuan bagi guru olahraga dan pelatih ataupun pembina sepakbola dalam membina siswa atau atlitnya khususnya dalam bidang psikologi dan kondisi fisik pemain sepakbola.

METHOD

Metode yang digunakan dalam penelitian ini adalah metode eksperimen, variabel dalam penelitian ini terdiri atas dua variabel bebas, yaitu model latihan kondisi fisik dan kecerdasan emosi. Model latihan kondisi fisik adalah variabel bebas aktif dan dibagi ke dalam dua klasifikasi, yaitu model latihan fisik dengan menggunakan bola dan model latihan tanpa menggunakan bola. Sedangkan kecerdasan emosi termasuk ke dalam variabel bebas atribut, adapun variabel terikat dalam penelitian ini adalah keterampilan sepakbola. Lokasi yang digunakan dalam penelitian ini adalah SMAN 4 Garut, yang bertempat di Jalan Perkebunan Giriawas, Kecamatan Cikajang, Kabupaten Garut. Populasi dalam penelitian ini adalah siswa ekstrakurikuler sepakbola SMAN 4 Garut yang berjumlah 56 orang. Teknik pengambilan sampel menggunakan *random assignment* yang berfungsi sebagai syarat sampel memiliki peluang yang sama untuk mendapatkan kelompok undian dalam penelitian ini secara acak.. Instrumen penelitian yang penulis gunakan dalam penelitian ini yaitu, yakni tes kecerdasan emosi, tes fisik pemain sepakbola, tes keterampilan sepakbola dan tes keterampilan bermain sepakbola Desain penelitian yang digunakan adalah desain faktorial 2 x 2.

Tabel 1. Desain Penelitian ANAVA 2 x 2

Latihan Kondisi Fisik	Model Latihan Kondisi Fisik	Model Latihan Kondisi Fisik Tanpa
Kecerdasan Emosi	Menggunakan Bola A1	Menggunakan Bola A2
TINGGI B1	14 orang	14 orang
RENDAH B2	14 orang	14 orang

keterangan:

A= Model Latihan Kondisi Fisik dibagi menjadi dua klasifikasi *B= Kecerdasan Emosi dibagi menjadi dua klasifikasi*

A1= Model Latihan Kondisi Fisik Menggunakan Bola *B1= Kecerdasan Emosi Tinggi*

A2= Model Latihan Kondisi Fisik Tanpa Menggunakan Bola *B2= Kecerdasan Emosi Rendah*

Instrumen yang dipilih penulis adalah tes kecerdasan emosi Daniel Goleman (1998: 58) yang mengatakan bahwa ada lima aspek kecerdasan emosional yaitu mengenali emosi diri, mengelola emosi, memotivasi diri sendiri, mengenali emosi orang lain dan membina hubungan dibuat suatu pernyataan yang berjumlah 60 buah, tes fisik pemain sepakbola Instrument yang digunakan dalam penelitian tes fisik sepakbola, yaitu dengan *Fitness Tests for Football* namun instrumen tes yang digunakan dalam penelitian ini telah diadakan modifikasi menjadi 9 item yaitu meliputi: tes lari 30 meter, tes lari *illinois agility run test*, tes *Vertical Jump* tanpa awalan, *Push Up, sit-up & Back up*, tes berdiri satu kaki (*stork stand*) tes kelenturan (*Sit and Reach Flexibility Test*), tes lari selama 15 menit (tes *Balke*), tes keterampilan sepakbola dan tes keterampilan bermain sepakbola yaitu Tes Sepak Tahan Bola (*Passing dan Stopping*), Tes memainkan bola dengan kepala bola (*Heading*), Tes menggiring bola (*Dribbling*), Tes Menendang Bola Kerasaran (*Shooting*) dan Tes Keterampilan Bermain sepakbola GPAI (*Games Performance Assesment Instrument*).

Penghitungan dan analisis data dalam suatu penelitian dimaksudkan untuk mengetahui makna dari data yang diperoleh dalam rangka memecahkan masalah peneliti. Analisis data dilaksanakan dengan menggunakan program *Statistical Product and Service Solution (SPSS)* Serie 16. Adapun langkah-langkah yang ditempuh adalah sebagai berikut: Uji normalitas data, Uji homogenitas data, Uji hipotesis, Analisis dan deskripsi data

RESULTS AND DISCUSSION

HASIL PENELITIAN

1. Deskripsi Data

Berikut ini hasil tes kecerdasan emosional berupa angket dan tes keterampilan sepakbola yang telah dilaksanakan melalui penerapan kedua model latihan, deskripsi data dapat dilihat pada Tabel 2:

Tabel 2. Deskripsi Data Tes Kecerdasan Emosional

Kelompok	N	Tes Kecerdasan Emosional			
		Rata ²	Stdv	Varians	Jumlah
Tinggi	28	233,17	10,58	112,00	6529
Rendah	28	209,21	5,32	28,32	5858

Berdasarkan Tabel 2, Selanjutnya data hasil deskripsi data tes kondisi fisik, untuk lebih jelas hasil deskripsi data kondisi fisik dapat dilihat pada Tabel 3:

Tabel 3.Deskripsi Data Tes Kondisi Fisik

Kecerdasan Emosional Tinggi	MODEL LATIHAN					
	Mengggunakan Bola			Tanpa Bola		
	<i>awal</i>	<i>akhir</i>	<i>gain</i>	<i>awal</i>	<i>akhir</i>	<i>gain</i>
Rata-rata	450	450.0	17.1	450.00	450.0	12.5
Sd	44	54.2	13.6	39.87	43.3	7.4
Jumlah	6300	6300.0	239.1	6300.00	6300.0	175.0

Kecerdasan Emosional Rendah	MODEL LATIHAN					
	Mengggunakan Bola			Tanpa Bola		
	<i>awal</i>	<i>akhir</i>	<i>gain</i>	<i>awal</i>	<i>akhir</i>	<i>gain</i>
Rata-rata	450	450.0	17.9	450	450.0	9.4
Sd	25.4	35.4	10.7	45	44.0	4.5
Jumlah	6300	6300.0	251.2	6300	6300.0	131.2

Berdasarkan Tabel 3, Selanjutnya hasil deskripsi pada model latihan fisik dan kecerdasan emosional, deskripsi data keterampilan sepakbola dapat dilihat pada Tabel 4:

Tabel 4.Deskripsi Data *Gain* Hasil Keterampilan Sepakbola

Kecerdasan Emosional	Model Latihan				
	Mengggunakan Bola		Symbol	Tanpa Bola	
Tinggi	n	= 14	>	n	= 14
	\bar{x}	= 18,50		\bar{x}	= 15,36
	s	= 3,5		s	= 8,41
Symbol	V		≠	v	
	n	= 14		n	= 14
	\bar{x}	= 5,43		\bar{x}	= 7,14
Rendah	s	= 2,83	<	s	= 3,39
	n	= 28		n	= 28
	\bar{x}	= 23,95		\bar{x}	= 22,7
TOTAL	s	= 3.16	>	s	= 5,9

Pengujian Persyaratan Analisis

1) Uji Normalitas Data

Tabel 5.Hasil Uji Normalitas Uji Menggunakan Shapiro-Wilk pada p-value $\geq 0,05$

Kel Data	$\bar{x} \pm sd$	Shapiro-Wilk		Keterangan
		Statistic	P-Value	
DB-KE Tinggi	18.50 \pm 3.25	0.887	0.074	NORMAL
TB-KE Tinggi	15.35 \pm 8.40	0.912	0.167	
DB-KE Rendah	5.43 \pm 2.83	0.904	0.130	
TB-KE Rendah	7.14 \pm 3.38	0.910	0.157	

Ket : Jika P-Value ≥ 0.05 , maka data berdistribusi normal.

Jika P-Value < 0.05 , maka data tidak normal.

2) Uji Homogenitas

Tabel 6. Hasil Uji Homogenitas Menggunakan Uji Levene's Test pada p-value $\geq 0,05$

Kel Data	$\bar{x} \pm sd$	Shapiro-Wilk		Keterangan
		F	P-Value	
DB-KE Tinggi	18.50 \pm 3.25	9.068	0.006	Heterogen
TB-KE Tinggi	15.35 \pm 8.41			
DB-KE Rendah	7.14 \pm 3.39	0.662	0.423	Homogen
TB-KE Rendah	5.43 \pm 3.38			

3). Uji Hipotesis

1) Hipotesis pertama, terdapat pengaruh model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola terhadap keterampilan sepakbola. Berikut akan disajikan deskriptif statistik pada Tabel 7:

Tabel 7. Hasil Penghitungan Berdasarkan ANOVA 2 x 2

Kel Data	$\bar{x} \pm sd$	N	ANOVA 2X2		Persentasi	Ket
			F	p-value		
ML DB	11.96 \pm 7.30	28	0.284	0.597	6.31%	Tdk Signifikan
ML TB	11.25 \pm 7.55	28				

Berdasarkan tabel di atas bahwa tidak terdapat perbedaan pengaruh model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola terhadap keterampilan sepakbola.

2) Hipotesis kedua, terdapat pengaruh interaksi antara model latihan fisik dengan kecerdasan emosi terhadap keterampilan sepakbola. Berikut hasil analisis variansi akan disajikan dalam Tabel 8:

Tabel 8. Deskripsi Data Interaksi

Ket Data	ANOVA 2X2		Keterangan
	F	p-value	
ML*KL	3.274	0.076	Tidak Signifikan

Berdasarkan hasil analisis pada table 7 *Tests of Between-Subjects* pada kolom interaksi pendekatan keterampilan*kecerdasan emosional diperoleh nilai F sebesar 3.274 dan signifikan pada 0.076. karena nilai signifikasi pada kolom interaksi $0.076 > 0.05$ dari $\alpha = 0.05$ ($0.076 > 0.05$) maka hipotesis H_1 ditolak ini berarti tidak terdapat interaksi antara model latihan dengan kecerdasan emosional terhadap keterampilan sepakbola.

3) Model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola pada kelompok siswa yang memiliki kecerdasan emosional tinggi terhadap keterampilan sepakbola, menggunakan uji t independen pada p-value $\leq 0,05$ pada Tabel 9:

Tabel 9. Deskripsi Data Uji t Independen p-value $\geq 0,05$

Ket Data	$\bar{x} \pm sd$	n	T	Beda	p-value	persentasi	Ket
DB-KE Tinggi	18.50 \pm 3.25	14	1.304	3.141	0.210	20.45%	Tidak Signifikan
TB-KE Tinggi	15.36 \pm 8.41	14					

Berdasarkan penghitungan uji ANOVA yang tersaji pada tabel terlihat bahwa t hitung untuk kecerdasan emosional tinggi pada kelompok dengan model latihan fisik menggunakan bola dan keterampilan model latihan fisik tanpa menggunakan bola dengan *Equal variances assumed* (diasumsi kedua varians sama atau menggunakan *pooled variance t test*) Nilai t hitung adalah 1,304 dengan nilai signifikansi $0.210 > 0,05$ maka H_0 ditolak. Artinya tidak terdapat perbedaan model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola pada kelompok siswa yang memiliki kecerdasan emosional tinggi terhadap keterampilan sepak bola

4). Model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola pada kelompok siswa yang memiliki kecerdasan emosional rendah terhadap keterampilan sepakbola, menggunakan uji t independen pada p-value $\leq 0,05$ pada Tabel 10:

Tabel 10. Deskripsi Data Uji t Independen p-value $\geq 0,05$

Ket Data	$\bar{x} \pm sd$	n	t	beda	p-value	persentasi	Ket
DB-KE Rendah	5,43 \pm 2,83	14	1.451	1.713	0.159	20.45%	Tidak Signifikan
TB-KE Rendah	7.14 \pm 3,39	14					

Dari hasil yang didapat dalam uji independent sample tes serta untuk menjawab hipotesis yang telah di ajukan dalam penelitian ini, tidak terdapat perbedaan model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola pada kelompok siswa yang memiliki kecerdasan emosional rendah terhadap keterampilan sepak bola.

5). Hipotesis kelima, terdapat perbedaan pengaruh yang signifikan kecerdasan emosional tinggi dan kecerdasan emosional rendah terhadap keterampilan sepakbola. Untuk menguji hipotesis pertama, analisis yang akan digunakan adalah uji penghitungan Anova 2x2, berikut akan disajikan deskriptif statistik pada Tabel 11:

Tabel 11. Hasil Penghitungan Berdasarkan ANOVA 2 x 2

Kel Data	$\bar{x} \pm sd$	n	ANOVA 2X2		Persentasi	Ket
			F	p-value		
KE DB	16.3 \pm 7,2	28	62.92	0.000	159%	Signifikan
KE TB	6.28 \pm 7,5	28				

Berdasarkan tabel di atas diketahui bahwa, dilihat dari nilai probabilitas pada tabel hasil pengitungan berdasarkan anava 2x2, dengan F-Tabel pada table diatas dengan nilai 62,92 dengan taraf kebebasan adalah 0,05 adalah 0,000 > dari 0,05 maka tolak H dan terima Ho, artinya terdapat perbedaan pengaruh kecerdasan emosional tinggi dan kecerdasan emosional rendah terhadap keterampilan sepakbola.

PEMBAHASAN

1. Tidak terdapat perbedaan pengaruh yang signifikan model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola terhadap keterampilan sepakbola

Hasil temuan penelitian di lapangan merujuk pada hasil pengolahan dan analisis data, ditemukan hasil yang menunjukkan bahwa dari kedua model latihan tidak terdapat perbedaan secara signifikan terhadap keterampilan sepakbola. Sesuai analisis dan pengolahan data bahwa model latihan fisik menggunakan bola memiliki perbedaan pengaruh terhadap keterampilan sepakbola dari pada model latihan fisik tanpa menggunakan bola. Metzler (2000: 229) mengemukakan bahwa jika sasaran dalam keterampilan mengutamakan pada pengembangan kognitif, maka prioritas pertamanya adalah aspek afektif, kedua adalah kognitif dan prioritas ketiga adalah psikomotor. Dengan demikian perbedaan tersebut dapat berdasarkan penerapan keterampilan yang berlangsung, kemudian berdasarkan kemampuan siswa. Model latihan fisik menggunakan bola selain meningkatkan performen di lapangan pada saat bermain juga meningkatkan keterampilan sepakbola yang secara tidak langsung merasakan pada saat berlatih. Martens (2004, hlm. 268) bahwa kondisi fisik adalah kemampuan untuk menghadapi tuntutan fisik suatu olahraga untuk tampil secara optimal. Dengan demikian, siswa dapat memberikan keputusan pada saat bermain sesuai dengan permainan yang dilakukannya, siswa dapat mengambil keputusan: apa yang seharusnya dilakukan dan bagaimana cara melakukannya, siswa dapat menunjukkan keterampilannya, dan siswa dapat

menampilkan kemampuannya. Sejalan dengan ulasan di atas bahwa latihan dengan pendekatan ini, lebih berdasarkan pada pengetahuan dan perilaku yang disajikan secara terpisah di mana siswa hanya diajarkan apa dan bagaimana cara melakukan bentuk latihan fisik sepakbola, untuk mendukung pada saat bermain sepakbola. Situasi penekanan kemampuan yang difokuskan pada penguasaan unsur-unsur komponen fisik dirasakan kurang memberi inspirasi serta membina dan mengembangkan kemampuan berfikir siswa khususnya pada permainan sepakbola.

2. Tidak terdapat interaksi antara model latihan dengan kecerdasan emosional terhadap keterampilan sepakbola

Merujuk pada hasil pengolahan dan analisis data, ditemukan hasil yang menunjukkan bahwa tidak terdapat interaksi antara pendekatan keterampilan dan kecerdasan emosional terhadap keterampilan sepakbola. Hal ini dapat mengatakan bahwa model latihan fisik memberikan efek terhadap keterampilan sepakbola namun demikian efek model latihan akan berbeda pada kecerdasan emosional yang berbeda yaitu antara kecerdasan emosional tinggi dan kecerdasan emosional rendah. Interaksi keduanya terlihat dari adanya perbedaan pengaruh perlakuan terhadap keterampilan pada kedua tingkat kecerdasan emosional. Dalam upaya mencapai tujuan keterampilan diperlukan dukungan dari beberapa faktor yang bersifat internal (segala sesuatu yang berasal dari diri individu dan menjadi ciri khas individu tersebut, seperti bakat, motivasi, dan minat) serta eksternal (segala sesuatu yang berada di luar diri individu, seperti fasilitas belajar, media belajar, sumber belajar dan biaya). Seperti dijelaskan oleh Satriya, dkk (2007, hlm. 58) bahwa "keadaan kondisi fisik yang baik akan mempengaruhi pula terhadap aspek-aspek kejiwaan yang berupa peningkatan motivasi kerja, semangat kerja, rasa percaya diri, ketelitian dan lain sebagainya". Selain itu, model latihan yang tepat guna terjadi proses interaksi antar siswa dalam mengembangkan kemampuan dalam berlatih, sejalan dengan model latihan fisik Martens (2004, hlm. 271-272) menjelaskan bahwa:

Terdapat beberapa komponen fisik yang mendukung terhadap keberhasilan proses pelaksanaan keterampilan gerak dalam cabang olahraga sepak bola, antara lain kekuatan (strength), kecepatan (speed), daya tahan (endurance) meliputi aerob dan anaerob, kekuatan dinamis (power), fleksibilitas (flexibility), kelincahan (agility).

Dari penjelasan diatas bahwa kondisi fisik yang baik akan berpengaruh terhadap keterampilan sepakbola, dengan dukungan faktor kecerdasan emosional akan berpengaruh terhadap performen pada saat bermain sepakbola, kecerdasan emosional berpengaruh terhadap peningkatan proses berlatih antara cepat lambatnya menangkap sebuah materi dalam berlatih. Penggunaan model latihan fisik menggunakan bola akan lebih efektif apabila digunakan untuk memberikan keterampilan kepada siswa yang memiliki kecerdasan emosional tinggi, sedangkan pendekatan keterampilan model latihan fisik tanpa menggunakan bola akan efektif apabila digunakan kepada siswa yang memiliki kecerdasan emosional rendah.

3. Tidak terdapat perbedaan pengaruh yang signifikan model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola terhadap keterampilan sepakbola pada kelompok siswa yang memiliki kecerdasan emosional tinggi

Hasil temuan penelitian dilapangan bahwa merujuk pada hasil pengolahan dan analisis data, ditemukan hasil yang menunjukkan bahwa tidak terdapat perbedaan pengaruh yang signifikan model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola terhadap keterampilan sepakbola pada kelompok siswa yang memiliki kecerdasan emosional tinggi. Tetapi ada

temuan mengenai model latihan, bahwasanya kecerdasan emosional tinggi dengan penerapan model latihan menggunakan bola dan model latihan tanpa menggunakan bola adanya perbedaan yang sangat mencolok yaitu, dengan kecerdasan emosional tinggi penerapan yang baik adalah dengan model latihan menggunakan bola. Harsono (1988:100) menjelaskan bahwa teknik latihan untuk mempermahir teknik-teknik gerakan yang diperlukan untuk mampu melakukan cabang olahraga. Keterampilan merupakan kemampuan untuk menerapkan beberapa teknik secara maksimal dengan sedikit mengeluarkan tenaga atau waktu. Yudiana (2010:95) berpendapat bahwa keterampilan teknik seseorang dikembangkan melalui latihan-latihan yang dilakukan secara sistematis, terencana, dan mempertimbangkan prinsip-prinsip latihan. Sehingga model latihan dengan menggunakan bola, siswa merasakan langsung situasi atau kejadian yang timbul pada saat bermain atau pada saat pertandingan sepakbola berlangsung. Maka penerapan model latihan fisik menggunakan bola diharapkan terjadinya peningkatan motivasi dan minat para siswa untuk berlatih, sehingga pada akhirnya meningkatkan keterampilan sepakbola yang akan mendukung kemampuannya dalam bermain sepakbola.

4. Tidak terdapat perbedaan pengaruh yang signifikan antara model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola terhadap keterampilan sepakbola pada kelompok siswa yang memiliki kecerdasan emosional rendah

Hasil temuan penelitian lapangan merujuk pada hasil pengolahan dan analisis data, ditemukan hasil yang menunjukkan bahwa tidak terdapat perbedaan pengaruh yang signifikan antara model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola terhadap keterampilan sepakbola pada kelompok siswa yang memiliki kecerdasan emosional rendah. Berkaitan dengan pendekatan model latihan fisik tanpa menggunakan bola bentuk situasi keterampilan diaplikasikan melalui pengulangan-pengulangan. Artinya dilakukan secara terpisah sedangkan penerapannya berlangsung mulai dari menampilkan pengembangan komponen fisik yang dibutuhkan saat bermain. Kondisi fisik adalah faktor yang menunjang pemain dalam melakukan gerakan keterampilan teknik dengan baik dengan tujuan untuk mencapai sebuah prestasi. Dalam latihan fisik tanpa menggunakan bola dilakukan secara sistematis dan terprogram dengan semua komponen fisik dierikan sesuai dengan tingkatan. Kecerdasan emosi menurut Geoleman (2000, hlm. 51) merupakan derajat kemampuan untuk mengetahui apa yang diri sendiri dan orang lain rasakan termasuk cara tepat menangani masalah mengenai masalah yang dimiliki seorang pemain atau atlet. Indikator untuk mengetahui tingkat kecerdasan emosi menurut adalah *self awareness, social awareness, self management, social skill*. Dengan kata lain, mobilitas gerak dalam proses keterampilan melalui pendekatan model latihan fisik tanpa menggunakan bola kurang begitu tinggi, sehingga siswa yang memiliki kecerdasan emosional rendah dapat secara optimal mengikuti kegiatan keterampilan tersebut. Sedangkan apabila siswa yang memiliki kecerdasan emosional rendah mengikuti proses keterampilan melalui pendekatan model latihan fisik tanpa menggunakan bola, diprediksikan siswa akan mengalami kendala dengan situasi keterampilan yang mengharuskan siswa lebih aktif bergerak dalam kegiatan keterampilannya, yang pada akhirnya akan berdampak pada pencapaian keterampilan yang kurang optimal.

5. Terdapat perbedaan pengaruh yang signifikan kecerdasan emosional tinggi dan kecerdasan emosional rendah terhadap keterampilan sepakbola

Hasil temuan penelitian lapangan bahwa kecerdasan emosional memberikan pengaruh terhadap keterampilan sepakbola. Dimana dalam hal ini Emosi dapat berpengaruh terhadap

penampilan siswa pada saat berlatih maupun bermain sepakbola, seperti dijelaskan Groppe (1989, hlm. 256), konsisten atau kemantapan penampilan merupakan hasil dari konsistensi emosional. Pemain yang keadaan emosinya tidak stabil selama permainan akan mendapati bahwa penampilan mereka juga tidak stabil. Semakin naik turun keadaan emosi pemain selama permainan, semakin kecil kemungkinan tingkat penampilan mereka dapat distabilkan pada kemampuan puncaknya. Kecerdasan emosional mempunyai pengaruh yang sangat baik terhadap keterampilan sepakbola. Permainan yang mampu mengembangkan kecerdasan emosional adalah permainan yang melibatkan banyak orang yang berinteraksi langsung seperti olahraga sepakbola karena didalam olahraga sepakbola melibatkan orang lain atau teman secara penuh. Dengan demikian bila kita cermati berdasarkan konsep dan teori yang telah dipaparkan di atas bahwa kecerdasan emosional sangat berpengaruh pada permainan sepakbola. Karena aktifitas gerak yang terjadi di lapangan memerlukan kesiapan fisik dan dapat mengambil keputusan dengan cepat dan tepat.

KESIMPULAN

1. Tidak terdapat perbedaan pengaruh yang signifikan model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola terhadap keterampilan sepakbola.
2. Tidak terdapat interaksi antara model latihan dengan kecerdasan emosional terhadap keterampilan sepakbola.
3. Tidak terdapat perbedaan pengaruh yang signifikan model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola terhadap keterampilan sepakbola pada kelompok siswa yang memiliki kecerdasan emosional tinggi.
4. Tidak terdapat perbedaan pengaruh yang signifikan model latihan fisik menggunakan bola dan model latihan fisik tanpa menggunakan bola terhadap keterampilan sepakbola pada kelompok siswa yang memiliki kecerdasan emosional rendah.
5. Terdapat perbedaan pengaruh yang signifikan kecerdasan emosional tinggi dan kecerdasan emosional rendah terhadap keterampilan sepakbola.

REKOMENDASI

Berdasarkan kesimpulan yang telah diuraikan, dapat disampaikan beberapa rekomendasi berkaitan dengan hasil keterampilan sepakbola melalui model latihan fisik dan kecerdasan emosional. Saran ini ditujukan kepada pihak yang berkepentingan dalam pendidikan, yaitu: Departemen Pendidikan, Instansi sekolah, para guru dan para peneliti selanjutnya. Beberapa rekomendasi tersebut sebagai berikut: Kepada Departemen Pendidikan Kabupaten Garut mensosialisasikan kepada para guru melalui penataran atau pelatihan, agar mereka memiliki pengetahuan dan kemampuan tentang penerapan model latihan yang digunakan dalam proses pelatihan maupun berlatih. Bagi Para Guru atau Pelatih kaitannya dengan pelatihan sepakbola diharapkan menggunakan pendekatan model latihan fisik menggunakan bola karena terbukti mampu meningkatkan keterampilan sepakbola siswa. Bagi Para Peneliti selanjutnya masih diperlukan penelitian-penelitian lanjutan baik bersifat pengembangan maupun kedalamannya.

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THE DIFFERENCE OF REPETITIVE AND PROGRESSIVE PART METHODS EFFECTS ON THE PRECISION OF FOOTBALL SHOOTING

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Abstracts

This research aims to find out: (1) The difference of repetitive and progressive part methods effects on the precision of football shooting, (2) Which one having better effect, the repetitive or progressive part methods on the precision of football shooting. The research method used was an experimental method. The population of research was the 14-years age group player of Klaten Bina Nusantara Soccer School Club consisting of 60 players, the sample used in this research consisted of 30 players, technique used was random sampling furthermore divided into two groups using ordinal pairing method. Techniques of collecting data used were test and measurement. Techniques of analyzing data used in this research were reliability, normality and homogeneity tests. The result of the analysis are drawn as follows: (1) There is a significant difference of repetitive and progressive part methods effects on the precision of football shooting in 14-years age group of Klaten Bina Nusantara Soccer School Club in 2011. It can be seen from the calculation result of each group's final test in which the $t_{\text{statistic}}$ value is 8.215838 higher than t_{table} of 1.761 at significance level of 5%. (2) The repetitive part method has better effect than the progressive one on the improvement of shooting precision in 14-years age group of Klaten Bina Nusantara Soccer School Club in 2011. The percentage improvement shows that the shooting precision of group 1 (the one obtaining repetitive part method treatment) is 42.69% > group 2 (the one obtaining progressive part method treatment) of 9.66%.

Keywords: Repetitive, progressive, shooting, football

THE INFLUENCES OF LEARNING MODELS ON CRITICAL THINKING OF PLAYING FIELD GAME OF PRIMARY SCHOOL STUDENTS

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Abstract

The research was aimed to find influences of two learning models on the on critical thinking in physical education contex. The learning models in this research included direct instructional (DI) and teaching game for understanding (TGfU) by Metzler (2000). Research design was exsperiment post test only. Sampel were 80 students elementary school with two groups exsperiment. One group treatment by DI and other with TGfU. The research was carry out in 16 meeting. Critical thinking was measured with game performance assessment instrument (GPAI). Independent samples T test show that learning model have the same effect on on critical thinking of game with sig. score 0.869.

Keywords: TGfU, *Direct Instructional*, Critical thinking

INTRODUCTION

Critical thinking in physical education? It is fantastic thing for deep thinking. Physical education is part of whole education. The unique thing of physical education is in physical education used physical activities for achive the goals. Physical activities are many of activity, games are ones of part the activites. Sport area include in the games. The reality game used in almost of physical education in schooll (Copel & Susan, 2000: 124). Balakrishman, Aman & Rangasamy (2011) said, learning and teaching in physical educatuin in school used game "*Games are one of the important components in the physical education curriculum because 65 percent of time spent in physical education is allotted to games teaching and learning*" Paul Web (2012) mengutip pernyataan (Werner, Thorpe & Bunker, 1996) *Games are a significant component of the physical education curriculum, with research suggesting that '65 per cent or more of the time spent in physical education is allotted to games.* If game used in physical education need some skill and understanding rules of the game. Skills are dependigon characterized of the games. Fundamental motor skills are very importance should be master, so studentsare able to use it in game situation.

Sport as game can be defice by invasion, net, striking-field and target games. With classification how to play as below:

Table 1 Categories of Games (adapted from Ellis 1983, Werner and Almond 1991, cited in Werner, Bunker, Thorpe, 1996)

Category	Attacking Principle/s	Defensive Principle/s
Invasion	Team games invading the other team's territory with the aim of scoring more points than the other team in the time limit.	Touch, Basketball, Soccer
Net Court	Games played with a net or a wall with the aim of sending an object into an opponent's court so that it cannot be played or returned within the court boundaries.	Volleyball, Tennis, Squash
Striking Fielding	Contest between a fielding and batting team with the aim of scoring more runs than the other in the innings or time allowed.	Cricket, Softball
Target	Place an object near or in a target in order to have the best possible score. Can be opposed or unopposed.	Golf, Lawn Bowls, Darts

On this research used field game. Field game has second level of difficulty after target game. Net game and finally invasion game are more difficult. Field game very easy to play, the problem of this game are, this game not popular and few peoples play it. Based on it, in this article used field game was already modified (kick ball modification), with modification on size of fields and rules.

Model of learning on these research used Teaching game for understanding (TGfU) and Direct Instructional (DI) as treatments, with kick ball modification as a game. TGfU model will give student opportunity for practice technique, awareness of tactics, critical thinking in contexts of physical education focus on problem solving. Base on Pearson & Webb (2008) said:

TGfU places an emphasis on the play, where tactical and strategic problems are posed in a modified game environment, ultimately drawing upon students to make decisions. It places the focus of a lesson on the student in a game situation where cognitive skills such as 'tactics, decision making and problem solving are critical...with isolated technique development utilised only when the student recognises the need for it.

For achieve understanding how to play the game, about tactic, strategy of solve the problems and finally students make right decision with right action base on the reaction of the situation. Critical thinking are needed in this situation, with the limited time and right action. So, game can be media for fitness education and critical thinking in physical activity context. Base on Metzler (2000: 342); Griffin & Butler (2005: 3); (Paul Webb 2006) Steps in TGfU game, game appreciation, tactical awareness, making appropriate decision (what to do?, how to do?), skill execution and finally performance. Base on steps in TGfU hopefully could be facilitated student for active thinking what to do? And how to do? when teaching learning design by tactic situation problems.

The other model of teaching is direct instructional model. This model was very familiar for every teachers. They usually used the model for teaching and learning in physical education. The key point of DI model are teacher well plan and students do what teacher already prepared. Setting what student should be learned and how to learn something include tactical decision already prepared by teacher. This model evaluation student understanding or activity lesson assessed by standar test. DI model usually compared by another models to see the effect on result student learning, could be process or student achievement. Research by McNeill et. al (2011) showed that TGfU model with

volley ball, tee ball dan feild game, could be improve students's motivation for moving boys and girls. The research did with students 11-13 years old, 115 students with three difference classes.

In new concept of physical education, critical thinking is some importance especially in game critical situation. Students should make right decision in the right time and right action in a few second in game situation. TGfU model be one of alternative for being vacilitating critical thinking ability. One of reasearh by Malathi Balakrishnanet. all (2011) title *Effect of Teaching Games for Understanding Approach on students' Cognitive Learning Outcome*. Showed *The results reveal that there was a significant difference between the TgfU approach group and the traditional skill approach group students on post test score*. Treatment with TGfU better than DI.

Critical thinking could be show in several things. Fisrt understanding the game, second understanding of skills, thirth understanding of tactics and strategies, fourth of rule of the games and fith understanding of context of the games. The great players are able to undertand and able to decide five elements and solve of the problem base on the game contexts. The illustrated it byStephen Mitchell (2011) about defence how to make decision foot ball novice and advance players. *Cross sectional* study reveal that signifikan difference betwent novice and advance foot ball players. With 74 samples novice and 55 advance. Decision action did by how to choose tecniques (passing, moving with ball-without ball, tackling, guard and take the ball from opponent), decision related tactic at the game contexs. Advance players have better in decision than novice players. Another research said that ability to make decision improve as the ages. Research by Fujii et. all (2014) research about the reaction for anticipation of novice basket ball and advance players. Researchh reveal that advance basket ball players have experieces of movement so they have better in awareness, speed of movement because of eksperiment before.

Critical thinking ability include seeing, understanding, concluding and finally deciding for moving in kick ball situation problem when play the game. How to orginize part of the bodies that showed in fundmental techniques, decision on position related ball, friends and opponents for defences and offences for winning the game. In related assessment critical thinking used Game Performance Assessment Instrument (GPAI).

Two of models in this research are TGfU and DI as (Metzler, 2000). Based on research review the effect implementation of model on decision on game situation. Fuhter scientific base on research about the models implication and effect needed for another researchs.

Base ini back ground and problems, critical thinking still the new thing in physical education setting especially on game context. Intervension which one is better? The old or the new one (DI and TGfU). My hypothesis is TGfU will better than DI effect on critical thinking.

METHOD

Design of the research used randomized posttest only. With treatment TGfU and DI as below:

The Randomized Posttest-Only

Treatment TGfU *RXO*

Control DI *RXO*

Samples are 80 elementary students, grades 3,4 and 5. Two classes experiment by random with 40 students each, with TGfU treatment and Direct instructional. Data of critical thinking collected by Game performance assessment Instrument (GPAI).

Data analysed by independent samples T test. Normality test with Kolmogorov-Smirnov, variance analyzed for homogeneity of variance.

RESEARCH RESULT AND DISCUSSION

Normality and homogeneity test.

Kolmogorov-Smirnov test with sig. 0.05 by SPSS software result sig 0.200 > 0.05, that means the data status are normal. Homogeneity of variance test used ANOVA with SPSS software result 0.193 > 0.05, that's mean two of variances have the same variances.

Hypothesis tests.

Descriptive statistic result

Table 2 Statistic Descriptive Result

Group Statistics					
	model	N	Mean	Std. Deviation	Std. Error Mean
skor	TGFU	40	3.8638	1.72537	.27280
	DI	40	4.3665	1.69829	.26852

Based on the table above, we can see that the average of DI is bigger than TGFU. What that's mean. That's mean DI result in critical thinking is better than TGFU with mean 4.3665 and 3.8638. Are the differences significant? Let see in the next table in independence sample T test result.

Table 3 Independent sample T test result

Independent Samples Test			
		skor	
		Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances	F	.027	
	Sig.	.869	
t-test for Equality of Means	T	-1.313	-1.313
	Df	78	77.980
	Sig. (2-tailed)	.193	.193
	Mean Difference	-.50271	-.50271
	Std. Error Difference	.38279	.38279
	95% Confidence Interval of the Difference	Lower Upper	-1.26478 .25936

Based on normality and homogeneity test, data are normal and homogenous. Independent sample T test show that T test result 0.860. Based on these results statically, could be say the two models of learning have the same effect on critical thinking for elementary school grades 3, 4 and 5.

That means two of models can be used for critical thinking in field game for physical education context.

DISCUSSION

Hypothesis say that TGfU model has better effect on critical thinking than direct instructional model and based on result studied was rejected. Based on research result the average of critical thinking showed Direct Instructional average better than TGfU, but based on Independent sample T test are not significant.

To achieve critical thinking in physical education, there are a number of dispositions that have been identified as prerequisites. These are: being well informed, having a sound knowledge-base, an ability to look at the 'big picture', being open-minded, having sensitivity to the feelings of others, an ability to generate and accept alternative solutions, and being co-operative. According to McBride (1992) and Tishman and Perkins (1995), the use of critical thinking in physical education contexts will bring about: broad and adventurous; innovative solutions; causal and evaluative reasoning; planning and strategic thinking.

TGfU with steps learning "game, teach, game" with several questions who needed for stimulate action. Metzler (2000: 342); Griffin & Butler (2005: 3); (Paul Webb 2006) Steps in TGfU game, game appreciation, tactical awareness, making appropriate decision (what to do?, how to do?), skill execution and finally performance. Another opinion by Stephen Harvey (2003) *Warm-Up b) Game c) Questions & Challenges d) Game e) Further Questions & Challenges f) Progression of Game g) Repeat Cycle. The principles in TGfU are using game, problems, using questions for stimulated awareness on problem and solution and finally action. All of steps should be on game problem situation.*

Than Direct instructional model used techniques practical skill about 80% than applied the result of practices in to fulfill solve the problems in the game. The materials well prepared already by teacher. The possibility of any decision are predicted and arranged before class.

These research showed that the two models have same effect on critical thinking. This is not the same with Evan (2006) said that "*Players cannot develop problem solving ability, embodied understanding and immediate skill responses to the dynamics of games without experience of learning within game-like situations*". Researches prove that DI and TGfU have same effect on critical thinking. The result of research actually happened in several researches

[Kathy C. Graham](#), et. Al (1996) with two research 3 and 6 weeks tactical model effect in badminton skill of playing. Two of these research showed the same result on decision making. Rudolf psotta, Martin (2011) in foot ball have the same result also on decision making. Others research by Nevert, rovengo, babiarz (2001) with 12 treatments, 12 boys and girls. Test on decision about tactic and basic skill of movement. Research result two models have the same effect for improving tactical and technique ability. Two models can improve ability to make decision and ability to do right skills needed.

Another analyzed about TGfU model, the result of study is a prove that this model can be used in elementary school for teach critical thinking. This argumentation based on the fact that no difference between TGfU and DI. Second, in this research used format game, teach, game. In lesson teach device by two; drill and drill game. Drill materials are about technique and drill materials for drill games are students play game by problem that should be finish. When drill section student some time learn the same thing with drill technique in DI. Replay over and over about play the game

and drill technique itself may be effect on process to understand the game. The point is in TGfU have drills are some time have the same function as drill in DI.

Next, in this research used field game as media for teaching critical thinking. Field game is the second level on complexity of the game. Not really complicated and easy to play the game. May be will be differ if research used net or invasion game with more complex and difficult. Mitchell & Collier cited by [Fisette et al \(Oct 2010\)](#), field game "Striking/fielding and target games have less "flow" and a slower pace compared to invasion and net/wall games, which decreases the level of tactical complexity in them". The conclusion is these game too easy to learn and to play.

CONCLUSION

Based on statistically test and discussion can be conclude as a whole critical thinking students grades 3,4,5 elementary have resulted the same. Actually differ base on average score but not significant when it test by independent sample T test. The implication base on these research, we can use TGfU or DI for improve critical thinking if used field game for elementary students.

SUGGESTION

Next research used another level of game, can be net or invasion game. Used another type of TGfU for example play practice, game sense. Don't be afraid for using TGfU in teaching learning in elementary school.

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THE INFLUENCE OF MINIATURE PROPS AND IMAGE TOWARD LEARNING OUTCOMES OF GYMNASTIC FLOOR GRADE VIII IN SMP N 1 SURADADI

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Abstract

This study aimed to determine the effect of using visual media miniature and image towards learning outcomes gymnastic floor in class VIII SMP N 1 Suradadi. That media at teaching practice gymnastics floor, should help teachers provide the comprehension of the motion exercises. It also could be used anytime and anywhere. This type of research was experimentation with causal association. Researcher has conducted a pretest-posttest design at the experiment and control group at number of 34 students about gymnastics floor. The data was collected by observation, questionnaires and skills tests of gymnastics then analysed with T-test, gain test and regression test. The results of the research, there are differences in learning outcome of students that is assisted gymnastics floor miniature props and image with learning gymnastics floor without props. Learning method used miniature props and images is better than without props. It is indicated by 0.58 (medium category). Learning used miniature props and images influence the learning outcomes of gymnastic floor at 13% (R square = 0.13). It is concluded that learning gymnastic floor used miniature props and image media give positive impact toward learning outcomes.

Keywords: Keywords: learning media, miniature props and pictures, learning outcomes gymnastics floor

INTRODUCTION

Sports and Health Education in 2013 Curriculum is one of the main lesson materials in Junior High School. In the curriculum, gymnastics material is the basic competence in the lesson of sports and health education. It is the branch of the sports that is less popular in society so that the students are not interested in this lesson material. Basically, it needs good flexibility and coordination among the bodies structure. It is important for developing student's body. Gymnastics consists of three kinds as follow: basic gymnastics, skill gymnastics, and rhythm gymnastics. The skill gymnastics can be done by tools or without tools. The skill gymnastics which is done without tools is called gymnastics floor, while using tools is called gymnastics tools. There are many kinds of movements such as springy, body rotation and balance.

A good learning process is certainly expected by every school. However, there are some problems that participate in applying a good learning process. It can be come from external and internal factor. One of the problems is about the perception of the movement. The comprehension of the movement will be very important if it is related to the mastery of movement skill and the appropriate knowledge of curriculum education. According to Agus Mahendra (2000:15) that one of the problems of sports and health education teacher is about the difficulty of gymnastics that needs particular comprehension tools and media. The teacher has a duty to solve the problems.

In order to deliver the material, the teachers have to prepare the tools, strategy, and learning media. Learning media is absolutely needed to help in delivering the material clearly. Hartanti

(2013:2) said that learning media is everything which can channelize command, stimulate of thinking, feeling and willing, so that it can be gained the learning process to the students. Learning media has the important role to help the teacher in learning process because the use of learning media not only to listen the explanation from the teacher but also to do the others activities such as observing, practicing, and demonstrating. If the students easy to accept and mastery the lesson, it will make them more energetic and advance. It occupies in the important position as one of components in learning system. Communication in learning process without media is less maximal. It becomes the integral component from the learning system. It can be the source of learning and delivering the message that help the student in achieve learning process. Studying movement in gymnastics floor used much visual exciting as the first step in understanding the sequence and the skill of movement. One of the simply and portable learning media supporting the visual learning in learning process of gymnastics is using the miniature and image tools. The result of the first observation and interview with Mr. Martikno as the teacher of SMP N 1 Surodadi showed that learning process of gymnastics did not show the optimal learning outcomes. The optimal learning outcomes of student not only can be seen by practicing but also from the theory, it is related to the development of comprehension skill in the material of gymnastics, especially for gymnastics floor to grade VIII. Based on the problem, the researchers try to develop the problems of the research as follow:

- Is there any difference of the raising learning outcomes to the students of grade VIII in the gymnastics floor material with the miniature and image tools that without?
- Is there any influence of using the miniature and image tools toward the learning outcomes gymnastics floor grade VIII in SMPN 1 Suradadi?
- How great the influence of the miniature and image tools toward the learning outcomes of gymnastics floor grade VIII in SMPN 1 Suradadi?

METHOD

This study use *True Experiment with pretest-posttest control group design*, there are two groups which is chose randomly of each groups. The research design that will be used in this study as follow:

Table 3.1 Research Design Pre-test-Post-test Control Group Design

Class	Pre-test	Treatment	Post-Test
Experiment	O ₁	X	O ₂
Control	O ₃		O ₄

The populations are all students grade VIII in SMPN 1 Suradadi school year 2016/2017. This study use simple random sampling technique, two sample are chosen, each of the are 34 students, i.e. grade VIII C as the experiment class use the miniature and image tools and grade VIII F as the control class without the miniature and image tools. This study takes three times meeting in gymnastics learning as long as 2x40 minutes. The researcher exhaustively collected the data by documenting, observing, testing, and interviewing the subject of the study which is tested before to know the reliability of the matter. The result of the reliability test is 0.80 (high category) with reasonable validity and validity test media. The first data analysis includes of normality test,

homogeneity test, average equality test and final data analysis includes the different test average and regression test.

RESULTS AND DISCUSSION

Based on the first pretest data analysis, it gains the first learning outcomes data showed that the class taken as the sample has normal distribution, homogeneity variety, and there is no significance different in the average of the both schools. It means that the sample came from the same condition that has the same knowledge level.

Table of the Summary Pretest, Posttest Data Gymnastics Learning Outcomes

Group	Mean	Normality Test		Homogeneity		Conclusion
		Kolmogorov Smirnov method		Levene Statistic		
		Statistic	P_value	Statistic	P_value	
Experiment Pretest	55.5	0,102	0,200	0.685	0,412	Normal andhomogeny data distribution
Control Pretest	56,4	0,147	0,059			Normal and homogeny data distribution
Experiment Posttest	80.7	1,046	0,224	0.180	0,673	Normal and homogeny data distribution
Kontrol Post- tes	77,7	1.216	0,104			Data Berdistribusi Normal danhomegen

Final data analysis is done after gaining the score of students learning outcomes in gymnastics floor material.

Criteria Gain Normalized

Criteria normalized gain used to determine the big increase of learning outcomes the students in grade VIII on gymnastics floor material in both of sampling, measured by pretest and posttest. The formula of gain score as follow:

$$(g) = \frac{\text{posttest score} - \text{pretest score}}{\text{maxium possible score} - \text{pretest score}}$$

Table of Category Normalized Gain Score

Interval (g)	Gain
$(g) \geq 0,7$	High
$0,3 \leq (g) < 0,7$	Medium
$(g) < 0,3$	Low

(1) Criteria Normalized Gain in learning outcomes the Student of Experiment Class

The result of the calculation of the normalized gain in the classical criteria obtained (g) the experimental class = 0,5820. It showed that $0,3 \leq (g) < 0,7 = 0,3 \leq 0,5820 < 0,7$ means that students learning outcomes of experimental class was observed by the increase of cognitive comprehension in medium category. The result is obtained that 2.941176% students is low category, 82,35294% is medium category, and 14,70588% is high category.

(2) Criteria Normalized Gain in learning outcomes the Student of Control Class

The result of the calculation of the normalized gain in the classical criteria obtained (g) the control class = 0,5820. It showed that $0,3 \leq (g) < 0,7 = 0,3 \leq 0,4729 < 0,7$ means that students

learning outcomes of control class was observed by the increase of cognitive comprehension in medium category. The result is obtained that 2.941176% students is low category, 94,11765% is medium category, and 2,941176% is high category.

The difference of learning outcomes gymnastics floor in grade VIII SMPN 1 Suradadi

Test average difference in learning outcomes in learning outcomes gymnastics floor material will be calculated using the t test or the equality of two averages in one party. This test criteria was receiving H_0 if Sig in column t-test equality of means in Independent sample test table > level of significance (0,05)

The following is the table of the result test equality of increase means in learning outcomes experimental class and control class.

Independent Samples Test

		t-test for Equality of Means						
		t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Increase	Equal variances assumed	2.347	66	.022	5.29412	2.25547	.79093	9.79730
	Equal variances not assumed	2.347	58.86	.022	5.29412	2.25547	.78072	9.80752
Learning outcomes	Equal variances assumed	3.411	66	.001	3.05882	.89670	1.2685	4.84915
	Equal variances not assumed	3.411	64.87	.001	3.05882	.89670	1.2679	4.84973

Based on the calculation using SPSS 16.0, it is obtained score sig increase = 0,022 < 0,05 and score sig learning outcomes gymnastics floor = 0.001, so that H_0 was rejected then received H_1 . It means that there is a difference in improving students learning outcomes in grade VIII on gymnastics floor material used the miniature and image tools and without the miniature and image tools.

The Influence of Using the Miniature and Image Tools toward Learning Outcomes Gymnastics Floor in Grade VIII in SMP N 1 Suradadi

This influence test of using the miniature and image tools toward learning outcomes gymnastics floor in grade VIII in SMP N 1 Suradadi was done by SPSS 16,0 program with simply regression test. This test criteria was receiving H_0 if score Sig in F-test column in table > level of significance (0,05).

The following table is the result of simply regression test

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.361 ^a	.130	.103	3.26244

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.361 ^a	.130	.103	3.26244

a. Predictors: (Constant), increasing_experiment

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	50.966	1	50.966	4.788	.036 ^a
	Residual	340.593	32	10.644		
	Total	391.559	33			

a. Predictors: (Constant), increasing_experiment

b. Dependent Variable: learningoutcomess_experiment

Based on the calculation used SPSS 16.0, it is obtained score $sig = 0,036 < 0,05$ so that H_0 was rejected then received H_1 . It means that there is an influence of using the miniature and image tools toward learning outcomes gymnastics floor. It is obtained $R^2 = 0,130 = 13\%$ means the miniature and image tools influence the students learning outcomes 13%

DISCUSSION

The Increase of Students Learning Outcomes Gymnastics Floor Grade VIII in SMPN 1 Suradadi

Based on the statistic test, stated that the miniature and image tools can increase students learning outcomes. The increase of students learning outcomes occurred because the students must be active in learning process. It is appropriate with the theory of Bruner in Suherman (2003:44) that in learning process, the student exceeded enactive, iconic, and symbolic step. According to Daharin Rifa'i and Anni (2012:174), learning is a process of catching the new information with the relevant concepts and containing in the cognitive structure of someone. Therefore, the increase of students learning process will be better if knowing the real concepts.

It can be conclude that the increase of students learning outcomes grade VIII on gymnastics floor material used the miniature and image tools is better than without used the miniature and image tools that was showed in the difference of the result in pretest and posttest.

The Difference of Students Learning Outcomes Gymnastics Floor Grade VIII SMP N 1 Suradadi

Students learning outcomes are the result of learning outcomes gymnastics floor which related to student's cognitive and psychometric competence in teaching-learning activity. Based on the statistics test, there is a difference in the average of increase students learning outcomes in gymnastics floor material. The average of the increase of students learning process in gymnastics floor used the miniature and image tools are better than without used the tools.

The use of the miniature and image tools is the factor that influence in learning process, because the students become more pay attention, enthusiasm in learning process, and be able to develop their

knowledge in finding the concepts of gymnastics floor. Amanuloh (2015:1818) conducted a research with the result that the utilization of visual learning media on learning forward roll tucked give comprehension concept in detail and concrete so that the students easily comprehend every movement of forward roll tucked and increase students learning outcomes. Azhararsyad (2015:20) explained that media can help students improving their comprehension, providing the data interestingly and trustworthy, facilitating the interpretation and condensing the information. The miniature and image tools can train the students to make their own thinking, participating, activating and giving them a chance to try solving what they are observing. Students can practice to develop their potential in concept of knowledge and comprehension gymnastics floor movements.

The Influence of the Miniature and Image Tools toward Learning Outcomes Gymnastics Floor Grade VIII in SMPN 1 Suradadi

The use of the miniature and image tools is a learning media that is used to help learning process of gymnastics floor. The purpose of learning gymnastics floor used the miniature and image tools in order that the students actively involved in practicing learning process. The result of study showed that it influences toward students learning outcomes since with the tools students become more enthusiasm in learning gymnastics floor. It can make the students understand about the movements of gymnastics floor in detail from the beginning until the end.

The miniature and image tools make the students knowing the good movement concept. According to Sugiyanto in Yudianto (2010:43) stated that perceptual motoric is a capability to interpret the stimulus that catches by the organ senses. Perceptual capability is useful to comprehend everything around the students.

Rusli stated that someone's quality movement is depend on the perceptual motoric. Perceptual motoric is a process organizing, structuring the information obtained and saving to create the reaction in the form of movement. Perceptual motoric is a gain process, increasing skill and movement capability. The capability of the student in practicing their task is depend on the capability in gaining the information and interpreting the meaning about the movement of gymnastics floor. This will make a compatible and better movement than less precise of capability perceptual motoric. The miniature and image tools have an important role to influence the students learning outcomes because of interesting and focusing students' attention. Then it was found that the miniature and image tools influence the students learning outcomes. According to Yudhi Munadhi (2008:27) assuring a good students learning outcomes, the students must be faced on the interested objects.

CONCLUSION AND SUGGESTION

Based on the result of the study and the discussion, it can be conclude as follow:

- There is an increase of students learning outcomes in gymnastics floor used the miniature and image tools 0,582 implied in medium category. While the students learning outcomes without used the tools is 0,472 implied in medium categories was observed from cognitive comprehension.
- There is an influence of using the miniature and image tools toward students learning outcomes gymnastics floor in grade VIII SMP N 1 Suradadi.

- The miniature and image tools influence the students learning outcomes 13%. Learning with the tools make the students is more enthusiasm toward the learning of gymnastic floor. It makes them understand about the movements of gymnastics floor in detail.

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FRONT-WHEEL-DRIVEN BIKE, IMPROVING ENDURANCE, STRENGTH, AND MOTIVATION FOR BICYCLING

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Abstract

Many people do not exercise regularly and do not gain full benefit from their activity when they do exercise because they stop too soon. What is needed is a way for people to maintain enough exercise for full benefit without taking much time. To solve this problem, a front-wheel-driven bicycle has been developed. This study will test the endurance, strength, and motivation of a bicycle that exercises both upper and lower extremities simultaneously. A time-series case study will be conducted. Pre-test, six weekly assessments, and a post-test will be conducted. This study follows the SETS (Science, Environment, Technology, and Society) vision, in which the technology of bicycling, particularly of rotation movement, can optimize the societal health by providing a way for short-term exercise that overcomes waning motivation as one begins an exercise program. The study will measure the time on the bicycle as the independent variable, and improvement in endurance and strength. Furthermore motivation will be assessed and graphed with the time and benefit markers to determine the pattern of sustainable activity. The long term expectation of producing the model of the bicycle is to provide an alternative of more effective and efficient bicycle for exercise, recreation and professional sport. This study anticipates that strength and endurance of the bicyclist should have improved.

Keywords: front-wheel bicycling, sport and recreation, sport-recreation bike, front wheel driven, speed-riding bike,

EFFORTS TO IMPROVE TECHNICAL SKILLS GYAKU MAWASI GERI WITH MULTILATERAL MOTION TO BEGINNERS KENSHI KEMPO SPORTS OF DOJO KRAMAT JATI

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Abstract

This research aims to improve the technical skills of gyaku mawasi geri with multilateral motion against beginners kenshi Kempo of Dojo Kramat Jati. This research was conducted at the Dojo Kramat Jati in December 2016. The samples were 15 mens and womens beginners kenshi Kempo where practice at Dojo Kramat Jati. The sampling technique is done by purposive sampling. This research method is the action research by using observation technique and observation by the cycle research. Based on the research results in beginning tests that went into passing standards that only 3 kenshi and 12 kenshi were not entered into passing standart, so passing percentage at the beginning of the test was 20%. While the first cycle that goes to the passing standard is 8 kenshi and were not entered into the passing standard is 7 kenshi, so passing percentage increased to 53%. In the second cycle all kenshi into the passing standard that is 15 kenshi and passing percentage increased until 100%. Thus the use of multilateral motion can improve the technical skills of gyaku mawasi geri against beginners kenshi Kempo of Dojo Kramat Jati, East Jakarta.

Keywords: Gyaku mawasi geri, Multilateral motion, Beginners kenshi Kempo

INTRODUCTION

Shorinji Kempo Indonesia started to participate at PON (National Sports Games) in 1977 at Jakarta. Since then Shorinji Kempo Indonesia started improving the quality of achievements, until 2011 Shorinji Kempo Indonesia for the first time in the match number of SEA GAMES at Jakarta. Shorinji Kempo is a kind of sport that can be learned by anyone without depending on gender, age and social status.

Indonesia Kempo Association (PERKEMI) has many Kenshi (members or people who join in Shorinji Kempo martial) spread throughout the province in Indonesia. One of them in Jakarta, which has now been fostering many kenshi who trained in the Dojo (training centre for kenshi) at Jakarta. In the game of kempo there is 2 (two) event contested: Embu (Neatness techniques) and Randori (Free Fight), there kinds of Embu in the pairing contested: Embu pairs of men and women, Embu pairs mix, men and women team Embu, and Embu mixed team. in Randori only separated by sex and weight.

Shorinji Kempo is not just train a technical and physical, but also mental training, discipline in daily life to all of kenshi in order to have a good moral. By following a correct and regular exercise can make kenshi has a movement skills, passion, good physical and mental to improve the technical skill.

At the beginning of the exercise kenshi given an basic exercise techniques in Shorinji Kempo techniques. Often in every workout, khensi is always initiate the exercise with the Kihon (basic exercises in conjunction with the command). Shorinji kempo techniques includes: dodge, block, lockdown, release, dings, punches and kicks.

From the above technique researchers want to focus the research to more kick techniques performed on Randori (free fight). Because in Randori only need 10 point to win the match. Gyaku mawasi geri kick technique (circular kick with the foot shell) is often used as a loud sound when hit Do (body protector), this kick is very profitable and can add points even though the kick slowly.

A lot of things that are not include the perfect attitude in the perfect posture techniques of gyaku mawasi geri, among others from attitude outlook, body shape, position of hands until a less sturdy footstool, this often happens on kenshi beginners because technique is hard to do, they should have a nice balance and understand the technique. Therefore, the coach should provide actions to train with the good method of exercise and not boring for kenshi so the purpose of exercise can be achieved effectively and efficiently.

In general the results of this research is produce a new products that will be used for trainers in activities to train or teach to make it easier to achieve the desired goal. The purpose of this research is to know the result of the efforts of improving the technical skills of gyaku mawasi geri with the multilateral motions against kenshi beginners at dojo Kramat Jati.

METHOD

This research method is the action research by using observation technique and observation by the cycle research. Principles of action research is the "real activities in routine situations" therefore the action research is not necessary to hold a special time, should not change the existing schedule (Suharsimi arikunto, Suhardjono, Supardi:6), so research time is adjusted with the workout schedule Dojo Kramat Jati that is three times a week in the Dojo Kramat Jati RPTRA Cililitan, East Jakarta for a month in December 2016.

The procedures used in this research is a model of Kemmis and M. Taggart, that is action research can be viewed as a spiral cycle of drafting the action planning, implementation, observation (observation), and further reflection may be followed by the next spiral cycle. In the model of Kemmis and M. Taggart consists of four stages in a single cycle, if in the class action is found the deficient and not to be creation of a predetermined target, then held improvement in planning and implementation of the next cycle.

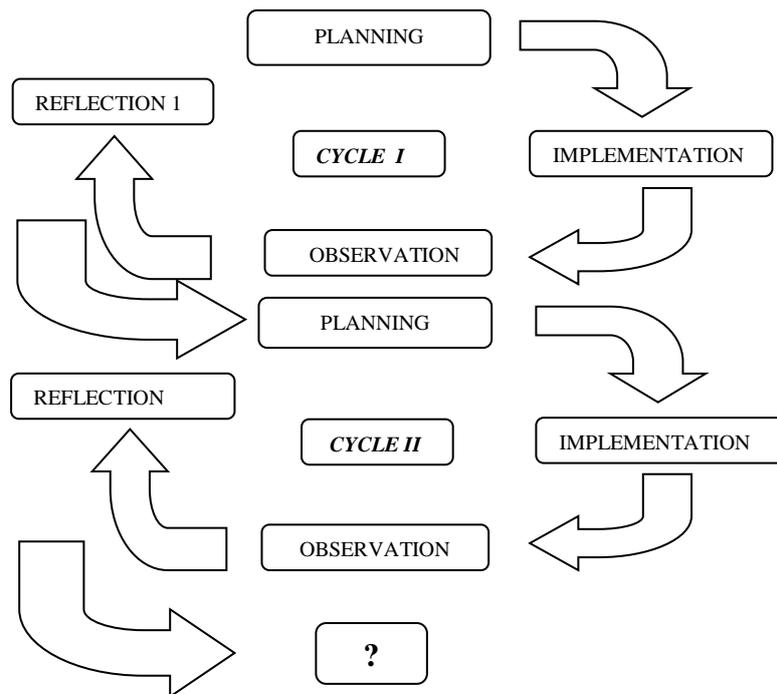


Figure 1. Planning Research Picture

Source: Suharsimi Arikunto, Suhardjono, Supardi. *The act of class research*

The population of this research is kenshi Dojo Kramat Jati ages 10-15 years that up to 25 people. The sample in this research as many as 15 people by means of Purposive Sampling, with criteria:

- a. Members dojo Kramat Jati;
- b. Kenshi was 10-15 years old;
- c. Kenshi in good health;
- d. Willing to follow exercise 3 times a week;
- e. Always present on each exercise

RESULT AND DISCUSSION

Motion skills is the ability to perform motion effectively and efficiently. Motion skills is an embodiment the quality of coordination and control over parts of the body involved on the movement. The more complex motion pattern to do, more complex coordination and control body to do. Motion skills obtained through the learning process that is by understanding motion and do repetitive motion that accompanied by the consciousness of thinking or whether the movement will be properly done (Sugiyanto, 1993:13).

Technical skills is the motion that follows certain patterns or shapes that require the coordination and control of some or all of the body that can be done with the learning process. Someone who was capable of doing well the skills of motion is said to be skilled. A skilled person is able to perform motion tasks effectively and efficiently. is said to be efficient in the implementation of motion if not spend a lot of energy without wasting energy that should not be excluded. While

said to be effective if the implementation of the motion in accordance with what is desired or according to its purpose. (Widiastuti, 2011:196)

Gyaku Mawasi Geri comes from the word Gyaku (rear) Mawasi (side) Geri (kicks) that is the kicks using the back leg with the target direction side ribs or head of the eyebrow. This kicks uses the back legs. Mawasi Geri (kicks circumference) is an attack technique that exists in Shorinji kempo martial arts are often used by athletes of Shorinji Kempo in Randori. Mawasi geri kick is attack that uses one leg folded/bend laterally and hit with the back legs. Usually used side attacks targeting the waist or chest.

There are 6 (six) stages to do technical of Gyaku Mawasi Geri:

1. The early stages of the horses left foot in front
2. Lift the back leg up to an angle of 90⁰
3. Rotate the legs and feet out or towards the left
4. Kick with the right leg straightens towards a circular side with legs shell
5. Right leg drawn and formed a defense position with legs
6. The right leg in front lowered by maintaining a balance

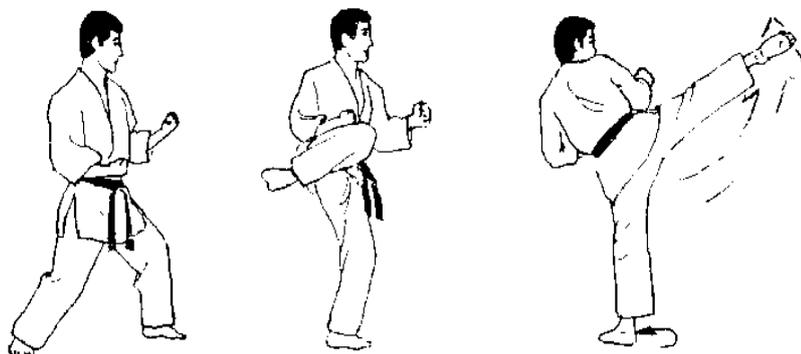


Figure 2. Gyaku Mawasi Geri Kicks

Source: <https://www.google.com/search?q=tendangan+mawashi+geri&client>
accessed on november 2, 2016

Muscles used when doing the technical of gyaku mawasi geri explained in Figure 3

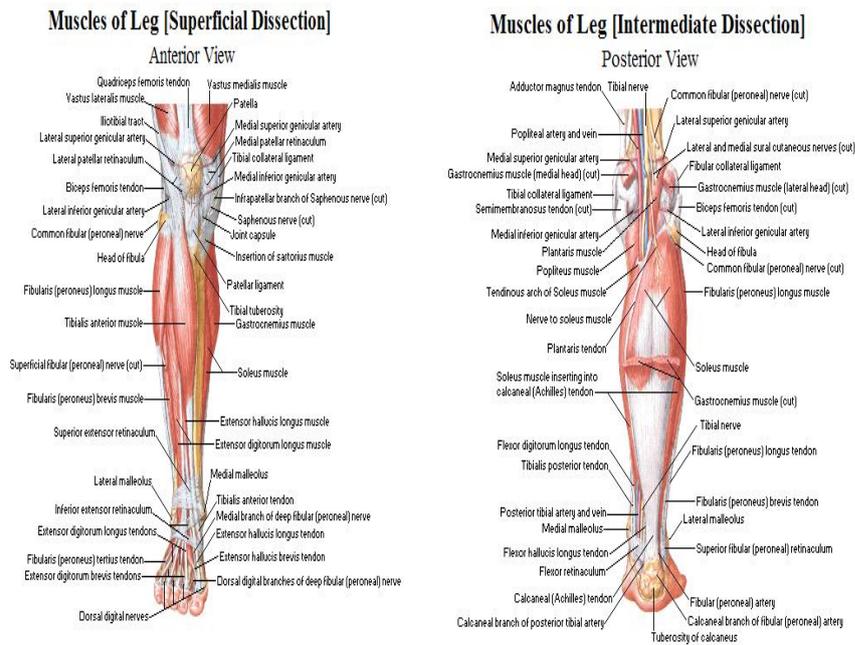


Figure 3. Limb muscles of the front and rear

source: <http://www.anatomiototungkai.com.org/> accessed on December 30, 2016 at 20.10 WIB

The multilateral motions. The principle of multilateral development is basic (truth become basic staples in thinking or acting) in the subject makes the perfect grow by involving various forms of motion skills applied to young athletes. At the beginning of learning the motion skills, young athletes should be involved in a wide range of forms of activity (motion skills of sports), so they have a basic stronger to support the exercise of motion skills specialties in the future (Aip Syarifudin, 1997:112). Multilateral is the overall physical development, the use of multilateral development plan is very important during the development phase.

Characteristics of the beginner age 10 – 15 years on Dojo Kramat Jati. Growth and development of children is ongoing but easier to understand and the experts group in several stages. At the time of children aged 10-12 years of growth are likely to be relatively slow. At that time also changes where the child who was originally moved from the home environment into the school environment. At this time the sports activity is highly recommended for children of elementary school age, growth and continuing coordination will experience perfection at that age, but that really stands out is the development of balance and skills especially in doing sports. Children aged 12-15 years is already included in the category of adolescents where they are during secondary school. At this time begin the rise of sense, reason, and self-awareness. In this period there is energy and tremendous physical strength and growing curiosity and want to try. (Sarlito Wirawan Sarwono: 23).

Adolescence is a time of transition from children to adults, not only in psychological but also the physical. Even the physical changes that occur that are a symptom of primary changes in adolescence, while psychological changes appear among other things as a result of that physical changes. (Sarlito Wirawan Sarwono: 52). Basic motion ability development in adolescence the basic motion of walking and running highly affects almost all of its activities. This is because adolescence are generally a lot of activities and events that require high mobility. At this age, a teenager will do a

lot of exploration and experimentation of knowledge around it and started trying everything to add to his experience. The usual activity done like sports or other public activities, such as driving around or play with friends his age. If a teenager has the ability the basic motion of walking and running is not good, will usually make the movement time of activity and exercise becomes slower. As a result later, socialization and the child's exploration of the style will be disturbed.

This research conducted by 2 cycles, each cycle is implemented as much as 6 times in accordance with the existing meetings. This cycle has stopped until Kenshi experience increased accordingly with the results of the specified target.

Based on the research results in beginning tests that went into passing standards that only 3 kenshi and 12 kenshi were not entered into passing standart, so passing percentage at the beginning of the test was 20%. While the first cycle that goes to the passing standard is 8 kenshi and were not entered into the passing standard is 7 kenshi, so passing percentage increased to 53%.

The results of action 1 is then analyzed by researchers and kolabolator for planning cycle II saw increased kick gyaku mawasi geri with the multilateral motions. After cycles II executed action than the value obtained is 100%, the thoroughly kenshi as much as 15 people with an average value of 80. Thus an increase in gyaku mawasi geri kick through the multilateral motions.

1. Results of the research cycle I

See the results of initial tests known to many kenshi dojo Kramat Jati which is still below average standards do kicks gyaku mawasi geri. Therefore, he had to do cycle I using the multilateral motions aimed at: 1. Kenshi dojo Kramat Jati understood the concept of gyaku mawasi geri kicks, 2. Kenshi dojo Kramat Jati can practice kicks motion stages of gyaku mawasi geri correctly, 3. Kenshi dojo Kramat Jati was able to do kick gyaku mawasi geri with the correct form, after learning a kick gyaku mawasi geri with the multilateral motions then retrieved as follows, the lowest value: 55, highest value: 80 and an average value of 69. The results of the initial test Distribution is visible from 15 kenshi, just 3 kenshi goes into the default value with the value range 71 – 75 (20%), 53 – 55 value range as much as 3 people (20%), 47 – 52 value range as many as 6 people (40%) and 41 – 46 value range as much as 3 people (20%) to the standard kenshi value of as much as 3 people (20%) and the number of children who do not pass or under standard is 12 people (80%). The results of the evaluation cycle I ability kicks gyaku mawasi geri Dojo Kramat Jati looks that 47% did not graduate and 53% that pass and can be seen in the following graph:

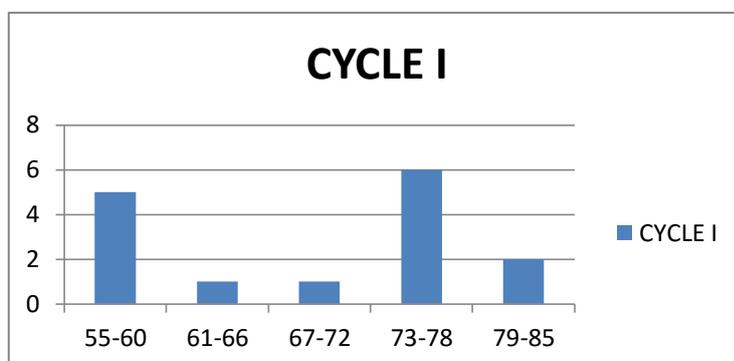


Figure 4. Bars chart cycle I assessment results gyaku mawasi geri kicks of dojo Kramat Jati
Source: research results

1. Results of the research cycle II

See tests and observation cycle I know there are kenshi dojo Kramat Jati still under standart about 7 persons (47 %). Therefore need to do a cycle II using motion multilateral and it aims to: 1. Kenshi dojo Kramat Jati understanding the concept of a gyaku mawasi geri kicks, 2. Kenshi dojo Kramat Jati can practice kicks movement stages of gyaku mawasi geri properly, 3. Kenshi dojo Kramat Jati able to kick gyaku mawasi with the correct form. After learning a gyaku mawasi geri by a multilateral and obtained following the lowest value: 75, the highest 86 and average value 80. The distribution cycle II appears that cycle of 15 kenshi all of them were successful completed and into standart value, 9 kenshi enter range of 75 -80 (60 %) and 6 kenshi enter range of 81- 86 (40 %). Cycle II assessment result of ability gyaku mawasi geri kick at the dojo Kramat Jati can be seen in the following charts:

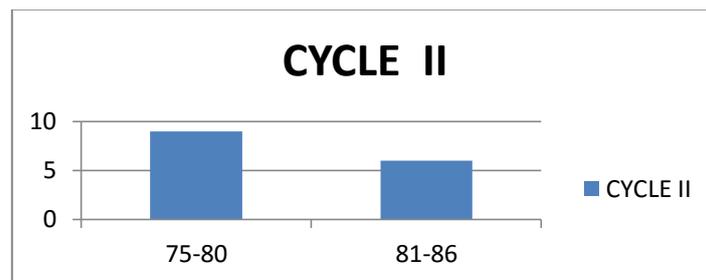


Figure 5. Bars chart cycle II assessment results gyaku mawasi geri kicks of dojo Kramat Jati

Source: research results

In terms of diagram and table in the cycle II shows that increased graduation the percentage of test start to cycle II from 20 % to 100 %. Based on data above it can be concluded that multilateral motion can upgrading a gyaku mawasi geri kick at dojo Kramat Jati.

The process of implementation research results

Table 1. The frequency distribution of the initial test results gyaku mawasi geri kicks

NO	INTERVAL	MIDDLE VALUE	ABSOLUTE FREQUENCY	RELATIVE PERCENTAGES (%)
1	41 - 46	43.5	3	20
2	47 - 52	49.5	6	40
3	53 - 58	55.5	3	20
4	59 - 64	61.5	0	0
5	65 - 70	67.5	0	0
6	71 - 75	72.5	3	20
TOTAL			15	100

Source: The data processing

Based on the initial test distribution table seen from 15 kenshi only 3 kenshi entering a standart with a range of value 71-75 (20 %), in the range of 53-58 is 3 persons (20 %), in the range of 47-52 is 6 persons (40 %), and value in range 41-46 is 3 persons (20 %). So kenshi incoming a standart value is 3 persons (20 %) and number of children did not pass or under standart is 12 persons (80 %)

Research result cycle I

Table 2. The frequency distribution of the results of cycle I gyaku mawasi geri kicks on kenshi beginners dojo Kramat Jati after making a multilateral motion

NO	INTERVAL	MIDDLE VALUE	ABSOLUTE FREQUENCY	RELATIVE PERCENTAGES (%)
1	55-60	57.5	5	33
2	61-66	63.5	1	7
3	67-72	69.5	1	7
4	73-78	75.5	6	40
5	79-84	81.5	2	13
TOTAL			15	100

Source: The data processing

Based on the table distribution of cycle I can see that from 15 kenshi only 8 kenshi that goes into standart value, 6 kenshi entering range 73-78 (40 %), and 2 kenshi entering into the range 79-84 (13 %). While the number of kenshi inappropriate standart value is 7 kenshi (47 %).

Research result cycle II

Table 3. The frequency distribution of the results of cycle I gyaku mawasi geri kicks on kenshi beginners dojo Kramat Jati after making a multilateral motion

NO	INTERVAL	MIDDLE VALUE	ABSOLUTE FREQUENCY	RELATIVE PERCENTAGES (%)
1	75-80	77.5	9	60
2	81-86	83.5	6	40
TOTAL			15	100

Source: The data processing

Based on the table distribution of cycle II appears that from 15 kenshi all of them were successful completed and into standart value, 9 kenshi entering range of 75-80 (60 %) and 6 kenshi entering range of 81-86 (40 %).

CONCLUSION AND SUGGESTION

The result of this research inconclusive, there is an increase from preliminary observations, cycles I and cycle II. This increase seen progressive of any cycles. For graduation kenshi dojo Kramat Jati of a test beginning to exist 3 kenshi (20 %), cycle II was 8 kenshi (53 %) and cycle II as many as 15 kenshi (100 %).

Researchers want to express a message to the coaches at the dojo, creativity the coaches in training for kenshi at the dojo respectively, sharpening knowledge of coaching the coach to that programs, expected the coach can improve the quality train in dojo Kramat Jati, the coach must always evaluate the kenshi during training to know the deficiency, the coach can increase their ability of shorinji kempo sports.

ACKNOWLEDGEMENT

Praise and gratitude researchers prayed to god. With respect researchers say thanks to Prof. Dr. Achmad Sofyan Hanief, M.Pd as well as expert lecturers of shorinji kempo. Researchers also want to thanks who have helped this research. Researchers realized that this research is still far from perfect,

therefore criticism and constructive suggestions indispensable. Final word of this research may be useful for coaches and readers.

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PROFILE THE PHYSICAL CONDITION OF JUNIOR WOMEN'S VOLLEYBALL ATHLETES KEDIRI OF 2016

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Abstract

The purpose of this research is to determine the extent of the physical condition on the junior women's volleyball athletes of Kediri. With the method used is a survey and test measurements. The research subjects junior women's volleyball athletes Kediri amounting to 12 athletes. The physical condition of this study is the flexibility, speed, agility, coordination, endurance, strength (leg muscle, abdominal muscles and arm muscles), explosive power (leg and arm). The results of the study achieved by junior volleyball athletes Kediri as follows : the physical condition of the flexibility has enough category, to the physical condition of the speed has enough category, to the physical condition of agility has enough category, for coordinating physical condition have enough category, for general physical condition endurance (VO2 Max) has poor category, to the physical condition of leg muscle strength has less category, for the physical condition of the abdominal muscle strength has less once category, to the physical condition of limb muscle power have less category, for the physical condition of leg muscle power has good condition, for the physical condition of the arm muscle power have poor category. From the data obtained above, the general physical condition of junior volleyball athletes of Kediri in the less once category.

Keywords: Profile, Physical Condition, Volleyball

INTRODUCTION

Background of the Research

Volleyball the first time was created by William G Morgan, a United States citizen. For the first time, volleyball only entered the ball to the opponent area with rope barrier which used as net to win and defeat the opponent.

In Indonesia, volleyball game was introduced in 1982 by The Dutch who taught in high schools. But it was not too famous in society and almost lost at that time. Then when Japanese came to Indonesia, the volleyball game was reintroduced to society. In the development, volleyball is very popular because has been played by many circles in Indonesia starting from men and women.

In volleyball game, every player should pay attention to physical and technical condition component which needed during the game. The components of technical condition involve flexibility, speed, agility, coordination, endurance, strength, and explosive power which needed to improve the athlete's performance. Moreover, the volleyball basis technique should be mastered by every athlete in order to gain smooth and uncluttered game. As stated by Sadikun and friends (1992:86) who said that to gain good, smooth, and uncluttered game, the players are demanded to master the volleyball basis technique.

It is supported by Bompa (1988:2) who stated that "Physical preparation must be considered as the important element during training in order to reach good performance." In volleyball game, every player should have good physical condition because according to Sajoto (1988:57) the good

physical condition components consist of: 1. Strength, 2. Endurance, 3. Explosive power, 4. Speed, 5. Flexibility, 6. Balance, 7. Coordination, 8. Agility, 9. Speed, 10. Reaction. From the components of physical condition mentioned, volleyball game needs almost the whole components.

Physical condition is one of components which cannot be separated in application or in the improvement. Sajoto (1995:8) said that in every effort to improve physical condition, an athlete should improve the entire components of physical condition. Viewed by physiologist, physical condition is someone's ability which can be detected to what extent someone's ability as supporter in sport activity.

Therefore, before every athlete join in a competition, they are expected to have good preparation for the components needed to confront everything during competition. If an athlete doesn't have good preparation in physical condition, it can be confirmed that she cannot have good performance during competition.

Physical condition training is expected to always pay attention to how to arrange rehearsal program to improve athlete's physical condition because in every improvement of physical condition must consider every component needed in volleyball game. From ten components above, in this research the researcher only focused in 7 components of physical condition which appropriate with the problem of this research for women's volleyball athlete in Kediri 2016 such as flexibility, speed, agility, coordination, endurance, strength, and explosive power. From those components above, it was described more in the important thing to the improvement of athlete's physical condition to be trunk flexibility, speed, agility, hand-eye coordination, general endurance (VO2 Max), leg muscle strength, abdominal muscle strength, arm muscle strength, limb muscle power, and arm muscle power.

Volleyball is a team sports which needs great teamwork and every team member is demanded to have good capability. By the improvement of Individual's capability, the individual's performance will also be improved because a volleyball player is demanded to master the basis technique of volleyball game.

The basis technique of volleyball must be mastered and learned well in order to improve the performance in volleyball game. Because the basis technique takes role in determining whether the team wins or lost during the competition beside physical elements, psychological, and tactics (Suharno, 1984:12). Some basis techniques that must be mastered by every athlete are serving, passing, smash, and block. To support the ability of the basis technique, an athlete is expected to have good physical condition because if an athlete has good physical condition, she can maintain her performance and will not lower her technical ability during the competition.

Research Question

From the explanation above, the researcher researched about the physical condition profile of junior women's volleyball athletes of Kediri in 2016. Based on the background of the research, identification of the problem, and limitation of the problem, the researchers formulated the research question to be to identify how physical condition profile of junior women's volleyball athletes of Kediri in 2016.

The Purpose of the Research

From the result of observation and interview done by the researchers when joined in every volleyball competition, it was found that there are some women's volleyball athletes in Kediri who had less category of physical condition component. Therefore, the researchers had initiative to identify how the physical condition of women's volleyball athlete in Kediri whom will be dispatched to Porprov in 2019.

The Significance of the Research

Theoretically, this research was expected to be beneficial for the next researcher as a reference and for the reader as new knowledge related with physical condition. While practically for the government, the writer, coach, and athletes could understand how the athlete's physical condition nowadays in order to have the better improvement in the future.

METHOD

In this research, the researchers used descriptive method as a technique of collecting data by test and measurement. The subject of the research was women's volleyball athletes in Kediri. The sample of the research was part of population or representation of researched population. Because the population of this research was only 12 athletes, the whole population will be used as the sample. The instrument used of this research was physical condition instrument consisting of: a. trunk flexibility, b. speed, c. agility, d. hand-eye coordination, e. general endurance (VO2 Max), f. leg muscle strength, g. abdominal muscle strength, h. arm muscle strength, i. limb muscle power, j. arm muscle power. This research involved many team members such as KONI (National Sports Committee of Indonesia) of Kediri which used as training place for athletes in Kediri, UN PGRI Kediri as facilitator which facilitated the need of this research, and the lecturer of Penjaskesrek in UN PGRI Kediri whom involved in completing this research.

Table 1. Standard and Physical Condition Components (Fenanlampir and friends, 2015)

No.	Component	Measurement technique	Category				
			Poor	Less	Enough	Good	Very good
1	Trunk flexibility	Sit and Reach	< 13,5	13,6 -15,5	15,6 - 18,0	18,1 - 19,0	>19,1
2	Speed	Run 30 meters	5,87 - 6,30	5,41 -5,86	4,97 - 5,40	4,51 - 4,96	4,06 - 4,50
3	Agility	Shuttle run	<17,40	15,75-17,39	14,10-15,74	12,43-14,09	<12,42
4	Hands eyes coordination	Hands eyes coordination	1-4	5-10	11-15	16-20	>20
5	VO 2 Max	MFT	<25	25,0-33,7	33,8-42,5	42,6-51,5	>51,6
6	Leg muscle strength	Leg dynamometer	<81,5	81,6-127,5	127,6-171,5	171,6-219,5	>219,6
7	Abdominal muscle strength	Sit up 30 seconds	<23	24-30	31-35	36-40	41-49
8	Arm muscle strength	Push up 30 seconds	<21	22-34	35-53	54-69	>70
9	Limb muscle power	Vertical jump	7,62-20,31	20,32-33,01	33,02-38,00	38,01-43,17	>43,18
10	Arm muscle power	Ball medicine	0-1,57	1,96-2,75	3,14-4,72	5,11-5,51	>5,90

To give rating and measurement in every test of physical condition, the researchers imported the score obtained into the standard given to obtain the ranking score and score integrity. The score conversion of physical condition component can be identified into:

Table 2. Score Conversion (Muslimin, 2003:350)

Category	Conversion
Very good	5
Good	4
Enough	3
Less	2
Poor	1

From the table, it can be explained that if the result of score in trunk flexibility sample test is over 19.10, the sample can be categorized into very good category (can be seen in table 1). And if that category is imported into the second table, the sample's score will be 5 (can be seen in table 2) and so on.

In determining the whole score result of the sample's physical condition component can be done by a) summing up the conversion score in every component of physical condition, b) then, the result of converted score is summed up and divided with the amount of physical condition component of the sport, c) the total result is imported into score range which can be seen in table 3.

Table 3. Score Range

Score Range	Category
> 5.0	Very good
4.0 – 4.9	Good
3.0 – 3.9	Enough
2.0 – 2.9	Less
1.0 – 1.9	Poor

The Research Finding

From the data that obtained by the testing result of the 12 women's volleyball athletes as the sample of the research which done by testing technique and measurement, the accumulated data was analyzed by using descriptive analysis calculation. To understand the data processed in this research, the researchers displayed the data description in the table below:

Table 4. Final Data of Physical Condition Component from Junior Women's Volleyball Athletes in Kediri

No.	Physical Condition Component	Total	Average	Category
1	Trunk flexibility	37	3.08	Enough
2	Speed	40	3.33	Enough
3	Agility	41	34.17	Enough
4	Hands-eyes coordination	41	34.17	Enough
5	VO2 Max	26	2.16	Enough
6	Leg muscle strength	13	1.08	Poor
7	Abdoninal muscle strength	14	1.16	Poor
8	Arm muscle strength	15	1.25	Poor
9	Limb muscle power	47	3.91	Good
10	Arm muscle power	24	2.0	Less
	Total	298	2.48	Less

RESULT AND DISCUSSION

Based on the research finding, one of factors which influenced the successfulness of an athlete related with physical condition was how the training factor done. In exercising, the important one was not only the quantity or how long the training done but also the standard of quality which should be considered well by coach or athletes. To reach the good physical condition which appropriate with what is expected needs training continuously because the training portion was not only about the quantity of training but also the quality and continuity.

The result of the research above showed that the circumstance of junior women's volleyball physical condition in Kediri was generally in less category. From the test result of each athletes, Novia Indah R's physical condition for sit and reach 17 cm had less category. For running 30 meters 5.6 second was in less category. For shuttle run 14.12 second was in enough category. For 12 times of hands-eyes coordination was in enough category. For Multi Fitness Test 25.3 was in less category. For leg dynamometer 60 kg was in poor category. For sit up 22 times in 30 second was in poor category. For vertical jump 47 inchies was in very good category. For ball medicine 2.29 meters was in less category.

The test result of Aliyyah Nurul Islamiyah's physical condition for sit and reach 19 cm was in good category. For running 30 meters 5.43 second was in less category. For shuttle run 15.59 second was in enough category. For 14 times of hands-eyes coordination was in enough category. For Multi Fitness Test 34.3 was in enough category. For leg dynamometer 60 kg was in poor category. For sit up 19 times in 30 second was in poor category. For push up 16 times in 30 second was in poor category. For vertical jump 36 inchies was in enough category. For ball medicine 2.45 meters was in poor category.

The test result of Betaria P's physical condition for sit and reach 12 cm was in poor category. For running 30 meters 5.06 second was in enough category. For shuttle run 15.53 second was in enough category. For 11 times of hands-eyes coordination was in enough category. For Multi Fitness Test 27.8 was in less category. For leg dynamometer 53 kg was in poor category. For sit up 21 times in 30 second was in poor category. For push up 11 times in 30 second was in poor category. For vertical jump 36 inchies was in enough category. For ball medicine 1.48 meters was in poor category.

The test result of Desi Fitriana's physical condition for sit and reach 16 cm was in less category. For running 30 meters 5.03 second was in enough category. For shuttle run 14.16 second was in enough category. For 18 times of hands-eyes coordination was in good category. For Multi Fitness Test 34.3 was in enough category. For leg dynamometer 53 kg was in poor category. For sit up 19 times in 30 second was in poor category. For push up 24 times in 30 second was in less category. For vertical jump 43 inchies was in good category. For ball medicine 2.3 meters was in less category.

The test result of Tessa Eka Septa Alvisa's physical condition for sit and reach 19 cm was in good category. For running 30 meters 4.96 second was in good category. For shuttle run 13.29 second was in good category. For 16 times of hands-eyes coordination was in good category. For Multi Fitness Test 28.8 was in less category. For leg dynamometer 63 kg was in poor category. For sit up 15 times in 30 second was in poor category. For push up 23 times in 30 second was in less category. For vertical jump 38 inchies was in enough category. For ball medicine 2.43 meters was in less category.

The test result of Mega Dian Sulistiyowati's physical condition for sit and reach 20 cm was in good category. For running 30 meters 4.96 second was in good category. For shuttle run 14.72 second was in enough category. For 17 times of hands-eyes coordination was in good category. For Multi Fitness Test 30.2 was in less category. For leg dynamometer 65 kg was in poor category. For sit up 24 times in 30 second was in less category. For push up 23 times in 30 second was in less category. For vertical jump 41 inches was in good category. For ball medicine 2.7 meters was in less category.

The test result of Astrid Dema's physical condition for sit and reach 14 cm was in poor category. For running 30 meters 4.75 second was in good category. For shuttle run 14.06 second was in good category. For 18 times of hands-eyes coordination was in good category. For Multi Fitness Test 30.2 was in less category. For leg dynamometer 74 kg was in poor category. For sit up 23 times in 30 second was in poor category. For push up 16 times in 30 second was in poor category. For vertical jump 44 inches was in very good category. For ball medicine 2.58 meters was in less category.

The test result of Galuh D.P's physical condition for sit and reach 23 cm was in very good category. For running 30 meters 5.06 second was in enough category. For shuttle run 13.09 second was in good category. For 19 times of hands-eyes coordination was in good category. For Multi Fitness Test 26.3 was in less category. For leg dynamometer 93 kg was in less category. For sit up 24 times in 30 second was in less category. For push up 21 times in 30 second was in less category. For vertical jump 43 inches was in good category. For ball medicine 2.83 meters was in less category.

The test result of Alvina S.M's physical condition for sit and reach 19 cm was in good category. For running 30 meters 5.34 second was in enough category. For shuttle run 13.88 second was in good category. For 14 times of hands-eyes coordination was in enough category. For Multi Fitness Test 26 was in less category. For leg dynamometer 70 kg was in less category. For sit up 20 times in 30 second was in poor category. For push up 18 times in 30 second was in poor category. For vertical jump 38 inches was in enough category. For ball medicine 2.21 meters was in less category.

The test result of Dwi Septi H's physical condition for sit and reach 14 cm was in poor category. For running 30 meters 4.93 second was in good category. For shuttle run 13.16 second was in good category. For 14 times of hands-eyes coordination was in enough category. For Multi Fitness Test 26 was in less category. For leg dynamometer 77 kg was in poor category. For sit up 20 times in 30 second was in poor category. For push up 20 times in 30 second was in poor category. For vertical jump 42 inches was in good category. For ball medicine 2.53 meters was in less category.

The test result of Eva Maulana's physical condition for sit and reach 19 cm was in good category. For running 30 meters 4.78 second was in good category. For shuttle run 14.82 second was in enough category. For 15 times of hands-eyes coordination was in enough category. For Multi Fitness Test 26 was in less category. For leg dynamometer 57 kg was in poor category. For sit up 21 times in 30 second was in poor category. For push up 11 times in 30 second was in less category. For vertical jump 46 inches was in very good category. For ball medicine 2.38 meters was in less category.

The test result of Vivi Septian's physical condition for sit and reach 27 cm was in very good category. For running 30 meters 4.9 second was in good category. For shuttle run 14.95 second was in enough category. For 13 times of hands-eyes coordination was in enough category. For Multi Fitness Test 25.6 was in less category. For leg dynamometer 58 kg was in poor category. For sit up 22

times in 30 second was in poor category. For push up 19 times in 30 second was in poor category. For vertical jump 43 inches was in very good category. For ball medicine 2.18 meters was in less category.

From the data explained above, it can be concluded that for the flexibility of physical condition component of junior women's volleyball athletes in Kediri was in enough category. Therefore, athletes are expected to improve the training portion which supports in reaching the maximal flexibility. The training that can be done is maintaining the flexibility by doing static stretch out, dynamic, and PNF.

For the speed component of physical condition, the junior women's volleyball athletes in Kediri were in enough categories. Therefore, the athletes should be able to improve their speed and consider the training program. The examples of speed training that can be applied are interval sprint, acceleration sprint, deceleration, down-hill and up-hill.

For the agility component of physical condition, the junior women's volleyball athletes in Kediri were in enough categories. Therefore, the athletes should be able to improve their agility. The trainings that can be applied are zig-zag, shuttle run, and steeplechase. For the coordination component of physical condition, the junior women's volleyball athletes in Kediri were in enough categories. Therefore, the athletes need to improve the training in order to have good coordination. The trainings that can be applied are throwing drill and ball catching.

For the endurance component of physical condition (VO2 Max), the junior women's volleyball athletes in Kediri were in less categories. Therefore, the athletes need to improve their endurance because this component of physical condition is the basic component which very needed by every athlete to endure the performance during competition. Thus, the athletes should be given good training that aim to the improvement of maximal endurance in every training. The trainings that can be applied are fartlek, interval training, and cross country.

For the strength component of physical condition, the junior women's volleyball athletes in Kediri were in poor categories. Therefore, in every component of strength such as leg strength, abdominal, and arm should be improved to support the good achievement. The training that can be applied for leg strength is squat-thrust. For arm strength are pull up, cining, and dumbbell swing. And for abdominal strength are sit up and back up.

For the physical condition of leg muscle power, the junior women's volleyball athletes in Kediri were in good categories. Therefore, the athletes should maintain their physical condition and have better improvement. For the physical condition of arm muscle power, the junior women's volleyball athletes in Kediri were in enough categories. Therefore, the athletes should be able to improve it by exercising continuously. The training that can be applied are weight training like leg press and lift weight.

The research finding showed that the physical condition of the junior women's volleyball athletes in Kediri needed to be improved in order to gain the good physical condition which appropriate with the determined standard.

CONCLUSION AND SUGGESTION

From the research done by the researchers and the data displayed, it can be concluded that: "profile the physical condition of the junior women's volleyball athletes of Kediri in 2016 was in less category."

Thus, the suggestions are:

1. To the coach
The coach is expected to be able to improve the athletes' physical condition by applying training principle and giving weight training as the exercise.
2. To the athletes
The athletes are expected to be able to improve their physical condition by increasing the training portion in order to maintain the physical condition.

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THE EFFECTIVENESS OF THE MODEL BASIC TENNIS GOENRICH TECHNIQUE EXERCISE TO INCREASED ABILITY TO PLAY TENNIS IN THE PROVINCE OF NORTH SUMATRA

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Abstract

The problems discussed in this research is the technical ability of lawn tennis player in North Sumatra Province is low. This proven with the observation, distribution of questionnaires and interviews conducted by the authors that shows a serve, groundstrokes (forehand and backhand), and a volley with error rate of a serve is 56%, forehand 48%, backhand 53% and punch volley 54,8% of 40 samples of the tennis players of North Sumatra. Therefore, the basic technique practice models of innovative tennis is required. This research will produce a new model in the basic technical tennis courts are called Goenrich models which is a effective exercise techniques to increase the ability of the basic techniques of beginner tennis players. The method used in this research through experimental quantitative approach. The research design used is rondheim control group pretest-posttest with the sampling of 40 beginner tennis players. The research instrument used is the battery test Hewitt with pairedt-test data analysis techniques. The results of this research are international publications in journals indexed by Scopus with impactfactor is 0,455. Furthermore, this research also became an approved dissertation by a team of promoters and will be written in as a recommended reference book to practice the basic techniques of tennis beginner players.

Keywords: Goenrich Model Technique, Beginner Tennis Player, Experimental Quantitative, Rondheim Control Group Pretest-Posttest, Battery Test Hewit, Pairedt-test

THE DIFFERENCE OF TRAINING EFFECT OF PLYOMETRIC SIDE JUMP SPRINT AND HALF SQUAT TO THE POWER OF LOWER EXTREMITIES
(An Experiment in Male-athletes age 14-15 years at Muria Karate Club in Kudus Regency 2016)

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Abstract

The background of this study backs on the data of vertical jump test results that are on average still lacking, a lack of exercise lower extremity muscle power in male- karate athletes aged 14-15, whereas the research problem of this study is: To know whether there are influences of plyometric exercises and half squat against the power of lower extremity of karate athletes of Kudus Muria Karate Club, and the objective of the research is: To know the difference between the two exercises. This method of this study is quantitative research by experiment and the populations are 16 athletes. Meanwhile the sampling technique used is total sampling technique with a number of 16 athletes. The technique of data analysis uses pre-post test of the obtained data. Based on the calculation of the obtained plyometrics results $t_{4.271} > t_t = 3.7852$ and a half squat $t_{6.524} > t_t = 3.295$. Testing criteria states that reject H_0 if $t_{(th)} > (t_t)$, then the first and second hypothesis are accepted, but the third hypothesis there is no significant effect found on both practices. The conclusion of research is that plyometric and half squats exercises can be implemented to increase the power of the lower extremities. The researcher suggest that (1) In giving training athletes the instructors should consider biomotoric age, (2) for the future researchers it is hoped that they can consider the age and the volume of load.

Keywords: Plyometric, Half Squat, Lower Extremity Power

INTRODUCTION

The establishment and sport development are carried out through the stage of exercise introduction, monitoring, scouting and talent development and performance improvement. Talent development and performance improvement can be achieved by an athlete when he can gradually develop talent that will lead to an achievement. (Act No. 3 of 2005: 21).

Definition of an exercise in foreign terminology is often referred to training, exercises, practice. The definition of exercise comes from the word practice that is an activity to improve the skill of exercise using various equipment in accordance with the objectives and needs branch of sport. (Ambarukmi 2007: 1)

Karate is a martial sport that has been growing in Indonesia. Karate is a blend of elements of art, technique of self defense art, sports, as well as the inner (spiritual) in containing arts and culture of society to bear and develop martial arts. Karate organization in Indonesia has long been established, but the performance is still far from expectations. It was seen when a team of Indonesian Karate participating at international Championship, such as the Sea Games XXIV, 2007 in Thailand, for example, Karate from Indonesia is still ranked below Vietnam and Malaysia. This phenomenon should be the basis for the establishment for karate athletes in Indonesia. ([Http: www.Pbforki.Org/PBFORKI-13-153-19122007.pdf](http://www.Pbforki.Org/PBFORKI-13-153-19122007.pdf))

Many karate instructors still tend to use the most favored traditional methods in physical training and technique, yet many approaches have not been implemented to see differences in

physical abilities of athletes, as well as the scientific method, for example: they only look at the muscle strength of the lower limb athlete before giving portions and a program of exercise so that the result is maximum.

The achievement of Karate in Kudus regency especially in karate branch of karate undergo the decrease from 2012 - 2014. In the championship of regional student sport game (POPDA) and national student sport Olympic (O2SN) the level of Central Java branch of Karate at Kudus District cannot donate medal. It is so apprehensive, whereas Kudus regency has a huge potential in developing the karate martial art. Regional government along with KONI (Indonesian sport committee) of Kudus regency has made various efforts in order to improve the achievement of Karate, for example: KONI (Indonesian sport committee) has always held POPDA (regional Student Sport game) and O2SN (National Student Sports Olympic) Student's level in Karate sport. Both KONI and POPDA also sent the regional Karate athletes to participate in championship held by Central Java province or by FORI (Federation of Indonesian karate sport). KONI and POPDA also support all Karate Training Centre to hold karate championship in regional, Central Java, and national level. The government also attempts to provide a stimulus to all athletes to perform better, by providing welfare to the athletes and instructors who excel.

Muria Karate Club (MKC) is the first Karate club in Kudus regency established in November 2014. This Club's Manager is Niendyo Woro Permono. Niendyo Woro Permono who is at presents still existing in supplying local athletes who have the potential to improve their achievement. He also recruited former national athlete namely Yellovin Prasetya as a trainer. Moreover a few athletes who've ever won at the regional level, such as: Good Fadli (Kata), Muhammad Azka Yafina (Kumite), Rizal P (kumite), M. Farid (Kumite), Hasnan Habib Saiful (Kumite), Nurul Laili MU (kumite), Falahuddin (kumite), M. Jordan Falatekhan (kumite) were recruited too.

The establishment for physical conditions is intended to optimize the physical ability sportsman as the basis of scholastic achievement. The establishment of physical condition should be given in accordance with technique of exercise, tactics and mental. If one of these components is eliminated, then the training program throughout the year will not be achieved. To achieve high performance, an athlete must have three elements in it, namely: 1) Talent, 2) high motivation, and 3) hard practice (Mansur, 2007: 2).

One of the most supportive physical conditions in practice is a power (explosive). If the exercise is intended to increase the power (explosive power) is trained to athletes aged 14-15 of male karate of Muria karate club in Kudus regency in 2016 so the instructors should know which muscles will be given appropriate training portion in such ages.

Although the male karate athletes aged 14-15 of Muria Karate Club in Kudus Regency in 2016 have been already trained in such a way, however many male athletes in the 14-15 years old still complaining about the weakness of the muscles of their lower extremities.

This is proved in the results of the vertical jump test on male athletes aged 14-15, the results from 16 athletes aged 14-15 are only 5 persons having pretty good results while 11 others are less. That's why the researcher is very concerned about the exercises being conducted in 2016 for athletes in Muria Karate Club.

Power is one of the most important components of physical condition for karateka who are conducting the exercise, in this case the power can be generated maximally when there is a systematic and structured practice. (Explosive) of muscle power is a very important component to

perform explosive movements (fast, strong, and explosive). Power is the mixture of power and speed, when it is formed in the lower limbs of an athlete in MKC therefore it will be very useful for developing the achievements for the karateka.

The exercises aim to improve a strong and fast movement has long been known, while in recent decades it has emerged the exercise that focused on explosive force. Exercises to increase the explosive force can be reached by various methods such as plyometric and weight training. Plyometric exercise is one of the favorite exercises carried out by the current instructor, especially to sports that require explosive power of the lower limb muscles, thus the explosive force (power) is indeed important to use in Karate. While the exercise load like half squats can create explosive force (power) of lower extremity with a continuously or (repeatedly) program performed with the intensity as the portion of the athletes.

STATEMENT OF THE PROBLEM

Based on the background and limitation of the problem then the researcher is able to formulate the problems as follows:

1. Is there any influence of plyometric exercises in the form of side jump sprint exercise in producing explosive force (power) on the entire lower extremity?
2. Is there any influence of weight training exercises in the form of half squat exercise in producing explosive force (power) on the entire lower extremity?
3. Is there the different significant influence between the exercise plyometric exercises in the form of side jump sprint and half squat against the explosive power (power) lower extremity of MKC Kudus Regency?

DISCUSSION OF PROBLEMS

1. Karate, Kihon, Dach, and Geri

Karate is a martial art that is developing in the present era. In this discussion, I am trying to explain about Karate-do Shotokan group especially in Indonesia in their competition provide an achievement for Indonesia. Karate in Japanese letter consists of two syllables of "kara" means empty, "te" means hand, and Do means the road / heading track Karate is a science of martial arts using bare hands or without arms, or karate is a technique to fight with bare hands, without weapon, however karate should not be seen as only a technical skill fight its self, because in fact the karate has a meaning far beyond just technique of martial art. Karate is a way of life in which its goal is to give possibility for someone to be able to realize his potential power, both physical and mental aspects related to the spiritual. If karate will ignore the spiritual side, the physical side is less meaningful. (J.B Sujoto 2006: xvii).

a. The techniques of Karate and using lower extremity muscles

Kihon literally means ground or foundation. Kihon Karate practitioners must master kihon well before studying the word and Kumite. Kihon also will always be associated with Hara as the central source of strength. The principle of Ai which always rotates seems quite synchronic with the anatomy of the pelvic region that becomes the container of overall wrapper Hara overall. (Abdul Wahid 2007: 47) Dach is the most important basic movement, because dachi is the foundation of all movements that can generate power lower extremities. Geri (kick) is the basic techniques of karate using

locomotors of bottom leg muscle. Many different and diverse forms of kicks in karate. Geri is used in the fight at a distance that is not too tight, thus power is needed for strong and fast kick.

b. Exercise Plyometric Side Jump

Sprint

Plyometric exercise is an exercise that is very popular-many instructors to improve the condition of the component 10 physics. as well as to increase the power of the lower extremities in athletes who need strength and plyometric speed. Plyometric exercise also works on the principle that the concentric muscle contraction is much stronger if it immediately follows eccentric contraction of the same muscle. Eccentric muscle movement occurs when the muscle lengthens under load, such as bicep curls decline phase concentric muscle contraction occurs when the muscle shortens under load (John sheperd 2008: 11).

Side jump sprint training is one of the models that uses a low bench or a similar object to jump as a truncated cone and used as the finish line. (Marino 2010: 51)

c. Load half squat exercise

Exercise of load or weight training is a form of exercise using outside weights or just using his own body as a burden as well as using burble and gym machine or freeweight. Squat (Deep Knee-Band or Half Squat), 2) Front - Squat, 3) Back Squat.Squat is load stored on the shoulder. Furthermore, both knees flexed and then straightened again. This exercise aims to strengthen the muscles of the leg. (M. Sajoto, 1995: 58-59). Half squat is one of movement_to bend the knee up to the elbow parallel to the knee or by bending the knees up to a 90 degree angle and then stand up again (Escamilla et al, 2001).

METHODS

This study is a quantitative research using an experimental research. With the designs of the study are as follows:

Explanation:

Pre- Test treatment Post -Test
Category 1: O1 X1→ O2 →
Category 2: O3 X2 → O4 →

Information:

O1: pre test vertical jump (exercise of jump side sprint).

X1: treatment of side jump sprint training.

O2: post test vertical jump (jump side sprint exercise).

O3: pre test vertical jump (half squat exercises).

X2: half squat exercise treatment

O4: post test vertical jump (half squat exercises).

Variable

The variables in this study are included independent variables: Exercises side sprint jump and half squat exercises. The dependent variable is the power of lower extremities.

Population and sample

The populations of this study are 16 people of male- karate athletes aged 14-15 years old at Karate Club Muria Kudus. The samples of the study are 16 persons of male_karate athletes aged 14-15 in Muria Karate Club Kudus.

The equipments used:

Tools used to obtain the study are as follows:

1. Form of a pre-post test that has been made by researcher.
2. The test tool of vertical jump (unit of centimeters) on the wall.
3. Stopwatch (seconds).
4. A digital camera which is used to take pictures of athletes leap.

Research Process:

In this research the researcher is collecting data by conducting of pre-post test. Based on the data collection process the first things to do are:

1. Early pre test by means of vertical jump test, to know how strong and how fast stepping on athlete of Muria Karate Club. It is also to know whether the power of the MKC Karate athletes is weak or good.
2. In fact after conducting the pre-test the researcher got an average result of vertical jump is not enough. Therefore the researcher provided treatment for karate athletes by a training provision. The exercises given for karate athletes such as training of side jump sprint and half squat exercise in order to promote the power of their lower extremities.
3. After giving the side jump sprint exercises and half squat drills for 2 months, then post test was performed by using a vertical jump test. To know whether or not there were influence or increase of the power of their lower extremities. After being given a -2 month training

Technique of Data analysis

The researcher then is going to analyze the results of pre-post test with a vertical jump test tools using a statistical analysis by analysis of descriptive statistical methods.

RESULTS AND DISCUSSION

The following data are the explanation of the results of the conducted research that is: Research data serves to facilitate the research. The research data include pre test & post test data of the conducted experiment. In addition the result of division of the group from the data pre test that uses the subject of M-S pattern before being treated will be presented by the researcher.

NO	NUMBER	BEST SCORE	RANK	CATEGORY
1.	RONI	54	1	A
2.	AZKA	54	2	B
3.	ULIN	53	3	B
4.	SAUQI	53	4	A
5.	BAGUS	52	5	A
6.	FATTAH	50	6	B
7.	ADI TRI	49	7	B
8.	SIGIT	49	8	A
9.	UMAM	48	9	A
10.	RIZAL	47	10	B
11.	ALDI	46	11	B
12.	AGUS	46	12	A
13.	JORDAN	45	13	A
14.	ZAKKI	45	14	B
15.	HABIB	44	15	B
16.	RADIT	40	16	A

Explanation:

A: Category X1: side jump sprint exercise

B: Category X2: half squat Exercise

After using the M-S pattern hereinafter training provision has been classified. Then data of result of pre-post test using the test tool vertical jump, then analyzed with normality test, paired t test statistic. Then the table below figure out about normality test results of the research data.

Normality Test Results

Category	P	Sig	Explanation
<i>Pretest Side jump sprint</i>	0.11	0.00	Normal
<i>Pretest half squat</i>	0.15	0.00	Normal
<i>Posttest side jump sprint</i>	0.12	0.00	Normal
<i>Posttest half squat</i>	0.19	0.00	Normal

Tabel 4.14 Paired Differences

		Mean	Std. Deviation	Std. Error Mean	t table		t count	df	Sig. 2-tailed
					Lower	Upper			
Pasangan 1	Plyometric Pre & Post	3.3750	2.2638	0.8004	1.4824	5.2676	4.217	7	0.004
Pasangan 2	Half Squat Pre& Post	2.8750	1.2464	0.4407	1.0030	4.2980	6.524	7	0.000
Pasangan 3	Plyometric Post&Half Squat Post	0.3750	3.1595	1.1170	-2.2664	3.0164	0.336	7	0.747

Then in the above table below shows that t hit > t table:

t table is obtained by deducting Lower & Upper result, while t calculation is clear.

CONCLUSIONS AND RECOMMENDATIONS

The conclusions of this research:

- 1) There is an effect of plyometric exercises sprint jump to the lower limb/extremity muscle power of athletes of Karate Club Muria Kudus Regency in 2016.
- 2) There effect of half squat to the power of lower limb/extremity muscle of athletes Karate of Muria Club Kudus.
- 3) There is no significant difference at exercise conducted by Karate athlete of Muria Karate Club in Kudus Regency in 2016.

Suggestions on this research:

- 1) In improving lower extremity muscle we can apply plyometric exercise side sprint jump and half squat exercises.
- 2) To pay attention to exercise for outside of uncontrolled treatment to enable them to have possible different portion of training.

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WATER GAMES IN THE SWIMMING LESSON

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Abstract

In the swimming lesson, teachers are constantly seeking new ideas which will bring variety and interest into their lessons. If the teacher are to adhere to their aim of giving pupils a meaningful and enjoyable water experience, their must include recreational swimming in every lesson. Their use games in the swimming lesson. In order to choose water games they must take into account the following factors : 1) age and ability of the group, 2) nature and number of the participants, 3) time and water space available, 4) equipment available, 5) air and water temperature and 6) whether the competitive factor is an incentive or a disincentive to that particular group.

Keywords: water games, swimming lesson

INTRODUCTION

Swimming is a great way for families to get moving and have fun together, Being in the water helps us be more active and stay healthy and is also a great way to unwind and have lots of fun. Swim for life is really enjoyable part of making a change for life, helping us live healthier, happier and longer live.

In the swimming lesson, teachers are constantly seeking new ideas which will bring variety and interest. If she/he is to adhere to her/him aim of giving pupils a meaningful and enjoyable water experience, her/him must include recreational swimming in every lesson. There appears below a list of games and activities which teachers and parents may like to use in the swimming lesson. The list is by no means exhaustive, nor are claims made about its originality. The list is just useful reference which some may wish to consult for ideas. Whenever she/he choose water games she/he must take into account the following factors :

1) age and ability of the group, 2) nature and number of the participants, 3) time and water space available, 4) equipment available, 5) air and water temperature and 6) whether the competitive factor is an incentive or a disincentive to that particular group.

Water games in the swimming lesson

Water games are games played in a body of water, such as a swimming pool, pond, lake or river. Water games are a great way to help kids learn to swim. The best way for a child to gain core skills and confidence in and around water is through fun and games. Water games are not just for teachers. Parents and guardians should get involved as well, and games could be in the bath as much as in a swimming pool. The water games are:

Games for beginners swimmers

1. Breath holding : any number of players.
Equipment :
none
The children inhale, place their heads in the water and blow the air out under water to sound like a motor boat

2. Repetitive breathing : any number of player
Equipment :
none
The children pretend to be water fowls which put their heads into the water for food, lift their heads out, eat the food and lool for more

3. Pretending : any number of players
Equipment :
none
A whole variety of basic skills can be taught by asking the swimmers to imitate other things

4. Turtle float : any number of players
Equipment :
none
The children stretch out arms and legs, place their heads in water, float, lift their heads and float again

5. Prone glide : any number of players
Equipment :
none
This resembles a canoe

6. Back glide : any number of players
Equipment :
none
The arm are at the side so that the boat is broader

7. Kick glide : any number of players
Equipment :
none
The sound of kicking is like a paddle steamer

8. Wheelbarrow race : pairs of contestants
Equipment :
none

One swimmer lies prone on the water with legs apart. His/her partner holds onto his/her ankles and at the signal. Go he/she pushes the other swimmer to the far side. The wheelbarrow may or may not use his/her arms. The first pair across wins.

9. Man to man : equal teams of players

Equipment : water polo ball

Each team is individually numbered. One team lines up at one side of the swimming pool, the other at the opposite side. Whether in deep or shallow water depends on ability of the swimmers, The teacher stands on the side and throws the ball into the centre of swimming pool, calling out a number as he/she does so. The two swimmers whose number is called swim to the ball/ Each tries to bring it back to his/her side. If the swimmer in possession is touched by the other he/she loses a point, if he/she gets the ball 'home' he/she gains a point. This team with most points wins.

10. Water potato race : 8-10 players

Equipment : 10 rubber bricks or objects which will stay on the bottom.

The objects are place in waist-deep water, in rows of 4 or 5. The first player stands about 3m in front of the first brick. At the word "go" he/she wades to the first one, picks it up, returns it to land and goes back for the remaining objects. The first team to retrieve all the objects wins

11. Balloon relay : any even number of players

Equipment : balloon for every player

Divide into two equal teams. One half of each team lines up at the deep end holding a balloon. The other half of the team is at the shallow end. The first player from the shallow-ender goes into waist deep water. At a signal the first deep-ender jumps into the water, holding his/her balloon. He/she levels off, turns on his/her back and kicks to the shallow end, holding his/her balloon with outstretched arms above his/her head. When he/she reaches his/her partner, the partner takes the balloon from him/her and kicks on his/her front to the deep end. When he/she reaches the deep end, he/she places the balloon on the edge. As soon as the second player sees the balloon on the edge, he/she jumps in and the process is repeated. The winning team is that which has returned all the balloons to the deep end.

12. Retrieving stones : 6 or more players

Equipment : stones

Player line up with their backs to the side of the pool. Stones are placed at intervals across the pool. At the signal "go" they start across the pool picking up one stone apiece by ducking in the water. The first player across is the winner.

13. Water polo : equal teams of players

Equipment : water polo ball

A game for the shallow end played across the pool. It is like water polo but with few rules. Scoring can be done in any way, either with a goal or by throwing the ball to be caught by one's own goalkeeper. Movement through the water can take any form.

14. Armband water polo : equal teams of players

Equipment : armbands for each player

A modified game of water polo involving the whole pool area. Each player is "safe" in deep water because he/she is supported by the artificial aids.

15. Simon says : any number of players

Equipment : none

Swimmers stand in chest-deep water with a leader also in the water. The usual Simon says game is played. The leader gives commands like "put your head in the water", "touch your toes", "float on your back" etc. If the command is prefaced by Simon says it should be obeyed, if not it should be ignored. Swimmers who react wrongly lose a point or pay a forfeit.

16. Chain reaction : circles of 5 or 6 players

Equipment :

none

Swimmers form a circle in waist-deep water. The group leader tells them all to hold hands. He/she squeezes the hand on his/her left at which point that swimmer on his/her left takes a breath and ducks down into the water. The submerged swimmer squeezes the hand on his/her left and the process is repeated until all are underwater. The leader now squeezes the hand on his/her left again and the swimmer comes up and squeezes the hand on his/her left and so on.

17. Coins in a fountain : any number of players

Equipment : coloured stones or chips

A number of coloured stones are thrown into the shallow end of the pool. At the signal "go" swimmers bend down into the water and with one breath only allowed, have to pick up as many stones as possible.

Games for intermediates swimmers

1. Tunnel relay : equal teams

Equipment :

none

Teams line up parallel to each other, standing in waist-deep water with feet astride. At the signal "go" the player swims through the legs of the others until he/she gets to the front. The whole team moves back and the next player swims through the "tunnel". Repeat until the team is back in its original order. The first team to finish wins.

2. Leap-frog relay : equal teams of player

Equipment :

none

The teams line up parallel to each other. At the signal “go” the rear player leap-frogs over all members of his/her team. When he/she gets to the front the whole team moves back and the next man/woman goes. The game ends when the original team order is restored.

3. Volleyball : equal teams of players

Equipment : rope stretched across the pool at the shallow end, 1m above the water.

The rules are as for land volleyball. A point is lost whenever the ball lands in the water. Play up to an odd number of points.

Have two players stand in the water in front of each team and about 9m away. The teams line up side by side. At the signal “go” the first swimmer in each team swim round the standing swimmer, using any stroke and back to his/her team. He/she touches the next swimmer who does the same. This is repeated until all have swum. The first team to complete the process wins.

5. Balloon relay : equal teams of player

Equipment : balloons

Divide each team into two and form them up in a shuttle position. At the signal “go” the first swimmer in each team, using leg-kick only, swims towards his/her team-mate keeping the balloon in the air with his/her hands. He/she does not hold the balloon but keeps it up by tapping it. If the balloon touches the water, the swimmer stops, retrieves it and then swims on. There must be no movement unless the balloon is in the air.

6. Underwater tag : any number of players

Equipment :

none

One player is designated “it”. The other swimmers jump into the water while “it” counts up to ten. At the end of the count, he/she jumps into the water and tags any swimmer. The tagged swimmer then becomes “it”

7. Dribble race : equal teams of players

Equipment : two water polo balls

Divide the teams into shuttle formation, The first swimmer in each team propels the ball to his/her team mate at the opposite side of the swimming pool. The second swimmer dribbles the ball back and so on. The first team home wins.

Games for advanced swimmers

1. Push ball : equal teams of players

Equipment : large inflated ball

The 2 teams line up at each end of the swimming pool, The ball is tossed into the middle of the swimming pool as in water polo. On the signal “go” the teams dive or jump into the water and must try and push the ball with their hands or feet into the opposite goal. No passing is allowed.

2. Floatboard relay : equal numbers of players

Equipment : floatboards

The 2 teams are divided in half and placed at opposite ends of the swimming pool. The first swimmer in each team holds the float-board with one hand and the side of the swimming pool with the other. At the signal “gp’ the first swimmers swim across the swimming pool and hand the board over to the first swimmer at the other side. The first team to complete wins.

3. Skills race : equal teams of players, maximum of twenty

Equipment :
none

Divide the players into 2 teams, numbering each player. If there are twenty players each team is numbered from 1 to 10. The teams face each other with 1 in the team A standing opposite 10 in team B and so on. The teacher calls out a number and a swimming stroke or technique. The 2 swimmers whose numbers have been called must exchange places using the technique, the teacher has detailed and no other. The first to change places gains a point.

4. Chain dodge : any number of swimmers

Equipment :
none

One swimmer swims from the rest and calls out the name of one of the reminder. The one who has been called must try and swim past the caller without being touched. If he/she is touched, he/she calls out a name and both “callers” try and catch the new swimmer, Continue until there is only 1 swimmer left. Encourage surface diving and underwater swimming in this game

5. Dive and recover : equal teams of swimmers

Equipment : stones or bricks

2 teams face each other about 5m apart, treading water. A number of stones/bricks is thrown into the swimming pool. At the signal “go” all dive to the bottom to recover 1 stone/brick. On resurfacing the teams form a chain and pass the stone/brick to the side. They then dive for another stone/brick. Repeat until all the stones/bricks have been recovered. The team to recover most stones/bricks wins.

6. Underwater recovery : equal teams of swimmers

Equipment :
none

The 2 teams line up at opposite sides of the swimming pool. At the signal “go” 1 team jumps into the water and swims underwater toward the other team. The other team, after a second signal, swims the breaststroke, surface dives and tries to find the members of the other team. Once they have been found they are brought back to the surface. The winning team is that which recovers all the “bodies” in the fastest time.

7. Water dodgeball : equal teams of swimmers

Equipment : water polo balls

The 2 teams line up facing each other. Each team has a ball with which it tries to hit the other team members. When a swimmer is hit he/she drops out. When only 1 swimmer is left his/her team wins.

8. Couple tag : pairs of swimmers - maximum of ten pairs

Equipment :
none

Pairs of swimmers treat water in deep water, holding their partner's hand. One couple is "it" and has to tag another couple. No pair may "break". If a pair breaks to avoid being caught they are "it". Only 1 of the pair need be tagged.

9. Hoop relay : equal teams of swimmers

Equipment : weighted hoops

Place 2 rows of hoops on the bottom of the swimming pool. The teams line up opposite their hoops. At the signal "go" the first swimmers swim breaststroke toward the hoops, surface dive and swim through every hoop to reach the other side competitive for some children. The first team through wins. Use head-first and feet-first surface dives.

10. Safety tow : equal teams of swimmers

Equipment : ropes, paddles, towels, etc

Divide each team into 2 and place them at opposite ends of the swimming pool. The first swimmer in each team has a rope. At the signal "go" he/she throws the rope to the first swimmer at the other side of the swimming pool and must drag him/her to safety and land him/her. When the first is landed the second swimmer must repeat the process with his/her "partner". The first team to rescue all their men/women wins.

11. Chicken fight : two person teams

Equipment :

none

One team member sitting on the shoulder of his/her teammate or riding piggy-back. The object of the game is to knock-down or separate an opposing team through a team effort.

CONCLUSION

All the games, should be used to give variety and enjoyment to the swimming lesson. Some games may be slightly too advanced for pre-secondary school children. Others may be is too competitive for some children, healthy competitive is what most of us enjoy-indeed need-but the responsibility of the parent or teacher is to use the competitive factor to encourage not to demoralise by making the competitive demand too high. In swimming games players must be "seeded" so that not the good children are with the weaker ones.

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PSYCHOLOGICAL CAPITAL OF STUDENTS WITH AGES 10-12 YEARS IN BASKETBALL SCHOOL IN KERTAJAYA CLS SURABAYA-EAST JAVA

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Abstract

Sports achievements coaching success is highly dependent existence of a talent possessed by an athlete. Talent identification is done in a systematic effort to identify someone who has the potential in the sport, so it is predicted to seeds gifted athlete potential and presents a great opportunity to be developed into outstanding athletes to achieve peak performance. The purpose of this study was to describe the psychological capital as a key determinant of those who emerged as a talented athlete. This study was conducted on 50 students with ages 10-12 years in school basketball Kertajaya CLS Surabaya, East Java in completing the measurement of psychological capital. The data collection is done with psychological capital questionnaires consists of four positive psychological resources of hope, self efficacy, resilience, and optimism. The results showed that children characterized by a score higher on hope, optimism, self efficacy. The moderate score in resiliency. The conclusion of this research shows that children are less likely to aspects of resilience but the kids had a character in hope, optimism, and the self efficacy of the maximum achievement.

Keywords: Psychological Capital, Students with ages 10-12 years, Basketball

INTRODUCTION

Basketball is a game that is fast, dynamic, interesting and fascinating. Basketball has a high intensity and tempo change on an ongoing basis in the offensive and defensive. Players basketball should have potentials such as strength, speed, agility accuracy, vertical jump, anaerobic capacity, aerobic capacity, and power. Anthropometric characteristics of basketball players become very important determinant of the process of identifying gifted athlete basketball. Thanks to these features, the basketball has become one of the most popular games in the world and to be a game in the modern era.

Performance basketball Indonesia lagging behind due to the lack of handling basic fundamentals strong player basketball, weak coaching athletes basketball at an early age and lack of optimum formation stages and sustainable in the nursery athlete basketball (Team National Agency PERBASI Indonesia, personal communication, January 14, 2016). The success coaching sports achievements is the impact of a long-term development process is done programmatically, organized, structured, and measurable. In coaching athletes in basketball is not only the component of physical condition but also the psychological characteristics to support their successful performances during the game.

Psychological dimension is one among the main factors that determine the appearance of the athlete. Decreased psychological condition will decrease physical condition. Sports psychologists have been interested in identifying what is psychologically makes a great athlete (Widohardhono, Rachman, 2014). Most successful athletes achieve peak performance is strongly influenced by mental factors and the athlete's ability to master the psychological rather than physical factors, techniques and strategies. Successful athletes are athletes who have the best qualifications, not just the physical

aspect but also psychological. Gould, Dieffenbach and Moffett (2002) have begun researching how athletes develop psychological characteristics such as psychological capital. Studies conducted by Dieffenbach Gould against 10 American athletes Olympic gold medalist proved how psychological characteristics possessed athlete effect on achievement (Tim SDI Centre, 2007: 107). According to Garfield in Satiadarma (1996) that most successful athletes reach peak performance as much as 60% to 90% are affected by mental factors and the athlete's ability to master the psychological condition than physical factors, techniques, and strategies. Conceptual psychological capital has been identified by Luthans and colleagues (Luthans, 2002; Luthans & Youssef, 2004; Luthans, Youssef, & Avolio, 2007) as consisting of four positive psychological source of hope, self efficacy, resilience, and optimism. When combined, it has been determined empirically be a second-order core building (Luthans, Avolio, Avey, & Norman, 2007). The broad definition is that it is an individual state PsyCap characterized by positive psychological development: (1) have confidence (self efficacy) to pick up and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about success now and in the future; (3) diligently toward the goal and, if necessary, directs the way to the destination (hope) to succeed; and (4) when hit by the problems and difficulties, sustaining and bouncing back and even beyond (resilience) to achieve success (Luthans, Youssef, & Avolio, 2007).

METHOD

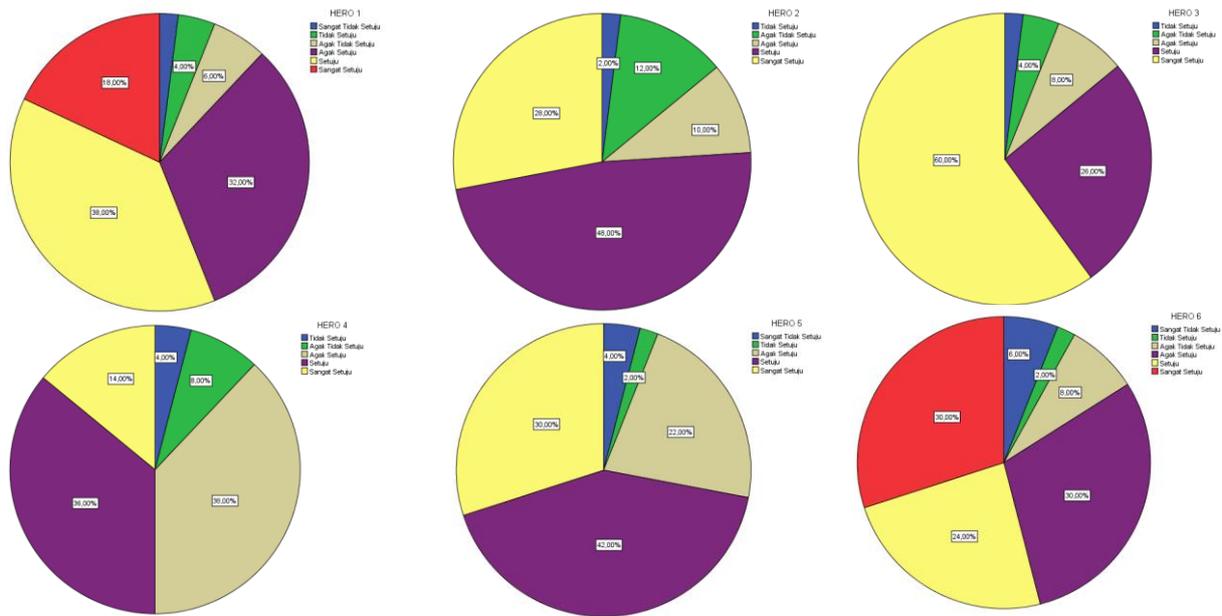
This study was conducted on 50 children ages 10-12 years in school basketball Kertajaya CLS Surabaya Indonesia. Students psychological test collected in the indoor arena. Psychological tests are given using psychological questionnaires capital by Luthans, et al. (2007), which is composed of hope, self efficacy, resilience, and optimism. Data were analyzed using descriptive analysis and reported as the Mean \pm Standard Deviation ($X \pm SD$).

RESULTS AND DISCUSSION

The results showed that the average value of the aspect of "Hope" in the psychological capital questionnaire on question number 1-6 is the question one scored $4,54 \pm 1,110$, 2 questions obtained a value of $4,88 \pm 1,023$, question 3 obtained values of $5,38 \pm 0,945$, question 4 obtained a value of $4,48 \pm 0,974$, 5 questions scored $4,86 \pm 1,161$, question 6 scored $4,54 \pm 1,373$, is presented in Table 1 and Chart Circle.

Tabel 1. Descriptive Statistics "Hero"

Aspek	N	Minimum	Maximum	Mean	Std. Deviation
Hero 1	50	1	6	4,54	1,110
Hero 2	50	2	6	4,88	1,023
Hero 3	50	2	6	5,38	0,945
Hero 4	50	2	6	4,48	0,974
Hero 5	50	1	6	4,86	1,161
Hero 6	50	1	6	4,54	1,373

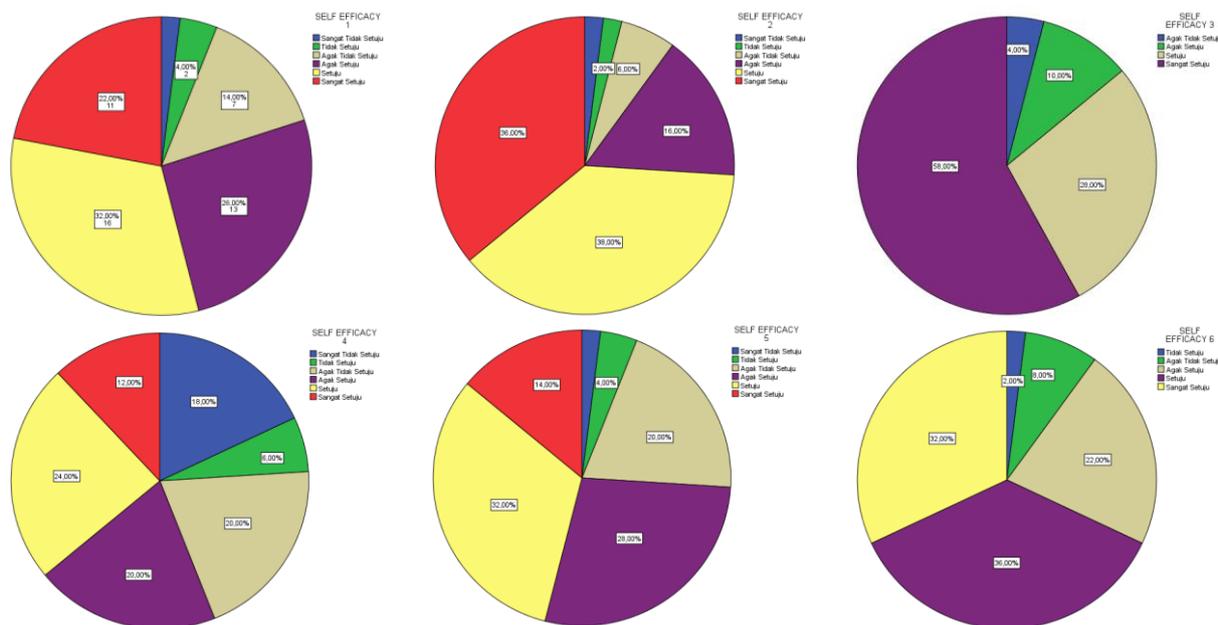


From the graph above circles in psychological capital assessment in the aspect of hope can be seen: (1) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, sure to win when following the basketball game, with a percentage of 18% stated strongly agree , 38% agree, 32% said somewhat agree, 6% said somewhat disagree, 4% disagreed, and 2% said it did not agree; (2) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, able to control emotions when following the basketball game, with the percentage of 28% stated strongly agree, 48% agree, 10% said somewhat agree, 12% stated somewhat disagree, 4% disagreed, and 2% said it did not agree; (3) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, proud to be involved as a player in a basketball game, with a percentage of 60% stated strongly agree, 26% agree, 8% said somewhat agree, 4% expressed somewhat disagree, and 4% did not agree; (4) students of 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, capable of learning basketball movements perfectly, with a percentage of 14% stated strongly agree, 36% agree, 38% said somewhat agree, 8% said somewhat disagreed, and 4% did not agree; (5) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, will discuss with the coach when facing a problem of the movement of basketball, with a percentage of 30% stated strongly agree, 42% agree, 22% said somewhat agree, 2% disagreed, and 4% said it did not agree; (6) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, can motivate your friends to win every game, with a percentage of 30% stated strongly agree, 24% agree, 30% said somewhat agree, 8% stated somewhat disagree, 2% disagreed, and 6% stated strongly disagree.

The average value of the aspect of “Self Efficacy” in psychological questionnaires capital in question are numbers 7-12 7 questions scored $4,48 \pm 1,216$, question 8 obtained a value of $4,94 \pm 1,132$, questions 9 obtained a value of $5,40 \pm 0,833$, questions 10 obtained a value of $4,84 \pm 1,017$, question 11 scored $4,26 \pm 1,175$, question 12 received grades of $4,88 \pm 1,023$, is presented in Table 2.

Tabel 2. Descriptive Statistics “Self Efficacy”

Aspek	N	Minimum	Maximum	Mean	Std. Deviation
Self Efficacy 1	50	1	6	4,48	1,216
Self Efficacy 2	50	1	6	4,94	1,132
Self Efficacy 3	50	3	6	5,40	0,833
Self Efficacy 4	50	2	6	4,84	1,017
Self Efficacy 5	50	1	6	4,26	1,175
Self Efficacy 6	50	2	6	4,88	1,023



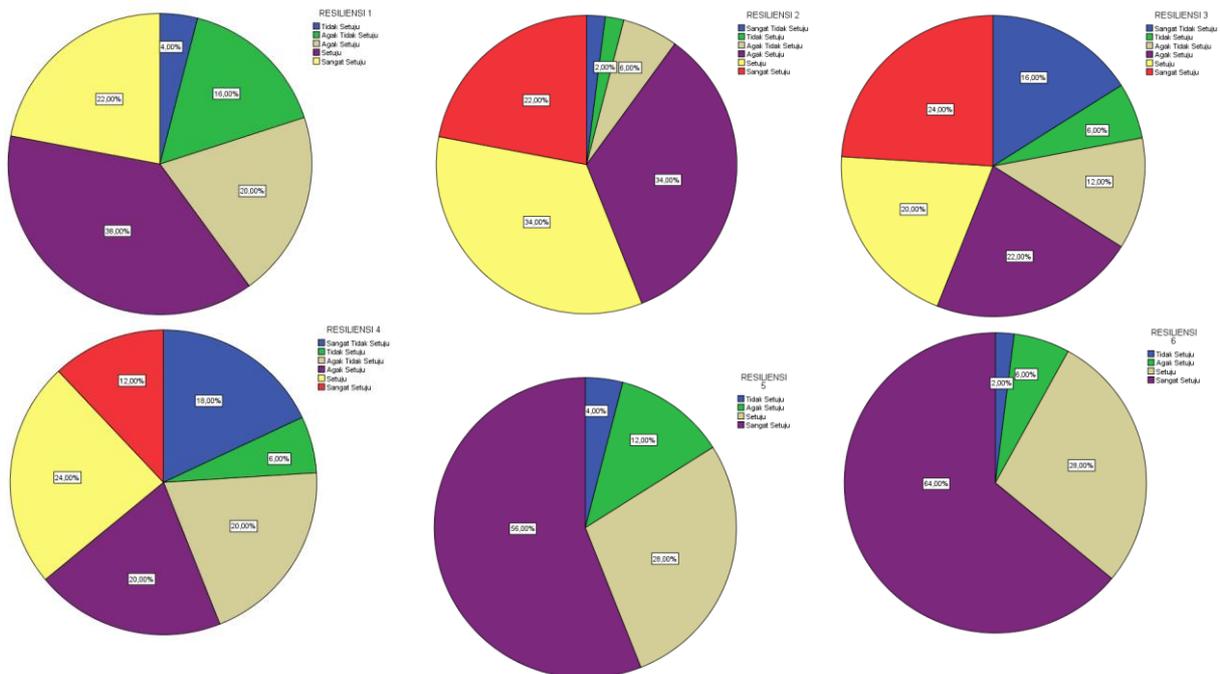
From the graph above circles in psychological capital assessment on aspects of self efficacy can be determined as follows: (1) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, before competing, to prepare solutions when problems arise, with a percentage of 22% expressed strongly agree, 32% agree, 26% said somewhat agree, 14% said somewhat disagree, 4% disagreed, and 2% said it did not agree; (2) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, ready to face any problems in the match, with the percentage of 36% stated strongly agree, 38% agree, 16% said somewhat agree, 6% stated somewhat disagree, 2% disagreed, and 2% said it did not agree; (3) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, convinced that every problem there is a solution in the match, with the percentage of 58% stated strongly agree, 28% agree, 10% said somewhat agree, 4% stated somewhat disagree; (4) students of 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, with the achievements of athletes basketball, they believe they can be successful as an athlete basketball, with a percentage of 12% stated strongly agree, 24% agree, 20% stated somewhat agree, 20% said somewhat disagree, 6% disagreed, and 18% said it did not agree; (5) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, could develop strategies to achieve success as a athlete basketball, with a percentage of 14% stated strongly agree, 32% agree, 28% said somewhat agree, 20% said somewhat disagree, 4% disagreed, and 2% said it did not agree; (6) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, high achievement targets they could reach, with a

percentage of 32% stated strongly agree, 36% agree, 22% said somewhat agree, 8% stated somewhat disagree, and 2% disagree.

The average value of the aspect of “Resilience” in psychological questionnaires capital in question 13-18 are 13 questions scored $4,58 \pm 1,126$, 14 questions scored $4,62 \pm 1,086$, question 15 gained $3,96 \pm 1,737$, question 16 obtained a value of $3,62 \pm 1,640$, question 17 received grades of $5,32 \pm 0,978$, question 18 scored $5,52 \pm 0,789$, are presented in Table 3.

Tabel 3. Descriptive Statistics “Resiliensi”

Aspek	N	Minimum	Maximum	Mean	Std. Deviation
RESILIENSI 1	50	2	6	4,58	1,126
RESILIENSI 2	50	1	6	4,62	1,086
RESILIENSI 3	50	1	6	3,96	1,737
RESILIENSI 4	50	1	6	3,62	1,640
RESILIENSI 5	50	2	6	5,32	0,978
RESILIENSI 6	50	2	6	5,52	0,789



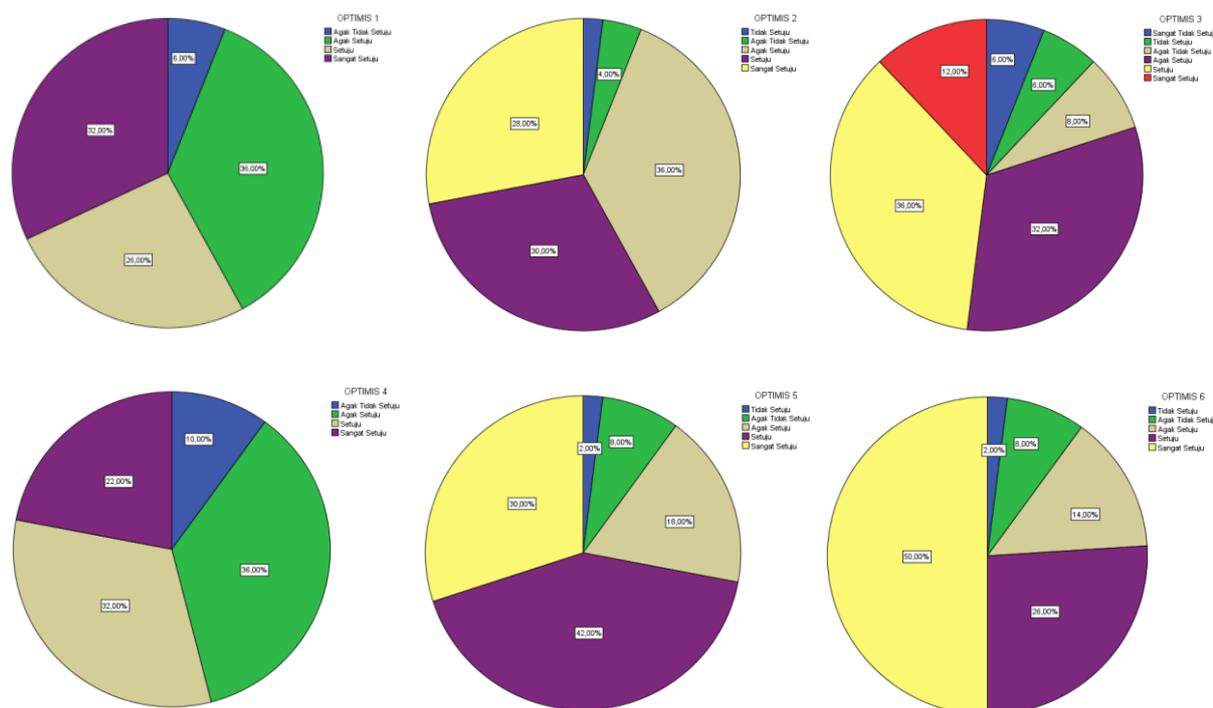
From the graph above circles in psychological capital assessment on aspects of resilience can be known, namely: (1) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, never decline the spirit of practice, with the percentage of 22% stated strongly agree, 38% agree, 20% said somewhat agree, 16% said somewhat disagree, 4% disagreed; (2) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, took the initiative to resolve the issue during a match, with the percentage of 22% stated strongly agree, 34% agree, 34% said somewhat agree, 6% said somewhat agreed, 2% disagreed, and 2% said it did not agree; (3) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, was the failure to bring benefits, with the percentage of 24% stated strongly agree, 20% agree, 22% said somewhat agree, 12% said somewhat disagree, 6% disagreed, and 16% said it did not agree; (4) students of 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, find it difficult to surpass the achievements of the best athletes this time, with a percentage of 12% stated strongly agree, 24% agree, 20% said somewhat agree, 20% stated somewhat disagree, 6% disagreed,

and 18% said it did not agree; (5) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, by practicing hard, they are sure to become the best athletes basketball, with the percentage of 56% stated strongly agree, 28% agree, 12% stated somewhat agree, and 4% did not agree; (6) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, to become a champion, a failure to be passed, with the percentage of 64% stated strongly agree, 28% agree, 6% said somewhat agree, and 2% disagreed.

The average value of the aspect of psychological capital "Optimism" in the questionnaire on question number 19 takes 19-24 which questions the value of $4,84 \pm 0,955$, question 20 scored $4,78 \pm 0,975$, question 21 scored $4,22 \pm 1,298$, question 22 scored $4,66 \pm 0,939$, question 23 scored $4,90 \pm 0,995$, 24 questions scored $5,14 \pm 1,069$, is presented in Table 4.

Tabel 4. Descriptive Statistics "Optimis"

Aspek	N	Minimum	Maximum	Mean	Std. Deviation
OPTIMIS 1	50	3	6	4,84	0,955
OPTIMIS 2	50	2	6	4,78	0,975
OPTIMIS 3	50	1	6	4,22	1,298
OPTIMIS 4	50	3	6	4,66	0,939
OPTIMIS 5	50	2	6	4,90	0,995
OPTIMIS 6	50	2	6	5,14	1,069



From the graph above circles in psychological capital assessment on optimism knowable aspects, namely: (1) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, could solve the problem calmly, with a percentage of 32% stated strongly agree, 26 % agree, 36% said somewhat agree, 6% said somewhat disagree; (2) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, can solve their problems, with a percentage of 28% stated strongly agree, 30% agree, 36% said somewhat agree, 4% said somewhat disagree , 2% disagreed; (3) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, could face problems that come along during the game, with a percentage of

12% stated strongly agree, 36% agree, 32% said somewhat agree, 8 % said somewhat disagree, 6% disagreed, and 6% said it did not agree; (4) students of 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, the situation is uncertain, they think that they can get through the situation, with a percentage of 22% stated strongly agree, 32% agree, 36% said somewhat agreed, and 10% said somewhat disagree; (5) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, in the activities that I do, I always look on the bright side, with the percentage of 30% stated strongly agree, 42% agree, 18% said somewhat agree , 8% said somewhat disagree and 2% disagreed; (6) students from 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya, my achievements later in accordance with what I expected, with a percentage of 50% stated strongly agree, 26% agree, 14% said somewhat agree, 8% stated somewhat disagree and 2% disagree.

Based on these results, after students of 50 children with ages 10-12 years in school basketball Kertajaya CLS Surabaya has conducted tests psychological capital, it is known that an athlete will be able to take the positives from the psychological condition. Psychological capital is a state of positive individual psychological development, which will be done in the sport basketball to get the seeds of talented athletes who have the potential to achieve peak performance and has a positive side of the psychological condition. Psychological capital is characterized as follows: (1) their persistence in achieving goals with the ability to redefine the path to achieve the goal if necessary to achieve success (Hope), (2) their confidence do the actions necessary to achieve success in the tasks challenging (Self Efficacy), (3) when facing problems and difficulties, able to survive and go on (resilience), (4) their positive attributions about successful present and future (Optimism).

Hope or expectation is a state with a positive motivation based on a feeling that comes from a successful interactive, ie the willingness and Waypower (Snyder, 2002). Willpower is also important to have when facing obstacles in pursuit of desired goals. The second component is the expectation theory Waypower or alternative way out. The core of this thinking can refer to time (such as how a person will reach the position of the future starts from today) as well as the alternative in the face of obstacles (Snyder, 2002). A number of studies have found that the expectation is strongly correlated to academic success, mental, and physical health of athletes, as well as the ability to overcome the difficulties (Snyder, 2002).

Self efficacy as an approximate rate of people in their ability to complete a specific task (Bandura, 1997). Self-efficacy leads to a belief in the ability to generate motivation, cognitive resources and a series of actions that are used in the face of the demands of the situation. Self-efficacy is formed of five cognitive processes are symbolizing, forethought, observation, self-regulatory and self reflection (Luthans, Youssef, and Avolio, 2007). Self efficacy can be developed through modeling and learning experience for themselves (vicarious learning), social persuasion and positive feedback, as well as physical and psychological boost. It has a close connection with work related performance (Stankovic and Luthans, 1998).

Resilience is the capacity of individuals to bounce back from failures, conflicts and difficulties by generating positive changes such as the progress and increased responsibility (Luthans, Youssef, and Avolio, 2007). According Luthans (2006) that there are three factors that can hinder the development of individual resilience is an asset, risk factors, and value systems.

Optimism is an explanatory style that attribute positive events that occur in individuals that causes internal permanent and pervasive (Seligman, 1998). If individuals optimism experienced

negative events, such individuals will assume the cause of misfortune was not himself but there are things that are beyond his control which led to negative events, the negative things that will not last long (temporal) and specific. Such an attitude makes individuals whose optimism tends to remain positive and confident in its future. A person who has a tendency that optimistic view everything with a positive point of view, not every time an optimist remain optimistic, so there is a flexible term optimism which means that the individual consciously assess the situation and decide when people would use the optimistic or pessimistic explanatory style.

CONCLUSION

The results showed that children characterized by a score higher on hope, optimism, self efficacy. The moderate score in resiliency. The conclusion of this research shows that children are less likely to aspects of resilience but the kids had a character in hope, optimism, and self efficacy of the maximum achievement.

SUGGESTION

According to these results, there are some suggestions:

1. Using psychological capital to evaluate the mental skills of athletes basketball
2. Making the assesment measurement of psychological in athletes basketball
3. Making a standard level of psychological capital basketball athletes in sports
4. Sport psychologists and coaches to design more effective training plans, combining psychological capital that need to be enhanced

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**MODEL DEVELOPMENT OF EXERCISE ATTACKING IN PLAYING FOOTBALL SKILL FOR PPLP
(A Research Development Model Or R & D)**

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Abstract

This research aims to develop a model of skill to play football based on the ability of the Attacking for students PPLP Football West Sumatra. This research was conducted in West Sumatra Football PPLP by involving experts PPLP football and coach football and soccer PPLP students aged between 16 years to 18 years as a research subject. The method used in this research is the Research and Development based referral Borg and Gall with collecting the data analysis needs of the field, hereinafter the data used as a basis to create a model of the results of this study. Data analyzed statistically to know the effectiveness of this model. Testing test different mean (uji-t) useful to perceive the difference of a group of his experiments with the control group After the whole process of research carried out it gives birth to a play-based learning model Attacking skills are named after the "Alex's Attacking Model". The results of the analysis and interpretation of data showed that: 1) "Alex's Attacking Model" is in conformity with the principles of playing football skills training 2) "Alex's Attacking Model" effective to be used in order to improve the ability of Transition in playing skills, 3) "Alex's Attacking Model" can be applied and in the production mass as a guide in perform the process of exercise.

Keywords: Exercise Attacking of Model, Play Skill.

THE EFFECT OF DIFFERENCES BETWEEN LEARNING APPROACH AND KINESTHETIC PERCEPTION TO ABILITY VOLLEY FOREHAND ON TENNIS

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Abstract

The study objective was determine The Effect of Differences Between Learning Approach and Kinesthetic Perception to Ability Volley Forehand On Tennis. This study use a factorial design experiment with 2 x 2. The study was 50 students, there are from Sport Coaching Education, Universitas Negeri Semarang. Sample was 40 student by use the technique purposive random sampling. The technique of data collection with kinesthetic perception test and ability test volley forehand on tennis. The technique analysis using Analysis of Variance (ANOVA) at significant level $\alpha = 0,05$. The results of this study concluded that 1). learning approach blocked practice has better effect in achieving the learning outcomes volley forehand on tennis, so that the teacher or trainer advised prefer learning approach blocked practice in the learning program. 2). student who have a good kinesthetic perception proved to be very influential on the achievement of learning outcomes volley forehand on tennis. To the teachers or trainers in making the learning program to always pay attention to differences kinesthetic perception, so that more effective course of training and outcome ability volley forehand on tennis will be rapid. 3). The interaction between learning approach and kinesthetic perception of the ability of a tennis forehand volley, The learning approach blocked practice to have good results for students who have a low perception of kinesthetic, The learning approach random practice to have good results for students who have a good perception of kinesthetic

Keywords: Learning Approach, Kinesthetic Perception, Ability Volley Forehand.

INTRODUCTION

Sports is all activities that systematic to encourage, to build and develop potential physical, spiritual, and mental health. (UU. No. 3 th 2005). The purpose according to national sport of Law No. 3 in 2005 article 4 which reads "National sport aims to maintain and improve the health and fitness center, their achievement, quality people, will invest the moral values and high moral standards, his sportiveness, discipline, to strengthen and to build the union and a united nations, streng then our national defense, and to lift human dignity, the dignity, and honor the". To achieve the national there are 3 the scope of construction and development sports include: 1) sports education, 2) sports recreation, 3) sports achievement.

Sports achievement is a sport which to build and develop sportsman planned, multi-level, and on through competitions to achieve greater performance with the support of science and technology of sport (Indonesian UU No. 3/2005 on national of sport system article 1 paragraph 13). Sports achievement that referred to here is as the effort to improve their ability and potential of athletes in order to improve human dignity and mertabat nation to achieve achievement.

Faculty of sport science (FIK) is one of the faculty at the Universitas Negeri Semarang concentrations in the fields of sport science and health. FIK UNNES have some course that Prodi Physical Education, health, and recreation (PJKR), The Prodi Educational of Sport Coaching (PKLO), Prodi Sport Science (IKOR), and the last Prodi is Public Health (IKM). FIK UNNES also has some of

open or closed laboratory of sport. This laboratory serves to help lecturers and students in conducting research.

Prodi PKLO UNNES was one institution that has the makes teacher in sport and professional coach. In the exercise of the lecture, the students got the course theory and practice a variety of sport and disciplines of science that support activities in sport.

Based on the results of observation of the researchers in the field on 4 January 2017. The author does observations of various aspects in the implementation of learning tennis courses. There are several kinds of the basic techniques that are taught in course of tennis court. Among them is the basic techniques of groundstroke, service, volley, and smash. To be able to play tennis well someone should be able to master the basic principles, namely: 1). Looking at the ball carefully, 2) Estimating the direction of the ball, 3) estimated the punch early, 4) the right foot movement, 5) solid balance, 6) sensitivity to approximate the racket with balls, 7) Concentration practice. The basic techniques are taught to the students of an easy to complicated. The order of the techniques taught in the courses of tennis courts is the student first taught basic techniques ready position on volley forehand, both students are taught about basic impact on volley forehand, the three students are taught basic techniques of followthrow on volley forehand.

The reason why volleyball basic techniques taught to students after the students master the basic techniques of groundstroke and service, this is due to the blow volleyball can be implemented when the students can start the game with the punch services and undermines an opponent with punches groundstroke. so at a time when the opponent is in a difficult condition then blow volleyball became one of the ways to speed up the tempo of the game and won the game on a rally.

Random practice is do exercise some skills at once that done in short intermittent. In random practice, for example, the sequence of exercises a number of different tasks done in mixed during exercise time. Students taking turns continuously in practice these tasks and, in a lot of practice going on, they just do it one time, there was no repetition.

For example someone students want to learn three different tasks, for example three different task in tennis (like ready position, impact, follow throw). An approach in terms of scheduling gives the duration of the time that remains for participants of exercise to do the first task before practicing with the next task. Then the athletes will spend a period of time again to do the second exercise before moving on to the third exercise. Approach in terms of penjadualan is called with the blocked practice, where a substantial portion of the time of the exercise participants are used entirely to finish one task before starting the next exercise. Blocked practice especially seen during practice, whereby participants do the same repetitive movements – reset. in the system blocked practice exercises more emphasis to aspects of that complex.

In learning tennis in addition to learning approach using random and block to determine the success of the learning objectives to be accomplished. because sportsmen also have a gut instinct or feelings that are sensitive to a State. The consciousness of an athlete tennis in performing the servicing, punches movement groundstroke, and skill enhancement will affect volly playing tennis. The initial attitude of the technique (ready position), the movement attracted a racket before the ball came (back swing), impact ball against racquet (impact), perform advanced movement (followthrow), and the last one back to the initial position.

Sensitivity of kinesthetic awareness in doing is movement or activity. This means, the perception of kinesthetic owned a tennis athletes will be able to support the increased skills blow

volley tennis. According to Sugiyanto and Sujarwo (1992:227) that, "kinaesthetic Perception has an important role because of the perception of physical ability element kinaesthetic allows one to realize the position and movement of the body that is being done".

Based on the background of the problems that have been pointed out in the, then the author is interested in research with the title "The Effect Of Differences Between Learning Approach And Kinesthetic Perception To The Ability Volley Forehand On Tennis"

METHOD

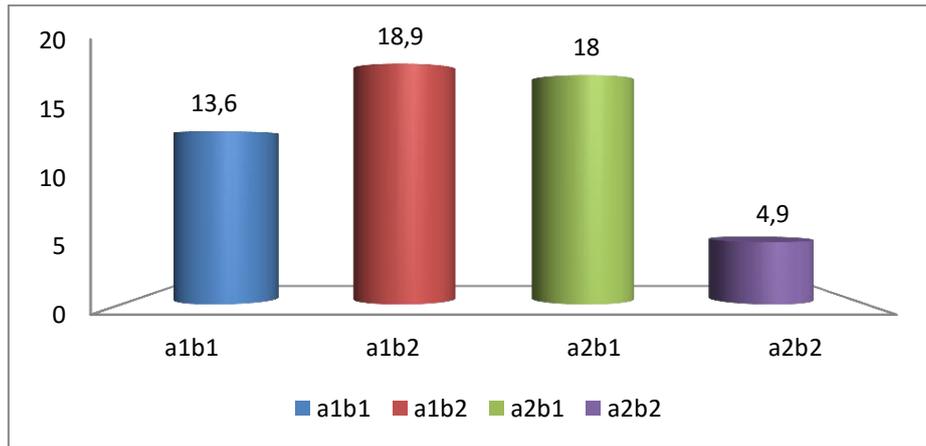
The research design used in this study is the research design factorial 2 x 2 is to determine the effect of variables and combinations of variable degree, as well as the influence of the interaction between the factors to increase student skills to play tennis courts son. Sujana (1988: 87) defines a factorial experiment is an experiment in which all (almost all) the level of a particular factor combined with all (almost all) the level of any other factors contained in the experiment. According Sujana (1994: 124-128), experimental design based factorial 2 x 2 is where the respective independent variables were classified into 2 levels. The variables in this study includes three factors or independent variables studied its effect on the dependent variable is the result of learning the skills to play tennis on male students. Independent variables include learning approach, and kinesthetic perception, that each independent variable consisted of two levels: (1) Variable learning approach consists of learning approaches blocked and random, (3) The kinesthetic perception consists of kinesthetic perception good and the kinesthetic perception less.

RESULTS AND DISCUSSION

The results of research is based on the analysis of statistics that will be done in a volley forehand test result prodi educational of sport coaching, the Faculty of sport science, Universitas Negeri Semarang. Description data research results are as follows:

Tabel 1. Description Data of Research

Learning Approach (A)	Blocked (A1)		Random (A2)	
Kinesthetic Perception (B)	Good (B1)	Less (B2)	Good (B1)	Less (B2)
Average	13,60	18,90	18,00	4,90
SD	4,16	6,27	4,69	4,90
n	10	10	10	10



Graph 1. Histogram Average Test Results The Ability Volley Forehand on Tennis

1. a1b1: Learning blocked, good kinesthetic perception
2. a1b2: Learning blocked, less kinesthetic perception
3. a2b1 : Learning random, good kinesthetic perception
4. a2bc2 : Learning random, less kinesthetic perception

Tabel 2. Normality Test

Treatment Group	Shapiro-Wilk	
	N	Sig
1. Learning approach blocked, good kinesthetic perception (a1b1)	10	0,055
2. Learning approach blocked, less kinesthetic perception (a1b2)	10	0,610
3. Learning approach random, good kinesthetic perception (a2b1).	10	0,627
4. Learning approach random, less kinesthetic perception (a2b2)	10	0,056

From the table above it was found that the data on :

1. Blocked group learning approach, good kinesthetic perception (a1b1) sig = 0.055 > 0.05 (P> 0.05) means the normal distribution.
2. Blocked group learning approach, less kinesthetic perception (a1b2) sig. = 0.610 > 0.05 (P> 0.05) means the normal distribution.
3. Random group learning approach, good kinesthetic perception (a2b1). sig. = 0.627 > 0.05 (P> 0.05) means the normal distribution.
4. Random group learning approach, less kinesthetic perception (a2b2) sig. = 0.056 > 0.05 (P> 0.05) means the normal distribution.

Tabel 3. Homogeneity Test

	df1	df2	Sig.
0,822	3	36	0.491

From the table above is based on Levene Test was found that the value of sig = 0.491 > 0.05 (P> 0.05) means otherwise homogeneous sample.

Tabel 4. Summary Analysis Result ANOVA

Test of Between-Subjects Effects

No	Hipotesis Nol (Ho)	Fo	Sig	Ho
1	There are no significant difference between learning approach blocked and learning approach random to the ability of volley forehand on tennis.	8,955	0,000	be accepted
2	There are no significant difference between student have less kinesthetic perception and less kinesthetic perception to the ability volley forehand on tennis.	5,912	0,303	be accepted
3	There are no interaction between learning approach, and kinesthetic perception to the ability volley forehand on tennis	32,898	0,925	be accepted

CONCLUSION AND SUGGESTION

Discussion of the results of this study provide further interpretation of the results of the analysis of the data that has been presented. Based on hypothesis testing has resulted in the following analysis :

1. There are Significant Difference Between Learning Approach Blocked And Learning Approach Random The Ability of Volley Forehand on Tennis.

In the process of training given to students majoring in sports coaching education, learning more learning approach blocked suggested by the experts, especially the blocked learning approach where development capabilities focused more emphasis on students to be more focused in the control of a blow.

On the blocked learning approach, students will be more focused in studying the movement and can feel the reflection of the ball on the racket repeatedly - again and produce a good punch and accurate, so that the learning objectives will be achieved more quickly that a student can perform punch forehand and backhand groundstrokes with well.

From the theory and the results of this study proved that the learning approach blocked better when compared with learning approach random. This shows that the learning approach blocked is the basic for the commencement of the phase of learning for students majoring in sports coaching, Universitas Negeri Semarang, where students will start learning with the aim of gaining experience motion as much as possible and focus on one learning. Menu fun exercise is accompanied by the interaction between the individual, the learning barriers blocked saturation in practice will be resolved. Learning can be done in conjunction with the conditions of exercise techniques and the approach to the real game.

On the other hand drills learning approach in the form of random practice is less random motion more experience, so students did not master in one motion and will affect the achievement of learning outcomes skill groundstrokes less than the maximum.

2. There are no Significant Difference Between Student Have Good Kinesthetic Perception And Less Kinesthetic Perception to The Ability Volley Forehand on Tennis .

Learning the technique can not be separated from how an athlete is able to perform the task of training the right moves. Truth movement will affect the level of energy expenditure. If any athlete or not able to perform the correct movement it will be a waste of energy. This condition will affect the results to be achieved.

The most important factor affecting the quality of athletes in performing the duties of motion exercises correctly and effectively is kinesthetic perception. The ability of the high mastery of one's motion tennis player to perceive an organ functions - human organs are closely connected with the motion of the body and limbs, both active and passive. The movements associated with the basic movements tennis skills.

Students who have a good kinesthetic perception will be easier to perform a given task in the learning movement, with the ability to do the kind of exercises that will be able to provide faster results than those who have less kinesthetic perception Sugiyanto and Sudjarwo (1992:213) that "perception is catch the meaning of the received signals senses. The meaning of the gesture is called information, and information captured through the senses and then processed in mental work to find or recognize the information, revealed back of collected information and make an assessment of the information received."

Results of the data analysis shows that there is a difference between athletes who have a good kinesthetic perception compared with those having less kinesthetic perception, this is in accordance with the above theory that kinesthetic perception would indicate a person's ability to perform the duties of motion correctly, quickly and effectively. Increasingly these athletes have a good kinesthetic perception, the athlete will be able to carry out all kinds of exercises correctly and accurately in accordance with the required level of energy expenditure.

3. There Is No Significant Interaction Between Learning Approach, And The Kinesthetic Perception To Ability Volley Forehand on Tennis.

Overall there is have interaction in the model variable exercise learning achievement, which means a hard forehand skills groundstroke tennis, because pembelajaran programd with good. Between, the distance learning approach beat, and perception kinestetik can complement each other in achieving skills groundstroke tennis. Thus the application approach to learning exactly should consider not directly factors difference these disparate perceptions and at a distance kinestetik students.

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**THE ANALYSIS OF PEDAGOGICAL COMPETENCE OF PHYSICAL EDUCATION,
HEALTH, AND SPORT TEACHERS' AT SOUTH ACEH
ELEMENTARY SCHOOLS**

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Abstract

The Physical education, health and sport is the subjects that apply movement activity dominantly in learning process activity which is aimed to get physical fitness of students. The existing of effective and optimum learning activity are determined by factors such as teachers, learning facilities, and others. Pedagogical competence must be mastered by teachers of PJOK. If this competence is not mastered by the teachers totally so that it will affect to the activity and result of PJOK learning that is not optimum. This study used the qualitative approach by determining study subject through purposive sampling technique. Tested the data validity by using triangulation data through observation, interview, and document. The study result explained that the pedagogical competence of PJOK teachers is generally still not good. The obtained data shows that most teachers did not prepare the tools of learning and they did not set lesson plans so that the learning process did not run well. The factor that caused this condition is that PJOK teachers' mostly did not have educational background in field of PJOK.

Keywords: Pedagogical, Teacher, Physical Education

PEDAGOGY COMPETENCE AND TEACHERS UNDERSTANDING TO DEVELOP PE MODEL BASED ON THE CHARACTER

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Abstract

The importance of developing a character has been emphasized in the objectives and functions of national competency standards for PE. This study aims to identify the pedagogical, the level of understanding of teachers, illustration character in learning, and character values of PE. This research use descriptive research conducted by quantitative and qualitative approaches in an integrated manner. The population of 60 people primary school PE teachers. The research instrument interview guidelines and sit in class observation techniques. Number of samples 7 primary school PE teachers. The results showed (1) pedagogical competence of teachers in preparing PE Learning Programme Plan (RPP) envisions the character has not been well planned. This is reflected in the ability of teachers write lesson plans are still minimal incorporate the charge of character values into three stages of teaching PE, namely, the Preparation stage (Learning Objectives, SK, KD, and Indicators of Success), stage of Implementation (Introduction, Training Core, Cover), and the Evaluation (Assessment of Learning Outcomes); (2) understanding the PE teacher related to the learning character to students quite well. The indicator appears on teachers' knowledge and understanding of the concept of character education; (3) The description of the character in charge of learning elementary school PE practice has not gone well. The indicator appears that teachers are still dominant convey motor domain of PE in the learning process; (4) Prototype character values that appear in teaching PE, among others: cooperation; sportive; honest; fair; care; to be responsible; respect; friends; cheerful; healthy; mutual respect; togetherness; and empathy.

Keywords: physical education, pedagogy, character.

INTRODUCTION

Nation and character building who confirmed Bung Karno in building this nation is very philosophical and involves the development of the essence of human resource development. Economic development, politics, law, education, as well as the mastery of science and technology should be integrated with the development of the human characters as actors in order to lead to the benefit and welfare of mankind. Character development is currently a strong attention of the government of SBY and the main task in applying at the unit level of education. One of the problems faced by Indonesia is the erosion of moral and national identity in the younger generation. The values of affective education gradually started to disappear among the young generation from the effects of globalization and modernization. Instilling the values of affective early on is an attempt to build the human character. Civilizing process and the empowerment of affective values can be as good as done in the education unit, family, and community. At the level of the educational unit civilizing movements performed affective values are integrated with the process of teaching and learning activities in each subject, through habituation in everyday life.

Globalization and modernization has altered the structure of Indonesian society into a nation that lost their identity and personality. Social, identity of Indonesia tended towards the pragmatic dimension and materialistic rather than spiritual and humanist. While the aspect of education, the younger generation is now closer to the violence, individualist and asocial. Various phenomena

student fights coloring pages of newspapers and television news flash. Plus rampant bullying conducted High School students. Education is now more advanced aspects of cognitive makes students experience psychological pressure that led to the "uprising", "disappointment" and "despair". Eventually happen indifference of children to the surrounding environment. Affective and psychomotor aspects have deprived the rights of children to education (sustainable education) and the national character and Indonesiaan (nation and character).

Based on preliminary studies that have been done, it is known that the school often asked where the character-based lesson plan to students when he went to school in the ordinary course Practice Field Experience (PPL). These events often researchers face when dropping off students PPL. But the fact still a lot of the learning process of physical education who left the affective values. Implementation of physical education are often stuck with the ultimate goal of health and physical fitness of the students but left the appreciation of the values affective. But on the other side of PE is one of the media promotion of an active lifestyle, cultivation of moral values, ethics and sportsmanship.

Character Development Through Physical Education

There is no neutral education. Education can serve as a means by which to facilitate the integration younger generation into the logic of the system in force and produce conformity to it, or it becomes the practice of freedom, which means with what humans deal critically and creatively with reality and discover how to participate to change their world. Memorizing and repetition style education in achieving the standard of value is still not able to display the humanist side. However, it will be poor generation of creativity, taste, work in the education system in a state of even the best in the wrong direction. Now the concern for education more often surfaced. The world of education was constantly dogged by criticism. Neither of the concept of the curriculum, the implementation in the field, the development of capitalism in education, and also the excessive bureaucratic interference. Education should serve the expansion of the child, but in fact serve the interests of industry, government, prestige parents and other interests without respecting and understanding the needs of children. These issues in the reform era is not reduced. The issue of education solely on matters of secondary and technical, such as school buildings were destroyed, a number value, and a paper certification.

A variety of terms to represent the meaning of the characters include a character, morals, and morals. The third meaning is the divine nature that is expected to be a good identity for every human being intangible in positive behavior. If the noble culture of the nation dominant influence on the formation of character, people's behavior is characterized by noble culture of the nation. Education in Indonesia is more on intellectual development alone, while the other aspects that exist within learners, namely affective and moral virtues received less attention. Koesoema (Kompas, December 1, 2009), confirms that the integration of education and character formation is a weak point of our national education policy. The phenomenon of such communities appears to have understood and realized the Government in this regard by the Ministry of National Education. The government is determined to strengthen the character and culture through education in schools (Kompas, January 15, 2010). Developing character learners can be done through the enhancement and optimization of affective learning physical education subjects. According to Hansen (2008), the

affective domain more emphasis on learning experiences related to a person's emotions. Such attitudes, interests, attention, awareness, and values that are directed is realized affective behavior.

Physical Education Learning Strategy Based Character

Teachers or coaches involved in sports coaching their teens have a responsibility to teach affective and strengthen their moral reasoning (Lumpkin, 2008). One way the teacher or coach should still be able to show their commitment to the teaching of values to cling and run the code of ethics, diantaranya as contained in the Positive Coaching Alliance Lumpkin (2008) further says that an overview of the Positive Coaching Alliance is a clue how coaches can teach affective emphasis on the development aspects of the sense of respect and responsibility.

- a. Strategies to teach respect^{Respect is earned through treating others the way you would like to be treated.}

Respect or respect is a very important element in all sports. The teachers or coaches insist that all players must respect his teammates, official, opponent, and coach during practice and games. The teacher or trainer should explain that respect include; fulfill a promise to others; show passion and enthusiasm to practice; practice to improve your level of fitness and sports skills; make every effort to help the team; never brag or draw attention to yourself, and never make an effort to embarrass myself, coach, or school (Brown, in Lumpkin, 2008).

- b. Strategy teaching responsibilities

The responsibility is also a valuable trait that teacher or coach must instill in each of the players. Coaches should emphasize that athletes should pay attention and follow instructions, concentrate on what they do, listen to constructive criticism, take the initiative and be open, do not make excuses or blame others, accept the consequences of their actions, ask for help when needed, and try to never let their colleagues down (Brown, in Lumpkin, 2008)

Gallo (2003: 44-46) states that the limitations votes moral aspects in practical terms that every learner has two forms of assessment are self-assessment and assessment of learners to assess both. Holt and Hannon (2006) says that the physical education teachers need to assess morale in order to determine whether that goal is reached. Citing the opinion of Cool, Demas, and Adams (1999), there are 17 moral behavior is taught and assessed: 1) altruism, 2) communication, 3) empathy-sympathy, 4) contract commitments, 5) cooperation, 6) effort, 7) compliance, 8) goal setting, 9) honesty, 10) initiative, 11) leadership, 12) participation, 13) reflection, 14) awards, 15) risk-taking, 16) safety, and 17) trust.

METHOD

This research use descriptive research conducted by quantitative and qualitative approaches in an integrated manner. The population of 30 people primary school PE teachers. The research instrument interview guidelines and sit in class observation techniques. Number of samples 7 primary school PE teachers.

RESULT

1. Pedagogy Competence of Physical Education Teachers

Pedagogical competence related to the ability of teachers in implementing the stages of the learning process of physical education. In this study pedagogic competence is measured by the ability of teachers write lesson plans (RPP) charged character. Criteria ability of teachers views of how the pouring element affective values within the framework of RPP, among others:

- a. Preparation (Learning Objectives, SK, KD, and Indicators of Success),
- b. Implementation (Introduction, Core Training, Cover), and
- c. Evaluation (Assessment of Learning Outcomes).

Furthermore, a description of the ability of teachers write lesson plans based on the character, the results are set forth as follows:

- a. Preparation (Learning Objectives, SK, KD, and Indicators of Success)

One pedagogical competence are trying disclosed among other capabilities in preparing teachers PE Preparation of learning in which there are elements of learning: learning objectives, standards of competence, basic competence, and indicators of success. The preparation phase results can be seen in Figure 1 below:



Figure 1: The ability of teachers in preparing RRP characters on stage Preparation

- b. Implementation (Introduction, Core Training, Cover)

Pedagogical competence of PE primary school teachers in developing lesson plans that the second character is the implementation of learning in which consists of three steps, namely the learning Introduction, Core Training, and Closing. At this stage it will be measured if it contains a payload values of affective or not. The yield on the Implementation of the stage can be seen in figure 2 below:

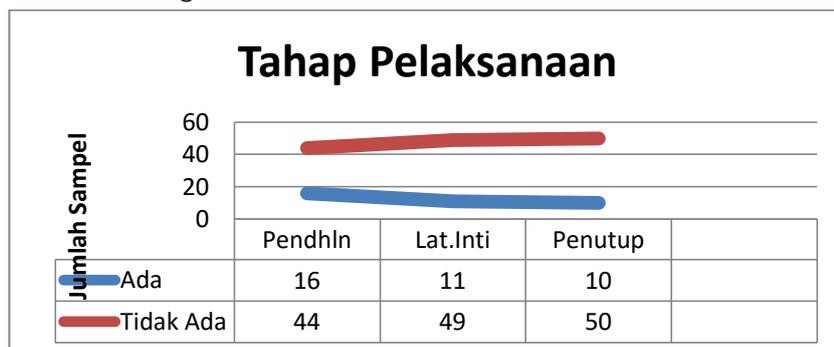


Figure 2: The ability of teachers in preparing the RPP characters on stage Implementation

c. Evaluation (Assessment of Learning Outcomes)

Pedagogical competence PE primary school teachers in developing lesson plans third character is the learning evaluation or assessment of learning outcomes, laden character values. The results at this stage of the evaluation can be seen in Figure 3 below:

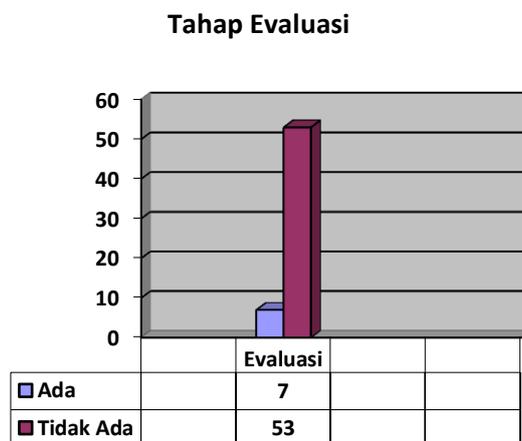


Figure 3: The ability of teachers in preparing the RPP characters on stage Evaluation

1. Understanding Physical Education Teacher Education Against Characters

Understanding related to the physical education teachers to students learning the characters quite well. The indicator is visible on the knowledge and understanding of the teachers will be the concept of character education, among others, the definition of the value of the affective in physical education, the integration value of affective into physical education, the central role of teachers to implantation on the affective, promoting the value of affective to students, and discuss the value of affective to participants learners. However, when linked with pedagogical competence of teachers in preparing lesson plans envisions the characters who have both appeared once that teachers still just know the level of the concept but has not been able to implement into real action. The social impact of learning elementary school physical indeed the case with the learners, but the teacher occupies a key role. Physical education teachers into the most significant individuals in determining values and their life skills. Learning that emphasizes the affective domain, a lot depends on the teacher and the individual construction environment. Therefore, physical education teachers are in a very central position and influence, then he must instill values and philosophy through physical activity and sport as a direct impact on participatory experience of learners. As disclosed Hansen (2008), that more emphasis on the moral aspects of learning emotions and experiences of learners who with attitude, interest, attention, consciousness and values for students to demonstrate affective behavior. Thus the teacher plays a central role in instilling the values of affective teaching physical education.

2. An overview of the character in charge of physical education teaching practice

Overview payload code in learning the practice of physical education in primary schools is reflected in the observation sit in class that researchers do. From observations made, the load values as the basis for learning affective character can be said is still minimal. This is reflected in the tendency of teachers to prioritize the mastery of motor skills rather

than affective. During the preparation stage, namely when warming up, planting affective values arise when teachers convey the messages of learning and at the time led the prayer, while at the time of exercise movement flexibility (stretching) and warming movement, did not appear. At this stage of core exercises that the material body mechanics, elements of his motor is much more dominant.

Here is an overview payload characters that appear in general in each school in the learning process of physical education:

Table 1. The name of the primary school and payload characters that appear

No	Nama Sekolah Dasar	Muatan Karakter yang Muncul
1	SD Tumbuh	To be responsible; take risks; critical; innovative; want to know; reflective; cheerful;
2	SDN Samirono	Honest; orderly; obey the rules; intelligent; tough; durability; friends; mutual respect; friends; care; togetherness; respect.
3	SD Sambirejo Ngawen	Honest; orderly; obey the rules; to be responsible; empathy; never give up; patriotic spirit; productive; competitive; nationalist; patriotic.
4	SD Hargomulyo 1 Gedangsari	Faithful and devoted; honest; willing to sacrifice; productive; sportive; tough; cooperative; determinative; mutual cooperation; friendly; hard work.
5	SD Muh. Gendol 3	Faithful and devoted; honest; fair; empathy; critical; oriented science and technology; clean and healthy; competitive; cheerful; respect; nationalist; care.
6	SD Budi Mulia 2 Sedayu	Faithful and devoted; Honest; orderly; obey the rules; intelligent; tough; durability; friends; mutual respect; friends; care; togetherness; respect
7	SD Sidomulyo	Honest; orderly; obey the rules; intelligent; tough; durability; friends; mutual respect; friends; care; togetherness; respect.

Prototype of character values in the teaching of physical education in primary schools is reflected in the observation sit in class that researchers do. From observations made, the charge of character values appeared in the third stage of the learning process: Introduction, Core Training, and Closing. This is reflected in the tendency of teachers to prioritize the mastery of motor skills rather than affective. During the preparation stage, namely when warming up, planting affective values arise when teachers convey the messages of learning and at the time led the prayer, while at the time of exercise movement flexibility (stretching) and warming movement, did not appear. At this stage of core exercises that the material body mechanics, elements of his motor is much more dominant.

DISCUSSION

Pedagogical competence related to the ability of teachers in implementing the stages of the learning process of physical education. Criteria ability of teachers views of how to convert the elements of character values within the framework of RPP, among others: (a) Preparation (Learning Objectives, SK, KD, and Indicators of Success), (b) Implementation (Introduction, Training Core, Cover), and (c) Evaluation (Assessment of Learning Outcomes).

a) Preparation (Learning Objectives, SK, KD, and Indicators of Success).

During the preparation stage when analyzed why teachers have good skills in preparing the RPP character at the preparatory stage because of the character elements already contained in the elementary school physical education curriculum. There is a possibility that this happens because of the encouragement of several parties like the head of department, college, or a physical education teacher working group, to include the charge of character values into the RPP preparation stage at the primary level.

b) Implementation (Introduction, Core Training, Cover)

Pedagogical competence PE primary school teachers in developing lesson plans that the second character is the implementation of learning in which consists of three steps, namely the learning Introduction, Core Training, and Closing. In the Introduction stage is known that teachers do not carry out character values. This condition can be interpreted that the element values are characters that appear only when the teacher leading the prayer. As for when providing value-laden apersepsi characters rarely appear. Teachers are often trapped by submitting a plan teaching materials that will be delivered. Teachers should be able to apply one of the elements of character that values discipline in the form of self-discipline as sport dress, wear sport shoes, wearing sports equipment, as well as disciplines such time came on time and finish on time. At this stage of core exercises, teachers do not carry out character values. Once again that in the analysis of RPP immediately apparent that physical education teachers prepare learning more focused on psychomotor domains form of motor learning methodology steps. As for the affective as a courtesy to a friend, responsible for the game, honestly acknowledged the shortcomings, fair in sharing the opportunity to play, and caring with friends who need help, rarely appear in this stage of core exercises.

If this condition continues to be maintained is certainly very worrying. Teachers will be more creating learners who are skilled motor but weak in attitude. Precisely in this affective core exercises will be more visible when delivered include the psychomotor domain, for example in games and sports material.

Closing on stage, teachers are also not implementing the values of character. This condition is visible on the activities of pacification / cooling is done by the activities of a motor. It would be nice to apply to implement a cooling-affective also appear as co-operation in conducting the stretching group. For the elementary school level, appeasement can be done with a simple play. Thus in preparing the RPP characters on the Implementation phase, teachers have not implemented RPP character. Therefore, based on the instruments used, quite clear that pedagogical competence of physical education teachers in preparing lesson plans on the Implementation phase including less category.

When analyzed why teachers have less ability in preparing the RPP characters on stage due to the implementation of more teachers to explain the sequence of motion or the motor learning in a systematic learning. This is consistent with the character of physical education tend to predominantly use psychomotor domains in its execution. Another possibility is the ignorance of teachers in developing the third domain of physical education that is affective, cognitive and psychomotor are balanced in a series of learning. However, if seen, there are 27% or 16 teachers who already know how to integrate the values of characters in learning. Generally, teachers do development on aspects of respect and

responsibility. Respect and responsibility are the two key values of fair play, apart from the friendship and honesty.

This process begins with the teacher show respect for the learners, regardless of their ethnicity, race, gender, socioeconomic status, or the individual characteristics or abilities. The lesson plan is best for a teacher to teach respect to students is to always be vigilant and continue to respect the attitude of learners and correct it any time soon that not only applies to students in particular, but the whole class.

c). Evaluation (Assessment of Learning Outcomes)

Pedagogical competence PE primary school teachers in developing lesson plans third character is the learning evaluation or assessment of learning outcomes, laden character values. In general, teachers do not carry out the character values in the evaluation stage. In the evaluation phase, the measured elements associated with the ability of teachers to assess learners. The third domain of physical education generally listed for assessment, but still very dominant realm psychomotor and affective less or even totally not rated. Therefore, based on the instruments used in this study, it was clear that pedagogical competence of physical education teachers in preparing lesson plans at this stage of evaluation including less category. When analyzed why teachers have less ability in preparing the RPP characters on the stage of evaluation because more teachers evaluate the sequence of motion or the motor learning in order to obtain the value. This is consistent with the character of physical education tend to predominantly use psychomotor domains in its execution. Generally at this stage of the evaluation of teachers very rarely assess learners with the assessment of the moral realm. The criteria for moral judgments can be made by assessing the following aspects: ethics, justice, communication with peers, and communication with teachers. The subjects that can be assessed in the context of learning the characters, among other things: 1) the behavior of learners, 2) teacher behavior, and 3) the interaction of teachers and learners. Physical education teachers need to assess morale in order to determine whether the learning objectives have been achieved.

Thus of the three stages of learning: Preparation, Implementation, and Evaluation, note that on the Preparation stage the teachers to prepare lesson plans laden character values, but at the stage Implementation and Evaluation, teachers are not able to apply the values of character. The analysis can be broken is for the teachers still do not understand how to convey the material physical education at the same time the charge of character values. The third sphere of physical education turned out to be very dominant and the psychomotor domain of the affective domain that is the core of the values of character does not appear and tend to ignore. In other words, the learning process of physical education in primary schools do not optimize the affective domain.

Understanding of the Physical Education Teacher Education Against Characters

PE teachers' understanding related to the learning character of the students quite well. The indicator is visible on the knowledge and understanding of the teachers will be the concept of character education, among others, the definition of the value of the affective in physical education, the integration value of affective into physical education, the central role of teachers to implantation

on the affective, promoting the value of affective to students, and discuss the value of affective to participants learners. However, when linked with pedagogical competence of teachers in preparing lesson plans envisions the characters who have both appeared once that teachers still just know the level of the concept but has not been able to implement into real action.

The social impact of learning elementary school physical indeed the case with the learners, but the teacher occupies a key role. Physical education teachers into the most significant individuals in determining values and their life skills. Learning that emphasizes the affective domain, a lot depends on the teacher and the individual construction environment. Therefore, physical education teachers are in a very central position and influence, then he must instill values and philosophy through physical activity and sport as a direct impact on participatory experience of learners. As disclosed Hansen (2008), that more emphasis on the moral aspects of learning emotions and experiences of learners who with attitude, interest, attention, consciousness and values for students to demonstrate affective behavior. Thus the teacher plays a central role in instilling the values of affective teaching physical education in primary schools

Overview payload code in learning the practice of physical education

Overview payload code in teaching physical education practice it appears that the charge values as the basis for learning affective character can be said is still minimal. This is reflected in the tendency of teachers to prioritize the mastery of motor skills rather than affective. During the preparation stage, namely when warming up, planting affective values arise when teachers convey the messages of learning and at the time led the prayer, while at the time of exercise movement flexibility (stretching) and warming movement, did not appear. At this stage of core exercises that the material body mechanics, elements of his motor is much more dominant. Here is seen that the values of affective yet so penetrated into the learning process of elementary school physical education.

Prototype of character values in teaching physical education

Prototype of character values in the teaching of physical education in primary schools is reflected in the third stage of the learning process: Introduction, Core Training, and Closing. The values of these characters appear on some learning material physical education were observed among others: the material exploration of movement, skill locomotor, non-locomotor, manipulative, kids athletics, rhythmic gymnastics, self test, body mechanics, physical fitness, football games, etc. etc. Elementary school subjects did tend dominated by elements of the game to remember the primary school age is the age to play. However, the subject matter are also taught basic movements such as running, throwing, jumping, and so on. Character values in physical education has not been used as a routine agenda support teachers in physical education lessons. In particular, teachers also do not have a guide book and drip modules emphasize the cultivation of character values. Though these values are derived from the character of the nation that today is needed by every individual. The values of the above characters appear as mannered culture that emerged from the environment of the school and of the teacher's personality. This is consistent with the theory above that value investment absolute character entirely originated from the central role of teachers both inside and outside the learning process. Thus the prototype character values that the unidentified teacher should always be developed in teaching elementary school physical education lessons.

CONCLUSION

1. Pedagogical competence of teachers in preparing PE Learning Programme Plan (RPP) envisions the character has not been well planned.

This is reflected in the ability of teachers write lesson plans are still minimal incorporate the charge of character values into three stages of teaching physical education, namely, the preparation phase (Learning Objectives, SK, KD, and Indicators of Success), the implementation phase (Introduction, Training Core, Cover), and the evaluation phase (Assessment of Learning Outcomes). Character values that often arise in the preparation stage include implantation on the Godhead, which is reflected in the plan to pray before the lesson and plan learning goals which is implied by the element of discipline, perseverance, responsibility, cooperation, tolerance, confidence, and courage.

2. Understanding PE teachers related to the learning character to students quite well. The indicator is visible on the knowledge and understanding of the teachers will be the concept of character education, among others, the definition of the character values in physical education, the integration of the character values into physical education, the central role of teachers to planting a character value and promote the value of the character to the students, and discuss the value of character to participants learners.
3. Overview payload code in learning elementary school physical education practice has not gone well. The indicator appears on the conditions of teachers are still dominant in the process of delivering its motor domain. The values of the character appears through verbal communication teachers assign command or instruction to students. Often value-laden character apart from teaching physical education. Though expected in character education is the integration of the character values in the learning process of physical education. In this case there is the inability of teachers to integrate the character values directly in the learning process.
4. Prototype of character values in teaching physical education appeared on the stages of learning, namely Introduction, Core Training, and Closing. Character values that arise, among others cooperation; sportive; honest; fair; care; to be responsible; respect; tough; friends; competitive; cheerful; persistent; clean; healthy; mutual respect; togetherness; durability; empathy; and unyielding.

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ANALYSIS CONDITIONS PUSLATCAB PENCAK SILAT SURABAYA ATHLETE CATEGORY FIGHTER

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Abstract

The development of pencak silat is growing rapidly, formed PUSLATCAB many cities, especially in the city of Surabaya. , Various crowning achievement ever in getting. The physical condition is required by athletes as supporting pencak silat mastery of technique, tactics and mental maturity to compete. Some physical conditions one should have pencak silat athletes are explosive power, speed, agility, endurance, flexibility, hand-eye coordination, strength of arm muscles and abdominal muscle strength. The purpose of this study was to assess the physical condition of athletes Puslatcab Surabaya, covering the explosive power, speed, agility, endurance, flexibility, hand-eye coordination, strength of arm muscles and abdominal muscle strength, the number of research subjects are 10 players. This research method is quantitative research with descriptive approach method. Data were collected with assays that test the physical condition of speed, flexibility, agility, strength of arm muscles, abdominal muscle strength, explosive power leg muscle, eye-hand coordination, endurance. Based on the research that has been done on female athletes on the analysis of the physical condition of the pencak silat category sparring (Study on Athletes PUSLATCAB Surabaya), it can be concluded that: Free athletes PUSLATCAB Surabaya categorized as good, Flexibility athletes PUSLATCAB Surabaya categorized as good, Explosive power leg muscles of athletes PUSLATCAB Surabaya categorized less so, Agility atelt PUSLATCAB Surabaya categorized less so, muscle strength of arm athlete PUSLATCAB Surabaya categorized less, Strength abdominal muscles athlete PUSLATCAB Surabaya categorized less, Coordination eyes and hands athlete PUSLATCAB Surabaya categorized as good, endurance athletes PUSLATCAB Surabaya categorized less so.

Keywords: Pencak Silat, Physical Condition, PUSLATCAB Surabaya

INTRODUCTION

Pencak silat is a form of martial arts indigenous to the Malay derived ethnic groups that populate mainland and island Southeast Asia. Far from being merely a form of self-defense, pencak silat is a pedagogic method that seeks to embody particular cultural and social ideals within the body of the practitioner. The history, culture and practice of pencak in West Java is the subject of this study (*Wilson*, 2002). Sitthiphan (1982:420) claimed that silat is a martial art of the Minangkabau people from the island of Sumatra, and it was later disseminated to the Malay Peninsula and Southern Thailand. Silat can be performed at art and cultural festivities, VIP welcoming ceremonies, circumcisions, and rites concerning the great silat master's house. This category of silat can be performed without restriction as to the time of day or location (Ratanaphan, 2006:20). In a match of pencak silat sparring categories important to have good physical condition in every training session and match to maintain and improve the physical condition depending on the training program and awareness of the athletes themselves to remain ready to maintain a good physical condition. So that the physical condition has an important position in addition to the mental, technical and tactical. It should always taken by the coach and evaluate the physical development of athletes. This makes the writer interested to examine the level of the physical condition of athletes PUSLATCAB SURABAYA. This study focus on the physical conditions dominant in the sport of pencak

silat performed in PUSLATCAB Surabaya. So the results of this study will be used as a benchmark for the physical condition of athletes, especially female athletes teenage pencak silat sport Surabaya. Due PUSLATCAB surabaya athletes have won many events in Surabaya and East Java, would achieve this feat one great ability physical condition of the athlete. On the basis of the proposed study, entitled " ANALYSIS CONDITIONS PUSLATCAB Pencak Silat SURABAYA ATHLETE CATEGORY FIGHTER ".

METHODS

This type of research used in this research is quantitative descriptive method approach. The design of the design of the study is to test and measure physical condition. Quantitative research method can be interpreted as the research methods are characterized by the use of hypothesis testing and test instruments standard. (Maksum, 2009: 16)

Descriptive research was conducted to describe certain events or phenomena that occur. (Maksum, 2009: 10).

In the present study focused on the analysis of the physical condition of athletes PUSLATCAB Surabaya, who cultivate the sport of pencak silat. The subject of this research is a team of pencak silat sparring category PUSLATCAB pencak silat Surabaya. Girl athlete especially with the number of 10-15 athletes.

In the study the physical conditions of pencak silat sport data collection techniques used include:

1. Free use run 30 meters
2. Flexibility using the sit and reach
3. Explosive power leg muscle using vertical jump
4. Agility uses to run back and forth 40 meters
5. Strength of arm muscles using the push-up 30 seconds
6. The strength of the abdominal muscles using a sit-up 30 seconds
7. Coordinate the eyes and hands using a ball wall pass
8. Durability using bleep test

RESULTS AND DISCUSSION

In accordance with the purpose of research and studies on the analysis of the physical condition of teenage girl athletes pencak silat athletes Surabaya PUSLATCAB known level of physical condition measured in each test are:

1. Speed

Speed is the capacity of movement of a limb or part of a lever system of the body or the speed of movement of the entire body carried out in a short time (Dick, 1989) in Yunyun Yudiana, et al (2011: 10)

Average speed of athletes PUSLATCAB Surabaya (measured by sprinting 30 meters) is 48.80. based on the classification criteria established by the norms Kemenegpora (2005) can be said that the speed of athletes PUSLATCAB Surabaya girl fit in either category.

2. Flexibility

Maximum flexibility is the ability of a joint motion (Sukadiyanto, 2011: 137). Flexibility in pencak silat is needed in feinting, changing the direction of the blow, and when the attack using bottom sweep.

The average flexibility athlete PUSLATCAB Surabaya (measured using the Sit and Reach) amounted to 31.30, based on the norms classification criteria set out in (Kemenegpora: 2005) can be said that the flexibility of athletes PUSLATCAB Surabaya fit in either category.

3. Power Explosive leg muscles

Explosive power is the result of the maximum power with which to do business as quickly intervening as possible, both physically condition of components work together to produce the explosive power of muscles (Harsuki, 2003: 274).

The average yield of the leg muscles of athletes PUSLATCAB Surabaya amounted to 1872.58 normative test the athletes PUSLATCAB Surabaya enter the category less so.

4. Agility

Agility is the perception to take a decision, the which-related reaction or visual scanning and knowledge of the existing situation (Bompa, 2009: 156).

On average agility athlete PUSLATCAB Surabaya (measured using a test shuttlerun with a distance of 40 meters) amounted to 22.71 based on the classification criteria specified in the norm (Kemenegpora: 2005) can be said that the athletes agility PUSLATCAB Surabaya in the category less so. Agility is used in an unexpected movement that uses the displacement direction. Therefore, pencak silat athletes are required to have good agility, so that movement patterns are unpredictable attacks by opponents. The results showed an average athlete that PUSLATCAB Surabaya have agility with less category yet.

5. Arm Muscle Strength

Strength is the maximum work produced muscular ability neumuscular system generates an external force against prisoners. Good muscle strength will increase performance of an athlete (Bompa, 2009: 229).

The average strength of the arm muscles of athletes PUSLATCAB Surabaya (measured on the number of tests push-ups for 30 seconds) is approximately 23.20 based on the norms of the test results, the athletes enter the category PUSLATCAB Surabaya less.

6. The strength of the abdominal muscles

Strength is the maximum work produced muscular ability neumuscular system generates an external force against prisoners. Good muscle strength will increase performance of an athlete (Bompa, 2009: 229).

The average strength of the abdominal muscles athlete PUSLATCAB Surabaya (measured at the test sit-ups for 30 seconds) is 27.10 based on the classification criteria established by the norm (Kemenegpora: 2005) can be said that the strength of the abdominal muscles PUSLATCAB Surabaya athletes entered in the poor category.

7. The eye and hand coordination

Coordination is a blend between the muscles, bones and joints to produce effective and efficient movement (Sukadiyanto, 2011: 149-150).

The average hand-eye coordination athlete PUSLATCAB Surabaya (measured at the pitch for 30 seconds) amounted to 30.30. based on the classification criteria defined by the norms (Lubis, 2014: 147) it can be said that the hand-eye coordination PUSLATCAB Surabaya athletes fit in either category.

8. Endurance

Endurance in terms of muscle work is the ability of a group of muscles in a certain period of time, the resilience of the energy system is the capability of the organs of the body within a specified period (Sukadiyanto, 2011: 61).

The average capacity of the athlete's VO₂max owned PUSLATCAB Surabaya amounted to 43.52 ml / kg / min, based on the classification of aerobic owned PUSLATCAB Surabaya athletes enter the category less so.

CONCLUSION AND SUGGESTION

CONCLUSION

Based on the research that has been done on female athletes on the analysis of the physical conditions of pencak silat sparring category (Study on Athletes PUSLATCAB Surabaya), it can be concluded that:

1. Speed PUSLATCAB Surabaya considered good athlete.
2. Flexibility PUSLATCAB Surabaya considered good athlete.
3. Power of leg muscle explosive athlete PUSLATCAB Surabaya categorized less so.
4. Agility atelt PUSLATCAB Surabaya categorized less so.
5. Strength of arm muscle athlete PUSLATCAB Surabaya categorized less.
6. The strength of the abdominal muscles of athletes PUSLATCAB Surabaya categorized less.
7. Coordinate the eyes and hands of the athlete PUSLATCAB Surabaya considered good.
8. Endurance athletes PUSLATCAB Surabaya categorized less so.

SUGGESTION

From the above conclusion, the writer can put forward suggestions as follows:

1. In accordance with the results of research that for the average component of physical condition, among others in both categories Speed, flexibility both categories, either the category of hand-eye coordination is therefore athletes can maintain and keep these conditions in order to remain in optimal condition and can show them when compete in order to achieve maximum achievement.
2. As for the physical condition of the components that are still in the moderate category and less so among other categories of less than once a leg muscle explosive power and agility, muscle strength category lacking arms and abdominal muscle strength, and endurance are included in the category of less once, durability needs to be given attention and more intensive training in order to achieve a more optimal physical condition due to the physical condition of the component is the dominant component of physical condition in pencak silat sparring category. So expect to have a good physical can help the athlete to achieve the feat.
3. This research still needs to be developed further, so as to provide more information in conducting further research development.

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DEVELOPING SEPAKTAKRAW FOR CHILDREN THROUGH KRAWNJANG GAMES TO THE ELEMENTARY SCHOOL STUDENTS IN KEDIRI

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Abstract

Development of the sport at this time is so rapidly in the midst of the modern technological era that a sport person or sport community do which are recreational sports or feats performed in open space. On the other hand, modification or development of the sport called mixed sport is so fast growing in the worldwide, but on one side, the open space to move is also increasingly narrowed. People creation in sports may caused by human activities, open space, and current developing media. Sepaktakraw as a sport that was born from the culture of the people in Asia, especially Indonesia, which has a unique acrobatic and artistic skills. Sepaktakraw for children is a skill that requires patience and perseverance in studying it. Conventional learning of the basic skills for children raises boredom, less effective and less attractive. Krawnjang or basket takraw, sepaktakraw is a modification concept of a sepaktakraw with basketball game, where the game is the incorporation of the concept of basic techniques sepaktakraw with each rule put the ball into the basket like basketball. The game is played on an open field with the principle of putting the ball into the basket within 8 minutes 2 times as much as much as possible. The purpose of this study is to develop a Krawnjang game with game models, those are tools and rules of the game, where all this time the form of conventional basic skills training are passing individual, passing wall, passing by media strap, passing couples. Development of the tools and the rules are expected to effectively train the basic techniques of sepaktakraw in the form of a modified live games. This study used Research and Development technique adapted from Borg and Gall (2003) and also developed with the concept of Sugianto (2010). It is begin with research question, making Krawnjang prototype, expert validation and material, small group try out, revision and validation, medium group try out, expert validation, big group try out and result report. The research result is a prototype of Krawnjang sport as a model of basic training for sepaktakraw for children. The tools of Krawnjang are 1,30 meter pole, with 2 rounded baskets with diameter about 35-40cm, the ball is made of rattan-coated sponge with a size larger than the standard ball junior. The Krawnjang games is played circled by a group of 4-6 children in 8 minutes times two, with the principles of the game put the ball into the basket as much as possible with the touch of the feet, thighs and head, while the hands are not allowed to touch the ball. This research is expected to be patented, both prototype tools and rules of the game (in the filing IPR(Intellectual Property)).

Keywords: Developing Sepaktakraw for children, Krawnjang game.

INTRODUCTION

Sport has become a phenomenon that cannot be separated from public life in this world for sport is something interesting and becomes a major requirement. To grow, subsistence of the people will always move. The motion has meaning is that to change the position from a stationary position to a different position or move. Mutohir, (2007: 26) an activity to actualize the rights of human rights is an opportunity to develop and maintain the physical, mental and moral. Therefore everyone should have access to physical education and sport. In Law No. 3 of 2005 on National Sports System that everyone has an equal right to participate in sports, chooses and follows the type or sports

according to their interests and talents, gain coaching and development in all forms of sports activities and sports industry.

Understanding the realm of sports are divided into three areas, namely education sports activities, achievement sports and recreational sports. Sports, such as the above implies that the systematic activity to develop physical fitness and spiritual. Sepaktakraw that was born from a community cultural and today has been recognized by the international community, is a form of cultural transformation that started in the past to the present. Traditional sport is an activity undertaken by a society in which the appearance of the activity is due to the condition of people's daily culture at that moment. Rosdiani (2012: 108) traditional sport is the kind of community's game that grow and develop naturally in a particular community, inherited from generation to generation.

The learning of sepaktakraw sports for some people or several people is considered as something hard and it takes time and bravery in playing the game. This is due to the fact that in this sport, there are principles of playing a ball namely by holding a ball so that it won't fall to the ground or floor, in addition in this play there is a skill to manipulate a ball with feet, thigh and heading accompanied with acrobatic skill namely somersault and kicking. Sepaktakraw for children of course is necessary a distinctive technique in learning or training of a child begin to recognize these skills, namely kick, comprehend, and heading.

Indonesia sepaktakraw achievement grows well even though it is still a challenge for the development of this sport in the country, especially in the age group of early development in the regions. Sepaktakraw learning system which is known conventionally remains a basic exercise principles to the present, ie learning by individual, independent passing, passing in pairs, and passing by the media of wall and rope. Therefore, it needs to devise a new concept of learning the basic technique of sepaktakraw conducted outside the conventional concept.

Model of development conducted by the researcher is a model of basket takraw game namely a game of sepaktakraw which is the development of the game of basketball, which is done in groups and put the ball into the basket. Takraw game cart (abbreviated: *Krawnjang*) is a form of learning concept of sepaktakraw for children of elementary school age that are fun, easy, and can be played by several children at a time in a circle with equipment that can be modified with simple materials.

LITERATURE REVIEW

Sepaktakraw, History and Modification

Sepaktakraw is basically a game modified from traditional sport of body exercise that in its concept is from recreative play sports becomes a sport that people compete in it, like we all know that this game has been played and popular throughout Indonesia, part of them in Maluku Peninsula starting from Burma to the border of Singapore. In Indonesia, this sport is named Paraga dance, namely cradling the ball with the foot, thigh, head and even hand in groups and climbing on top of each other with the players continue to play a ball without falling to the ground. According to Engel (2010: 6) said that :

“In February 1945 nets and regulations that are similar to volleyball was introduced by Hamid Maidin. He then invited his friend Rahman (player of raga bulatan or circular sport) and Syed Yaacob to try the newest game in sepak takraw”.

Nurhasan (2007) defines modification is an attempt to make changes to adjustments in terms of both physical material such as facilities and equipment as well as the purpose and means (methods, styles, approaches, rules and assessment). The essence of a modification step is to analyze and develop learning materials by means of potential learning activities that can be easily done in the process. Wijono (2011: 26) in the Australian Sports Commission recommends that children to take part of the modification of the sport, in order to adapt their skills to use the equipment in accordance with the child's ability.

“The Australian Sports Commission-Junior Sports recommends that young children participate in modified sport so as to avoid the risk of injury and also to ensure that appropriate skills are developed using equipment that is suitable for young people”

Children's participation in sports activities are advised to use the activities in the modification, because it is to avoid the possibility of injury and to ensure the correct motion in a process of sporting activities.

Yusup (2004:48) that the modification is a form of a few things, without objective standard, because what is taken as the priority is the process and not pedagogical impact on the result. The modifications mentioned are comprising among others, (a) changes in the size, shape, and material from tools like balls made larger and lighter, beater made shorter, catchers made from fabric, (b) changes in the size of the field, high-net or high ring, (c) the rules of the game are simplified, time is shortened.

“The aspirational Sport for All, Play for Life model guiding this report aims to serve all young people in all responds to the growing body of research that supports a sampling period of sport activities through age 12, communities, while aligning the interests of elite and grassroots sport with public health and other sectors ” (Tom Farrey : 2012).

The needs of open space to move with today's condition to encourage people to be active in small room and limited with some modifications of tools and room. Also the game of krawnjang is one of the forms of sports that does not use many open area, namely an area with diameter of 5 meters. Different with the game of sepaktakraw that uses an area of field width 6,10 meters and length of 13,40 meters. The size of sepaktakraw field, the area is similar to the size of badminton field such as that is used for double players. (Hamid, 2015 : 22).

Basic Technique and Essence of Sepaktakraw Game

Sulaiman (2008 : 16) said that the technique of sepak sila is a basic technique that is most dominant in the game of sepaktakraw, making some people consider technique sepak sila as the mother of the game . Sepaktakraw can be played using the same technique with the sport of football, but the difference is motion of passing done vertically between the body and the ball, so the basic skills of sepaktakraw is leg passing consisting of sila kick, back foot kick, badeg kick, using thigh, shoulder and heading. Advanced techniques used in sepaktakraw is the serve or tekong, smash or spike, and block.

Kids are learners, thus in the process of their growth they will naturally keen to study manifested in a form of moving activities, whereas the movement meant is a play (Suyadi, 2014: 186). Playing in this case is a conscious activity but does not have a standardized purpose. Playing for

children is a natural process that is done after the period of growth of children is considered sufficient for the child to move perfectly. Freeman (1987: 21) defines the play (play) as a form of activity that is not useful or counterproductive to the purpose of pleasing themselves. This activity can be defined as an activity that is both entertaining and not necessarily their physical involvement in their activities. Playing is the most important means for children to explore, express and determine various aspects of the child's life, including how children get to know himself or know others and their environment. Lutan (1996) states that playing is a favored activity and influential on human life, and is also an essential requirement for every human being.

Dwiyogo (2010:217) that a play has the characteristics, namely (1) free, voluntary and without coercion, (2) play activities apart from the restrictions of space and time, (3) the results of the activity of play is something that is not known or planned in advance, (4) the activity of pure play is not productive, does not produce a permanent value, (5) the rules of play depending on the conditions, subject to the situational agreement, (6) the quality of play is a part of real life.

Playing which is potential for kids have benefits such as by playing it will help them in physical growth, skills growth, intellectual growth, social growth and emotion and sports skills growth.

Essence of Model

Models can be interpreted as the representation on the structure that it tries to be projected. Models by Fadhli (2013) that as an adjective models contain an understanding of perfection or idealization of an idea, where as adverbial models refer to the notion of a process to demonstrate or show or display something that is presented.

This krawnjang play model resulted a product theoretically, conceptually, methodologically procedural, and empirically practical. This is in line with the suggestion by Bompa (2000) that model is a copy of what is original, that regulates special part of a phenomena observed or examined. The objective of the presence of a model is to obtain an ideal, by taking into account several other factors, potential and physiological of athletes, facilities and social environment.

RESEARCH METHOD

The method used in this research is a research and development (R and D). According to Borg and Gall (2003:571) the step of research strategy implementation and development done to result in particular product and to examine the effectiveness of a product meant. The product is developed through a series of trials, and every activity of trials there will be an evaluation or revision, either evaluation of process. The product studied by the researcher is a model of game development model – sepaktakraw modification as a model of sepaktakraw sports introduction for elementary students in Kediri City.

Design and Research Procedures

Research and development of a model is a term used to describe the activities associated with the creation or invention, method, fund product or new services and using new-found knowledge to meet market demands or requests (Nusa Putra, 2015: 77). This research is a development research (research and development), which means conducting research on a product.

In this case the development is done is krawnjang game model that was used as a form of the basis of a new model of sepaktakraw learning for children.

According to Borg and Gall (2003 : 571) steps in implementing the research strategy and the development for the results of particular product meant are as follows: (1) Needs assessment is a process which is systematic to determine objective, identify mismatch between reality and the desired conditions. Including the study of literature, observation or classroom observation and preparation of the initial report, (2) Planning which includes the ability to formulate, formulate specific goals to determine the sequence of material, and small scale trial. In this case, the researcher planed a game model that meets the realities on the ground and the needs in developing sepaktakraw in Kediri, (3) Development of the format of the initial product, which includes the preparation of learning materials, handbooks and evaluation tools, (4) Validation of the initial product, namely through expert testing or validation, carried out by respondents experts designing models or products, (5) Revision of early stage products, based on the initial validation results. The results of the field trial obtained qualitative information about the program or products developed, (6) The test product, namely carried out on 2-4 schools by involving 15-20 subjects, (7) Revision of product that conduct field trials. The results of the field trial involving a larger group of subjects with the subjects of 25-40 students or 6-8 schools, (8) The field trials, involving 10-15 schools to 50-80 subjects with interviews, observations, and delivery of the questionnaire then analyzed, (9) Revision of the final product and the latter is (10) dissemination and implementation of the product, such as reporting and disseminating products through meetings and scientific journals, in collaboration with publishers for the socialization of products.

Subject and Research Instrument

The subject of research in this krawnjang game model is an active student in elementary school that in it will also include coaching of sepaktakraw in Kediri, East Java. The instrument in development research is used to reveal the shape of the product development learning tool of basket sepaktakraw at an elementary school in the City of Kediri by using a small scale test sheets, sheets of large-scale test. Gratings structured are based on the needs are as follows: Table 3.1 Information of Research Instruments

Variable	Indicator	Item of Assessment Indicator	Item
Developing Sepaktakraw For Children Through Krawnjang Games To The Elementary School Students In Kediri	Small-scale of trial and large-scale (students)	a) Safe	1-3
		b) Easy and festive	4-5
		c) Interest	6-7
		d) In accordance with the objectives	8-10
		e) Durable and easily fixable	11-13
		f) In accordance with the environment	14-15
		g) There is an element of motor movement	16-18
	Total	18	

(Sourcer: Riyanto, 2013)

Specification of Product

Specifications of developed product is in the form of research development in a form of sepaktakraw game for children in the form of tools and means of modifications in the form of merger of sepaktakraw sports and basketball or motion of sepaktakraw with the final result is to put the ball into the basket. Product shape is in the form of means of game that focuses on the stimulation of

basic skills of sepaktakraw namely sila kick, kura kick, using thigh and heading the ball into the tool or pole of baskets made in such a way. Model of krawnjang game (takraw and basket) composed of cast of pole, poles, iron plate, two baskets and Rattan balls modification layered by sponge.

The principle of the game is individually amounting 4 children in putting the ball inside with the skill of sepaktakraw as much as possible skill with a target of predetermined time namely 8-10 minutes times 2 sets. Thus the game is basically using the skills of sepaktakraw, but the cost of numbers with the execution of ball getting into the basket and is determined by the time of game where most entering is the winner.

RESEARCH RESULTS

Analysis of Research Data

Analysis of this data is used to answer the problem formulation described ahead namely how does the development of basket facilities as sepaktakraw skills learning for elementary school children in Kediri. The analysis of the data is described as follows:

a. Basket Making Process (early product)

Initial process of basket making includes several steps, namely:

- 1) Process of basket weaving
- 2) This is done by booking to bamboo craft and rattan by taking into account for and pay attention to the needs of the desired researcher.
- 3) Booking of iron plate, it also ordered the expert or welder as desired by the researcher. Iron plate is used as a basket clamp.
- 4) Plaiting the basket knitting (net), just like on the basketball game that uses a rope slapped 4mm in diameter.
- 5) The results of the product, namely the result of the modification in the form of woven bamboo basket and rattan that was given the knitting ropes.

b. Process of modified ball manufacture

- 1) Preparation of rattan to be woven in such a way, with a larger size 1-2 centimeters from circumference measurement of standard ball.
- 2) Once the ball is woven then the rattan ball is weighed according to the size of rattan ball commonly sold in the market.

c. Revision of Early Product

After the game media in the form of a prototype model is created, there are some revisions related to products made by the researcher, namely:

Table.4.1

No	Indicator	Information	Early Revision
1	Form of Game Model	Cheap, fun, enjoyable, easy and safe	The orientation of the movement needs of children, particularly the basic motion of sepaktakraw
2	Equipment	Portable or easy to be overhauled and removable.	Orientation on the availability of open space today.

d. Validation of Facilities Expert

The researcher conducted an expert validation of infrastructure to Koke Wiluyo as a coach of Sepaktakraw and expert of modifications namely Ria Lumintuarso as the founder of Kids Athletic conducted through three stages of meeting. Briefly the results of expert validation of infrastructure or expert inputs are as follows:

- 1) First meeting: woven baskets made tenuous (invisibility), rattan woven is tightened, still slobbery.
- 2) Second meeting: should be knitted just like basketball, and the knitting should be colorful. Hopefully within the rules of the game it is also given elements of the child's character formation that is positive.
- 3) Third meeting: no suggestion from validation expert of infrastructure. Tools can be used as a small-scale trial.

e. Validation of Learning Material Expert

The validation of learning material experts with Achmad Sofyan Hanif as an expertise in sepaktakraw coaching. The validation of learning expert is done wholly in 2 steps of meeting. In short, description of suggestion by the expert of material are as follows:

- 1) First meeting: Color of the knitting was not attractive. Conclusion: it can use a small-scale trials with repairs.
- 2) Second meeting: there is no suggestion from expert validation. Conclusion: it can be used in small-scale trials without repair

f. Small-Scale Trial

Small-scale trials is conducted in SDN Baluwerti 3 Kediri involving 15 children after it was done an expert validation of infrastructure and subject matter experts.

Table. 4.2

No	Indicator	Information	Small-Scale Revision
1	Material of pole	Materials made of iron	Material should be cheap and affordable, and lightweight
2	Ring of baskets	Materials made of iron ring	Material is too expensive
3	Pole height	Height 2.40 cm	Should have specified levels of ability to pass by the children (high reflection)

g. Large-Scale Trial

Large group trial, the researcher recruited subjects totaling 30 children in class V-VI from three primary schools in the District in Kediri. The revised validation of expert on large-scale trial is:

Table.4.3

No	Indicator	Information	Large-Scale Revision
1	Pole Materials	Made of wood covered with pipe	Pole is painted and given a quasi / junction of pole
2	Diameter of basket	Made of rattan and bamboo, with a diameter of 35 cm	Larger ring 38-40cm (convenience in putting the ball inside element)
3	Length of Pole	Height 2.10 cm for male and 1.70 cm for female	Pole size can be adjusted to the needs of the child's height. A for the female, it can be 1.50 cm and 1.70 cm for male
4	Ball	Made of rattan	Rattan ball coated with soft colorful sponge
5	Game Rules	Focus playing by putting the ball into the basket	Please include a code that emphasizes on building character
6	Model of Krawnjang	Krawnjang made of 2 baskets	Create another form of the game from the original Krawnjang

h. Implementation of Program

After passing some validation process and testing then the resulting product is a handbook of Krawnjang game along with equipment and instructions video game to train or learn the basic techniques of the game of sepaktakraw through the basket as a group.

CONCLUSION

This study aims to determine the form of infrastructure development of sepaktakraw learning for elementary school children in the City of Kediri involving schools in Kediri. Stages in the process of this research are: the initial process of making basket net, expert validation of facilities, validation of materials experts, small scale trials, manufacture of baskets netting after feasibility experts and large-scale testing.

The development of learning tools of sepaktakraw with basket for primary school children in the City of Kediri is able to enhance the activity of the students in learning the game sepaktakraw. It can be inferred by the results of large-scale trial that, on some of the conclusions mentioned above are caused by several factors, among others:

1. Students assess that a game by putting the ball into the basket through the game sepaktakraw is easy and interesting to do by the students.
2. Students considered that the model of takraw is interesting (colored knit, made of rattan and bamboo)
3. Students assess that takraw net basket is easy to be moved and does not have to be in an open field, under trees or any space in door this sport can be performed.
4. Students assess that takraw game is fun to do in groups.

Products resulted in a form of sepaktakraw game for children with the specifications as follows:

No	Indicator	Results of Validation	Information
1	Pole	Materials: made of wood layered by pipe Heigh of pole: 1,30 -1,70 cm	
2	Cast	Made of cement, stones made circle Weight of cast: 5-8 kg	
3	Basket	Made of materials: rattan and plaited bamboo Ring is given colorful knit Diameter of ring: 35-40 cm	
4	Ball	Made of rattan covered with colorful soft sponge Diameter of ball 14 cm, weight 20-30 cm	
5	Gameplay	Total of players: 4-6 people Total of touches of each player: 3 touches Play time: 8 minutes x 2 sets Everytime the ball gets in gets 1 point Containing characters of: sportive and fair play	

RECOMMENDATION

Based on the conclusion and limitation of this study, then it can be recommended several things such as below:

1. Krawnjang sports on October 2016 was participating to represent East Java in an International event in Jakarta on 6th **TAFISA Worlds Sport For All Games** in 2016, thus it is necessary to have the development of other forms of sports as a result of Nusantara cultures.
2. Sports Krawnjang belong to the realm of traditional sports and recreation, so the game should be developed as a sport that was introduced in the community.
3. Teachers in the education field a sport can be a game that can be modified in learning sports, so it is still necessary to shape the development of other games of similar material, especially the child's motor development game.
4. For further research it is expected to develop deficiencies contained in Krawnjang game model, it can be in the field of soccer, volleyball and other sports that will produce other forms of sports innovation.

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BADMINTON CONTRIBUTION TO STUDENTS JUNIORS HIGH SCHOOL PHYSICAL FITNESS OF UNGARAN

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Abstract

Physical fitness is the ability physiology or function of the body systems that can realize improved quality of life in any physical activity in the form of aerobic or anaerobic capabilities. Badminton is a sport that can enhance physical fitness. Ungaran Junior high school have 9 sport as an activity to improve students physical fitness. One is badminton. The purpose of this study to describe the contribution of badminton against the physical fitness of students of Ungaran junior high school on 2015. This study is a survey research. The data collection is done by tests in the field using a Indonesian Physical Freshness test instrument. The results of the study describes the physical fitness of the samples in the category of less than 68.97%, while 22.41% 8.62% less once. Badminton accounted for 41.38% rest lainnya sport. Badminton enthusiasts physical fitness in the category of less than 66.67%, while 20.83% and less so with the percentage of 12.50%. Conclusions badminton accounted for the highest physical fitness for it to Ungaran junior high school studentes advised to choose badminton in order to have a high physical fitness.

Keywords: Sports, Badminton, Physical Fitness.

INTRODUCTION

Sports activities involving the heart, circulatory and respiratory. Heart to supply blood throughout the body. An increase in blood circulation during exercise lasts for metabolism and provide oxygen through the lungs. Physical activity (aerobic exercise) conducted since childhood will increase the maximum capacity of the lung (VO₂ Max) 10% to 20%. It antarlain form of aerobic exercise: running, swimming, cycling, football, badminton and the like (Sharkey, 2003: 68). Adaptation adolescence blood circulation in children is very effective, in this period determined the development of the circulatory and respiratory systems. Sports are conducted in accordance with basic principles of exercise can lower heart rate at submaximal physical activity. Actual maximum heart rate is not much different between children with children who are not trained or poorly trained, what distinguishes the two categories of children are volume pumping of the heart, those trained have a larger volume than the untrained. Junior High School Student 3 of Ungaran City an age of students entering this stage adolesen. Agar have a good physical fitness, they can choose one ekstrakulikuler sports, including badminton. For that need to be tested and researched truths in the stretcher opinion research titled badminton contribution to the physical health of Students Junior High School of 3 Ungaran city".

RESEARCH METHODS

This study population eighth grade students of junior hight school 3 of Ungaran city in 2015 as many as 290. The research sample 58 students (20%) were taken with random sampling. This study used survey methods and test. Variable is a single variable that physical Segaran pupil smp 3 Ungaran country. While the instrument is 1) run 50 meters, 2) restock, 3) sit up, 60 seconds, 4) skipping roap, 5) run 1000 meters for men and 800 meters for girls. Norma judgment as follows:

Tabel 1. The Value for Teens Ages 13-15 years Men

No.	Running 50 meter	Restock	Sit up 60 seconds	Skipping roap	1000 meter run
1	up to - 6.7"	16 to the top	38 to the top	66 to the top	up to – 3'04"
2	6.8 - 7.6"	11 - 15	28 – 37	53 – 65	3'05" - 3'53"
3	7.7 - 8.7"	6 - 10	19 – 27	42 – 52	3'54" - 4'46"
4	8.8 - 10.3"	2 - 5	8 - 18	31 – 41	4'47" - 6'04" "
5	10.4 " utd	0 - 1	0 – 7 30	6'05" etc

Tabel 2. The Value for Teens Ages 13-15 years Women

No.	Running 50 meter	Restock	Sit up 60 seconds	Skipping roap	800 meter run
1	up to - 7.7"	16 to the top	38 to the top	66 to the top	up to – 3'04"
2	7.8 – 8.7"	22 - 40	19 – 27	39 – 47	3'07" - 3'55"
3	8.8 – 9.9"	10 – 21	9 – 18	30 – 38	3'56" - 4'58"
4	10.0-11.9"	3 – 9	3 – 8	21 - 29	4'59" - 6'40"
5	12.0"- etc	0 – 2	0 – 2	Etc - 20	6'41" etc

RESULTS AND DISCUSSION

RESULT

Sports extra picture sample selection as follows; Basketball 3.45%, 6.90% martial arts, cycling 12.07%, 5.17% volleyball, badminton 41.38%, 1.72% futsal, running away 6,90%, 1,72% and the pool 20.69% of football:

Tabel 3. Results Percentage extra participant sport

No	Ekstra sport option	Gender		Total of student	Percentage
		Men	Women		
1	Basket ball	0	2	2	3.45
2	Martial	2	2	4	6.90
3	Cycling	3	4	7	12.07
4	Volley ball	0	3	3	5.17
5	Badmintons	10	14	24	41.38
6	Futsal	1	0	1	1.72
7	Jogging	0	4	4	6.90
8	Swimming	0	1	1	1.72
9	Football	12	0	12	20.69
	Total	28	30	58	100

Tabel 4. Physical Fitness Test Norma Teens 13-15 Years

No.	Total vallue	Clasification
1	22 -25	Very good
2	18 – 21	Good
3	14 – 17	Medium
4	10 – 13	Less
5	5 – 9	Less than once

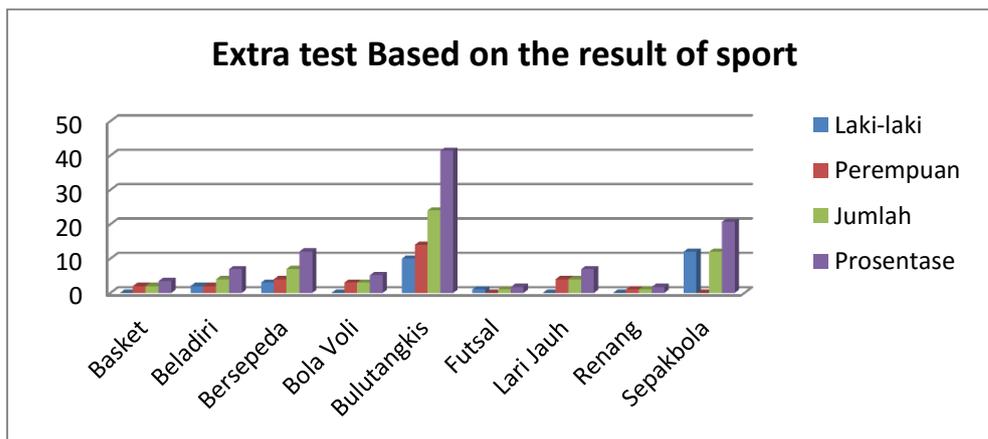


Figure 1. Results Percentage Extra Sport Interests

Notes;

- Basket : Basket ball
- Beladiri : Martial
- Bersepeda : Cycling
- Bulutangkis : Badminton
- Futsal :Futsal
- Lari jauh : Jogging
- renang : Swimming
- Sepakbola : Football
- Laki laki : Male
- Perempuan : Female
- Jumlah : Total
- Prosentase : Percentage

Figure 1, explaining that the extra badminton followed by 41.38% and in other sports consisting of basketball, martial arts, cycling volleyball, indoor soccer, running away, swimming and soccer with a percentage of 58.62%.

Extra Sport Sports Badminton

Extra participants an overview of badminton on student Junior High school 3 Ungaran City, based on data obtained from the data of 24 students with a percentage of 41.38%. Based on an extra level of excitement chose badminton every students presented in Table 5 below:

Tabel 5. Result of Hobbies playing badminton

NO	Gender	Classification	Total of classification	Percentage
1	Men	Very Good	0	0.00
		Good	0	0.00
		Medium	3	30.00
		Less	6	60.00
		Less than once	1	10.00
2	Women	Very Good	0	0.00
		Good	0	0.00
		Medium	2	14.29
		Less	10	71.43
		Less than once	2	14.29
3	Men and women	Very Good	0	0.00
		Good	0	0.00
		Medium	5	20.83
		Less	16	66.67
		Less than once	3	12.50
			24	100.00

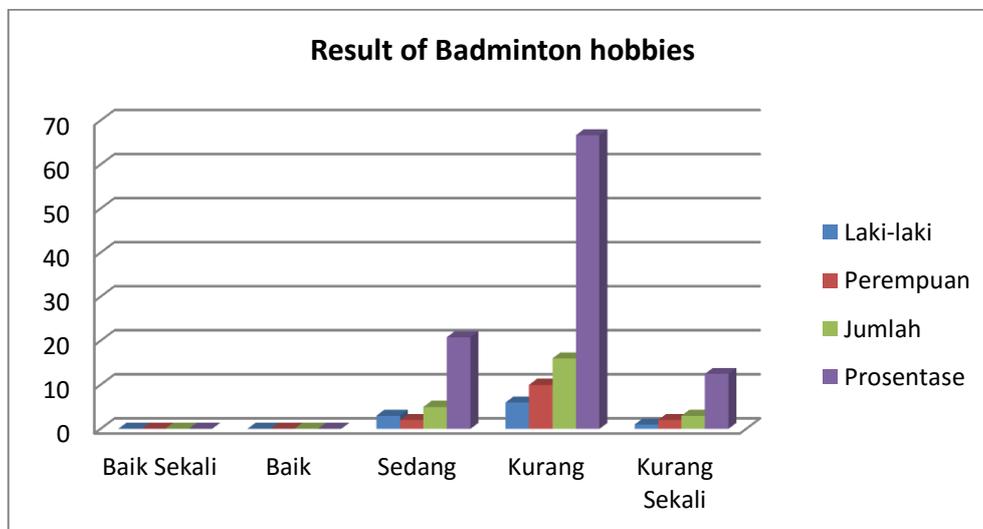


Figure 2. Result Percentade of badminton hobbies

Notes;

- Baik sekali : Very Good
- Baik : Good
- Sedang : Medium
- Kurang : Less
- Kurang Sekali : Less than once

Based on Figure 2, seen under the classification of students who have excellent and good categories is 0%, the moderate category for gender male 30% and female 14.29%, less categories for gender male 60% and female 71, 43%, less than once a category for gender male 10% and female 14.29%.

DISCUSSION

Extra options exercise students of SMP Negeri 3 Ungaran is the motivation and goals in exercise according to interests and hobbies in their respective sports. A study of nine extracurricular sport, that sport; basketball, martial arts, cycling, volleyball, badminton, futsal, running away, swimming and soccer. The results of physical penelitankesegaran based sports extra option indicates that the category is less 68.97%, while 22.41% and 8.62% less once.

Extra badminton obtain the highest percentage is 41.38% compared to the interests and hobbies on other sports. While the individu extra reason to choose badminton can be categorized category of 66.67%, while 20.83% and 12.50% less once. The cause of this condition is that the students do sports only in physical education lessons at school without any other activity that can improve physical fitness.

CONCLUSIONS AND RECOMMENDATION

CONCLUSION

Sports extra option for students of SMP Negeri 3 Ungaran No 9 ie; basketball, martial arts, cycling, volleyball, badminton, futsal, running away, swimming and soccer. Most extra participants in the sport of badminton. Physical fitness in students of Junior Hight school 3 of Ungaran City included in the category of less than 68.97%, while 22.41% and 8.62% less once. Badminton contribution towards physical fitness extra participants in the category of less than 66.67%, while 20.83% and 12.50% less once.

RECOMMENDATION

To the students of Junior Hight school 3 Ungaran City should constantly increase the level of physical fitness in accordance with extras sport of choice,

To the participants, extra sports badminton selection should improve playing badminton in order to increase his physical freshness.

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MENTAL ATTITUDE OF SYNCHRONIZED SWIMMING ATHLETES

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Abstract

Synchronized swimming is unique sport because it has a combination between sport and dance. Competition in synchronized swimming has seven events with the specific differences. Besides, it also has a special assessment for assessing the performance of athletes in each event. The difference this event requires the athlete's ability to interact with their surroundings, especially among athletes. To support the athlete appearances, they also have to prepare mentally to undergo appropriate event event she entered.

Keywords: synchronized swimming, mental attitude, and athletes

THE EFFECT OF MULTIPLE-SET TRAINING (CONSECUTIVE MULTIPLE-SET AND CIRCUIT MULTIPLE-SET) PROGRAM ON STRENGTH, POWER AND BODY DIMENSION

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Abstract

The purpose for this study was to compare weight training with two models multiple-set (consecutive multiple-set training and circuit multiple-set training) on strength, power and body dimension in male. Thirty three healthy males participated in this study and assigned into three group; consecutive multiple-set training group (CST ; n=11), circuit multiple-set training group (CRT ; n=11) and control group (CG ; n=11). Subjects in CST and CRT group performed twenty four session – eight weeks weight training program in six station. Whereas in CST performed weight training exercise continuously and CRT performed exercise for one set in each station and comeback to repeat exercise order and performed three times. Performance indicator were measured pre training and post training by 30 second push up test, leg strength test, force plate, thigh and arm circumference. No significance difference in body dimension, thigh and arm circumference in both groups ($p < 0.05$). A significant increases in strength in CST group ($p < 0.05$). CST and CRT groups showed a significant improvement in power compared with pre training but no significant difference compared to both groups ($p < 0.05$). These results suggest CST training is better to improving strength performance and both groups are proper for increasing power.

Keywords: Weight Training, Multiple-Set, Circuit Training, Strength, Power, Body Dimension

INTRODUCTION

Resistance training is one of the most popular exercise to gained performance. Many people joined resistance training for lifestyle, rehabilitative from injured or increase their strength performance. Many benefits of resistance training for health include : improve glucose metabolism (Hurley, 1994) , reduced blood pressure(Colliander,1988), decreased lower back pain (Nelson,1995), and enhanced maximal aerobic capacity (Messier,1985). And for performance, resistance training has positive effect on muscular strength (Gentil, 2010), muscular hypertrophy, endurance (Bird,2010) and power (Wilson, 2012). According to many benefits of resistance training, Numerous researchers found different results for the strength, endurance and body composition (Fleck, 2004). The different results are caused by several factors, and one of the important key is number of sets. The common set-system used for improved muscular performance are single-set system and multiple-set system (Fleck, 2004).

The single-set system is one of the traditional resistance training system, performed of each exercise in one set, whereas the multiple set-system performed more than one set in one station resistance training. The comparison of single-set system and multiple-set system has been reviewed (Frölich, 2010). Many studies has shown that multiple-set training was more effective rather than single-set system (Peterson, 2004) and a clear statement by fleck (2004) is that single-set system maybe appropriate for recreational trainees.

Other recommendation for resistance training system can be done by circuit system. Circuit system consist of several resistance exercise performed with resting time between exercises (Fleck,

2014). The circuit system can improve strength and endurance, time to lactate threshold and body composition (Tskin, 2009).

Previous studies has found the effect each training separately or compared with other training system; single – set system vs multiple set – system, multiple – set system vs circuit system, but no study compared in circuit system vs circuit system. The purposes of this study was to examine the effects of eight weeks training on strength, power and body dimension (arm and thigh circumference) in healthy males.

METHOD

Subjects

Thirty three healthy males participated in this study and were assigned into three groups; consecutive multiple-set training group (CST ; n=11), circuit multiple-set training group (CRT ; n=11) and control group (CG ; n=11). Subject were informed the procedures and signed the informed consent. Subject had never been participated any type of resistance training during this study. Subject instructed to not use any supplementation spesifically ergogenic aid.

Table 1. Subject Charateristics

Variables	CST (n=11)	CRT (n=11)	CG (n=11)
Age (Yr)	21 ± 2.5	20.5 ± 2.1	21.2 ± 2.2
Hight (Cm)	173 ± 1.8	172.7 ± 2.0	173.6 ± 1.8
Weight (Kg)	67.3 ± 2.0	66.8 ± 2.1	67 ± 2.1
BMI (Kg. m ⁻²)	23.6 ± 3.2	23 ± 2.9	23.3 ± 3.0

CST, consecutive multiple-set group. CRT, Circuit multiple-set group, CG. Control Group

Procedure and instruments

Subject done the pretest and posttest two days before start training program and after complete the training program, subject were tested the 30 second push up test, and Back-Leg dynamometer by *Takei* for strength components, force plate by *AMTI Accu power* for power component and arm and thigh circumference by *Fitmatepro length tape instruments* for body dimension. One RM test performed two days before start training by subject to design the training program.

Subjects in consecutive multiple-set training group (CST) performed resistance training for three sets continuously and circuit multiple-set training group (CRT) performed resistance training for one set for each stations and comeback to repeat exercise order and performed three times. The structure system used ascending pyramid (light to heavy weight), for exercise ordering used upper and lower body alternately, resting time between the sets is one minute and one day between training sessions for recovery. Resistance training program were performed three times a week in 8 weeks, with training duration 60 minutes include 10 minutes warming up, 40 minutes resistance training and 10 minutes cooling down. The training performed in six station : Leg press, Leg Extension, Leg Curl, Chest Press, Lat Pull and Arm Curl by technogym. All test and training sessions held in *Achilless Sport Science Center, Universitas Negeri Surabaya*

Table 2. Resistance Training Program for all groups

Group	Week 1 – 2 (Reps – Load)	Week 3 – 4 (Reps – Load)	Week 5 – 6 (Reps – Load)	Week 7 – 8 (Reps – Load)
CST	Set 1: 12-60% 1 RM	Set 1: 12-60% 1 RM	Set 1: 12-70% 1 RM	Set 1: 12-70% 1 RM
	Set 2: 10-65% 1 RM	Set 2: 10-65% 1 RM	Set 2: 10-75% 1 RM	Set 2: 10-75% 1 RM
	Set 3: 8-70% 1 RM	Set 3: 8-70% 1 RM	Set 3: 8-80% 1 RM	Set 3: 8-80% 1 RM
CRT	Set 1: 12-60% 1 RM	Set 1: 12-60% 1 RM	Set 1: 12-70% 1 RM	Set 1: 12-70% 1 RM
	Set 2: 10-65% 1 RM	Set 2: 10-65% 1 RM	Set 2: 10-75% 1 RM	Set 2: 10-75% 1 RM
	Set 3: 8-70% 1 RM	Set 3: 8-70% 1 RM	Set 3: 8-80% 1 RM	Set 3: 8-80% 1 RM
CG	N/A			

CST, consecutive multiple-set group. CRT, Circuit multiple-set group, CG. Control Group

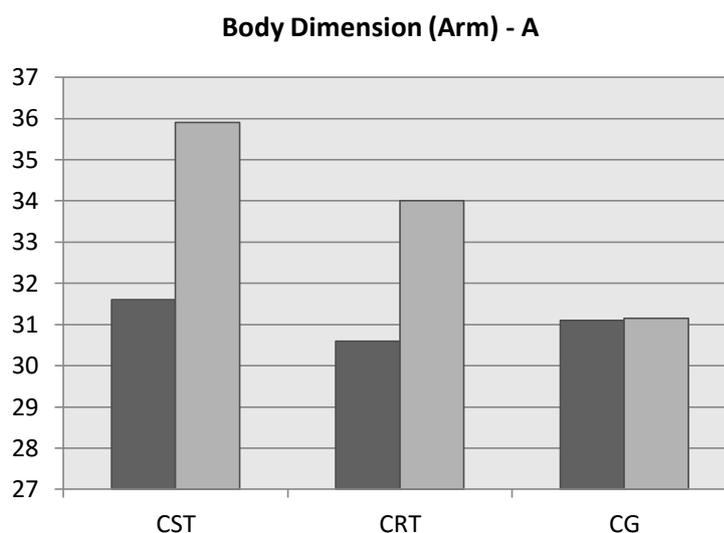
Data analysis

Descriptive data were calculated for all variables, All data presented as mean±SD. A two way analysis of variance (ANOVA) were performed to assess group difference for the variables including body strength (Upper and lower), power, arm and thigh circumference. All analysis were carried out using SPSS version 20 and statistical significance was set at $p < 0.05$.

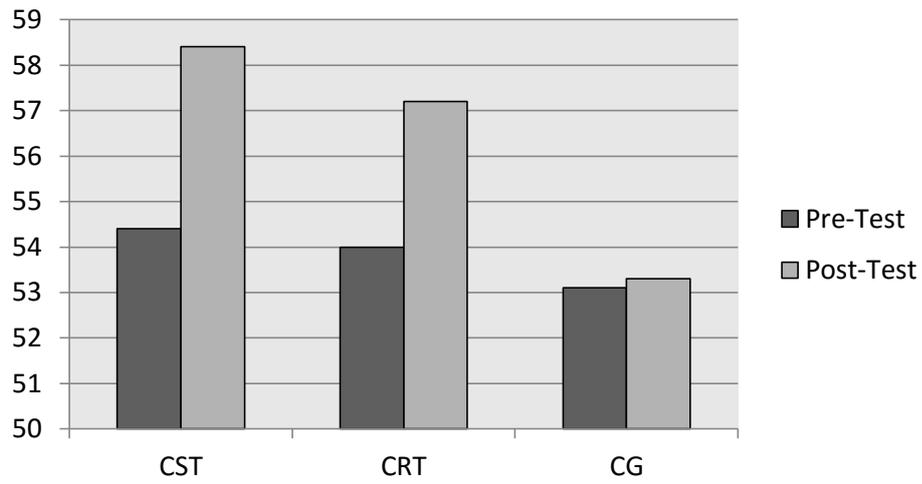
RESULTS AND DISCUSSION

Results

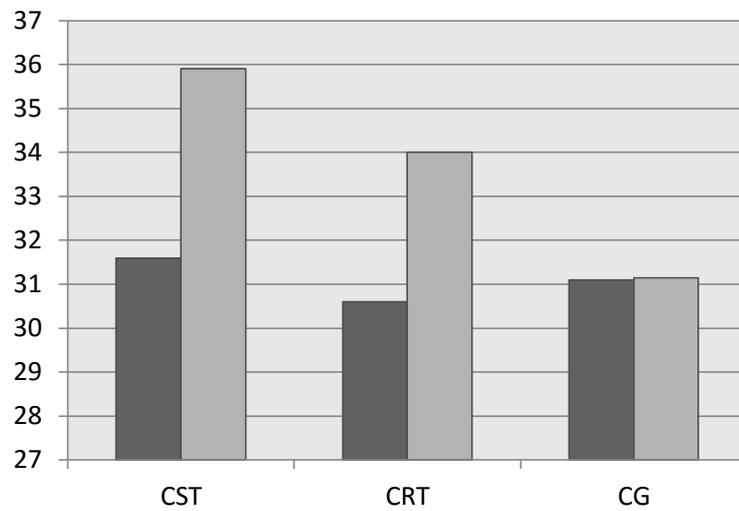
Significant differences increases in strength, power and body dimension were observed for CST and CRT group compared by pre and posttest ($p < 0.05$). ANOVA showed no significant differences in power and body dimension compared in all groups ($p > 0.05$) and Strength showed significant differences compared in all groups ($p < 0.05$). Figure 1 showed changes in all variables.



Body Dimension (Thigh) - B



Strength (Upper) - C



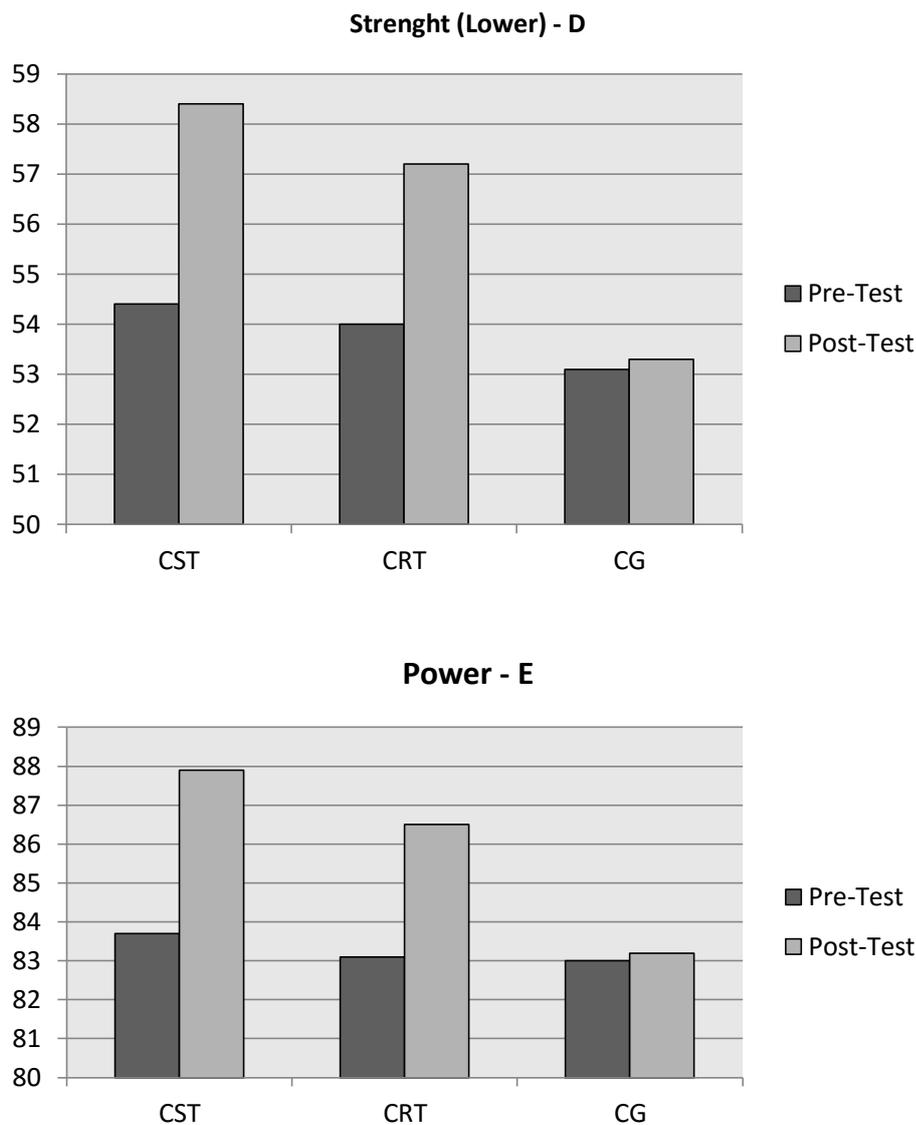


Figure 1. Changes in all variables, (A) & (B), Body dimension, (C) & (D), Strength and (D), Power pre and posttest during 8 weeks of training

All data has normal distribution with significance. > 0.05 . for the Body dimension components (arm circumference), CST group showed improvement by 13.6 % and CRT group showed improvement by 11.1%. for thigh circumference, CST group showed improvement 7.4% and CRT group showed 5.9% improvement. For strength components (Upper), CST group showed 12.6% improvement and CRT 4.1% improvement and lower strength (Lower) CST group showed 11.02% improvement and CRT group showed 3.7% improvement. For power components, CST group showed 5.01 % Improvement and CRT groups showed 4.1 % improvements.

DISCUSSION

Many resistance training can enhance performance and preparing athlete for the competition, and multiple-set system more effective to gain performance rather than single-set system (Rhea,2003). This study consist of 2 system resistance training program with 3 sets of exercise and

The finding of this study revealed that circuit weight training had an effect on the strength, power and body dimension in CST and CRT, but a significant difference is just strength component in CST compared in other groups. A circuit resistance training can affect body composition and body composition mostly depends on the type of exercise. The results of the current research are consistent with Hass et al (2000) with circuit training or multiple-set can improve body mass. Another study show that circuit training with performed three times per week can decreases body fat in untrained woman (Mark,2001) which can affect a muscle hypertrophy.

Muscular hypertrophy can increase body circumference. This finding study probable because the moderate rest interval timing (one minute) between exercises (Brad, 2010). Body can adaptations by increased capillary and mitochondrial density and an improved capacity to buffer H⁺, it can be minimizing performance decrements. Other study state that rest interval one minute between exercises induces greater hypoxia, that seems potential for increased muscle growth (Toigo,2006). The optimum rest interval also associated with a greater metabolic build up, that can increased anabolic hormonal concentrations (Kraemer, 1990). However, any system of resistance training can increased muscle hypertrophy and body dimension but the effectiveness depends of manipulating the training variables.

Other finding of this study was to significant increases strength and power, In CST group, upper body strength showed increased 12.6 % improvement and lower body strength showed increased 11.2 % improvement, compared with CRT group, upper body strength showed increased 4.1 % improvement and lower body strength showed increased 3.7 % improvement, and this increases was statistically significant, CST group can more increases strength rather than CRT group. Previous researchers reported that circuit resistance training program can improve strength and other performance.

It is important to consider that improvement observed in strength could have been induced by various variables such as neural drive enhancement to muscles, alterations in muscle size and changes in muscle mechanics (Thomas,2009). Using loading 40% - 60% of 1 RM load during circuit resistance training has been shown improved upper and lower body strength (Esquivel, 2007). Other study showed that circuit resistance training can increased 1 RM strength (Gettman, 1981). It is accepted that circuit programs when performed 3 sets can improved strength (Fleck, 2014). More Improvement muscle strength in CST groups perhaps by higher mechanical tension in muscle fiber. Consecutive multiple-set training induces force generation in localized one group muscles because shorting resting time in specific muscles rather than CRT group. Muscle force generation is considered to stimuli muscle growth (hornberger, 2006). Other possible causes by muscle damage and metabolis stress in muscles. Resistance training can results damage to muscle tissue, that condition can generated a hypertropic responses (Hill, 2009) which can increases muscle strength. Metabolic stress can generate anabolic role in muscles (smith,1995). Metabolic stress happened as a results of exercises that relies anaerobic glycolysis for ATP production and buid up a metabolite waste such as lactate, H⁺, creatine and others (Tesch, 1986) can generate greater acidic

environment, it can lead increase muscle fiber degradation and greater stimulation of sympathetic nerve activity and mediating hypertrophic responses in muscle which can be increases muscle strength (Buresh, 2009).

Resting time can affect the performance when the goal of training program to improvement in power. The ability of athletes to generate maximal power (Sleivert,2004) is one of the most essential components for success in sports (Bevan, 2010). Power defines as the amount of work produced in a given time (work/time) during muscular contractions and is limited by the force-velocity relationship (Hill,1938). This study finding that no significantly power improvement in all groups. Although previous researchers said that change in force production can induces muscle strength, which can affect the muscular power. The phenomenon fatigue-induces change in force production seems to be causes for enhancement in muscular power (maria,2013). The recovery duration is required to accommodate the increasing load, in accordance to the power-velocity relationship (Hill,1938). As has been suggested, the resting time should be provided 2 – minute for loads 0% - 12 % 1 RM and 3 – minute for loads 27 – 85% 1 RM (Cormie,2007). Other researchers suggest that rest interval of 1 – 4 minute duration have a seemingly negligible effect on power (maria,2003). Not significantly differences muscular power in CRT and CST groups seems to be caused by shorter rest interval and same in resting time in both groups.

CONCLUSION AND SUGGESTION

In conclusion, this 8 – weeks training can increased body dimension, strength, and power in CST and CRT groups. CST groups can increase more strength in upper and lower body compared in CRT groups. This is because in CST seems to look more produced a local muscle force generation which can lead to generate muscles damage and induced to anabolic components in muscle. It can be lead to muscle strength. Both of groups can enhance muscular power. Practitioners should consider the resting interval between sets. Previous researcher suggested 1 to 4 minute rest interval in training program to increases muscular power. However, it is recommended that uses same rest interval to be used in training program of the athletes, it is to ensure that athletes can be consistent while do the training program and prohibit a training failure results from training resting time.

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BASIC SELF-DEFENSE ABILITY OF SPORT AND PHYSICAL EDUCATION STUDENTS IN SURAKARTA IS STILL LOW

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Abstract

This article described a survey constituting the initial part of Education Research and Development to develop an innovative learning media in college. Survey research was conducted to obtain data of basic self-defense (pencak silat) ability the students of Health and Physical Education have. The research design used was survey, and the population of research was the students of Health and Physical Education in the colleges existing in Surakarta, Central Java. The sample was taken using proportional purposive random sampling. Techniques of collecting data used were test and measurement of basic self-defense skill. The data collected was analyzed using descriptive technique. The result of survey showed that basic self-defense skill ability the students have was still low. Even the score obtained by the students for basic self-defense material was the lowest one compared with the score of other materials (solospell and standard movement). The conclusion of research was that the implementation of self-defense learning in college should be studied urgently. One solution to the implementation of self-defense (martial art) learning in college is to use an innovative learning media. The result of current survey will be used as one basis to develop learning media of self-defense basic movement in college.

Keywords: Basic Self-Defense Skill, innovative learning media, self-defense score of students.

INTRODUCTION

The main duty of LPTK is to produce the high-quality of education staff. The students who will work in various education units later after they have graduated are prepared through learning program organized by lecturers (teacher educators). Although a variety of ideal learning process concepts is discussed intensively, lecturers have practiced slightly or have not practiced at all or exemplified it in their daily learning. The teacher training students will imitate what the lecturers do so that if the role modeling is conducted intensively and consistently in the learning process, the result will be very beneficial. The learning conducted by lecturers (teacher educators) will have expansive effect. The very strategic duty of lecturers is to be the reference model, in addition to exploring the students' potency.

The factors affecting the students (prospect teachers)' learning process, either externally and internally, are identified as follows. The external factors include lecturers, materials, interaction pattern, learning situation, system, and technology media. Some lecturers (teacher educators) still master the material inadequately and require the exactly same answer like what they have explained in evaluating the students. The lecturer also has a limited access to new information enabling them to find out the recent development in their field and farther development than what has been achieved currently. Meanwhile, lecturing material is considered as too erotic, giving contextual examples inadequately. The delivery method is monotonous and uses media less optimally. The utilization of media and education technology in Colleges shows that the use of learning instrument

by lecturers relies more on the instrument availability rather than its compatibility to the learning objective (Directorate General of High Education [Dirjen Dikti], 2005: 2-3).

The result of survey on Physical Education, Health and Recreation (*Penjaskesrek*) and Sport Coaching Education (*Penkepor*) study programs in UNS and UTP Surakarta, shows that the lecturers of *Pencak Silat* theory and practice course still lack of learning media. In the learning process of *pencak silat* course, the learning media used is still very simple, not using updated technology, that is, using the example of movement demonstrated directly by the lecturers themselves and helped by assistant lecturers.

The result of survey shows that the 6th-semester students who have passed successfully the *pencak silat* theory and practice course, in fact, are not ready for teaching practice with *pencak silat* material, despite in micro-teaching course. In *Penjaskesrek* study program of FKIP UNS, the students attending microteaching course or PPL, are not or have not been ready for teaching *pencak silat*. It can be seen from table 1 below:

Table 1. Microteaching Test Material Option for the students of *Penjaskesrek* study program of FKIP UNS

Sport Branch Competency		Sum	Percentage
Athletic	: a. Run	9	10.8
	b. Throw/Push	7	8.4
	c. Jump	14	16.9
Martial Art	: <i>Pencak Silat</i>	0	0
Big ball game	: a. Basket Ball	9	10.8
	b. Volleyball	15	18.1
	a. Football	16	19.3
Small ball game	: a. Table tennis	1	1.2
Others		12	14.5
Total		83	100

From Table 1 above, it can be found that the students of *Penjaskesrek* study program of FKIP UNS do not tend to take *pencak silat* material in both microteaching practice and test. The tendency of *Penkepor* study program students in taking the test material in microteaching course is presented below.

Table 2. Microteaching Test Material Option for the students of *Penkepor* study program of FKIP UNS

Sport Branch Competency		Sum	Percentage
Athletic	: a. Run	11	16.7
	b. Throw/Push	6	9.1
	c. Jump	10	15.1
Martial Art	: <i>Pencak Silat</i>	0	0
Big ball game	: a. Basket Ball	13	19.1
	b. Volleyball	12	18.2
	c. Football	13	19.1
Small ball game	: a. Table tennis	1	1.5
Others		66	100

The data presented in tables 1 and 2 shows that the students tend to choose branch sport other than self defense and aquatic sport or swimming for the material of microteaching course. It is confirmed by with the result of interview with the students taking microteaching learning course showing that most students do not choose *pencak silat (self-defense)* material because they have less self confidence. In addition, the interview shows that the students do not choose aquatic or swimming material to practice microteaching because of less supporting infrastructure.

Considering the elaboration above, the research on the implementation of practical *pencak silat* skill learning in *Penjaskesrek* and *Penkepor* study programs of UNS and *Penkepor* study program of UTP Surakarta is urgent.

Based on the problem statement above, the alternative problem solving is to develop audio visual media as the solution to improving the learning outcome of *pencak silat*. For that reasons, the following procedure is taken: Conducting analytical study on the limited scope need in *Penjaskesrek* and *Penkepor* study programs of UNS and *Penkepor* study program of UTP Surakarta to describe the current condition of *pencak silat* learning and to screen the need for learning media.

Considering the problems suggested above, this research aims to reveal the *pencak silat* skill learning among the students in *Penjaskesrek* and *Penkepor* study programs of UNS and *Penkepor* study program of UTP Surakarta currently.

The result of research is practically expected to improve the quality of *pencak silat* learning implementation in College.

a. Learning

The concept of education quality is one of ne paradigm elements in high education management in Indonesia. This paradigm contains such basic attributes as: relevant to the society's and graduate user's need, having academic circumstance in organizing the study, institutional commitment of leaders and staff to the effective and productive management of organization, study program continuity, and program efficiency selectively based on feasibility and sufficiency. Those dimensions have very strategic position and function to design and to develop the quality-oriented education organizing business in the future.

The quality should be treated as the criterion dimension serving as the parameter in the profession developing activity, related to both education institution organizing business and to learning activity in the class. All instrumental input component is arranged in such a way that it can synergistically result in optimum learning process, outcome and impact. Those belonging to instrumental input related directly to "*better students learning capacity*" are educator, curriculum and teaching material, learning climate, learning media, learning facility, and learning material. Meanwhile, the potential input includes the students with any of their characteristics such as learning readiness, motivation, social-cultural background, prior teaching supply, learning style, and need and objective (*Dirjen Dikti, 2004: 7*).

The indicators of learning quality can be seen from the lecturer or educator (teacher)'s learning behavior, the teacher training students' learning behavior and effect, learning climate, learning material, learning system, and learning media.

There are two problems related to learning media in college focusing on availability and utilization issues: (1) availability, there is unevenly distributed availability of learning media in various LPTKs currently. Some LPTKs can provide a variety of learning media in relatively large number; but some other have not had learning media types and number needed. It leads varying type and

number of media used by the lecturers. Some lecturers use diverse and many media maximally, but some others use them minimally. The media often used by lecturers is printed media (textbook, module, hand-out, poster, magazine, newspaper, etc). Meanwhile, simple media still used widely by lecturers is white board. Particularly audiovisual (overhead transparency, video/film, audiocassette) and electronic media (computer, internet) have not been used intensively yet; (2) media utilization. Lecturers often use printed media in the form of learning media, because it can be developed easily and searched for from many sources. However, most printed media is highly dependent on verbal symbols that are very abstract in nature that in turn require the very high abstracting ability from the students. It gives the students difficulty.

Dirjen Dikti (2005: 29) says that there are “mismatches” in learning media use occurring in college. It is affected by 3 factors: (1) novelty effect, (2) cost, and (3) lecturers’ skill.

In the 2013 curriculum, Physical Education, Sport and Health (*Penkasorkes*) subject shows that *pencak silat* martial art material should be delivered in every semester at all education levels, from Elementary to Senior High Schools. However, particularly at Elementary School (SD) level, it is given in the fifth and sixth grades only. Similarly, in College, including LPTK, *pencak silat* theory and practice course is given in all study programs.

Learning is the students’ complex action and behavior. Robert M.Gagne (1989: 3) suggests that *Learning is change in human disposition or capacity, simply ascribable to which persist over a period time, and which is not simply ascribable to process a growth*. Gagne believes that learning is affected by both external and internal interrelated factors. Psychologically, learning is a process of changing behavior as the result of interaction with environment in fulfilling their life need.

Meanwhile, Anisah Basleman and Syamsu Mappa (2011: 7-11) states that to get insight into the definition of learning, some definitions are proposed. They are:

Borger and Seaborne (1986: 14) as cited in Jarvis (1982: 74) defines “*Learning as any more or less permanent change in behaviour which is the result of experience*”. Traves (1977: 6) defines learning as the relatively permanent change in behavior as the result of exposure to environment condition. Vesta and Thomson (1970: 112) state that learning is a permanent change in behavior as the result of experience.

There are some perspectives to define learning, each of which is related to another. Jerrot W. App (1979: 159-160) states that there are five ways to define learning. They are: (1) from classical mental discipline perspective “*learning is training the mind and accumulating knowledge. It is an inner developmental process that focuses on such powers as imagination, memory, will, reason*”; (2) From developmental theory perspective, “*Learning as a process of individual development*”; (3) those supporting the learning theory perception sees “*Learning as dynamic process whereby one forms a collection or aggregate of learning that never remain fixed*”; and (4) From behaviorism perspective, “*Learning is a change in behavior*”; (5) From Medan Gestaltian, “*Learning as the development of insights resulting from the person’s interaction with his or her environment*”.

Richard Meyer (2008: 7) suggests that there are three basic points related to learning: (1) learning is the change in cognitive, affective, and psychomotor aspects, (2) learning includes the change of knowledge reflected on the changing behavior, and (3) learning is dependent on the learner’s experience. Experience is a knowledge changing process indicated with the changing behavior and this behavior lasts for a long time and tends to be permanent.

Meanwhile, Smaldino and Rusell (2005: 6) suggest that learning is the development of new knowledge, skill and attitude within individuals constituting the result of interaction. Such the development includes: (1) the change in the term of behavior, (2) the behavioral change ranges from the simplest to the most complex one, and (3) the behavior changing process should be controlled either internally or externally.

Another opinion related to learning is suggested by Slavin (2000: 143) that learning is a result of interaction between stimulus and response. An individual is considered as having learnt something if he/she shows the behavioral change. The important thing in learning, according to this theory, is input (stimulus) and output (response). Stimulus is everything the teacher gives to the learner, while response is the learner's reaction or response to the stimulus given by the teacher. The process occurring between stimulus and response is not important to consider because it is unobservable and immeasurable, what is observed is stimulus and response; therefore what the teacher gives (stimulus) and what the learner receives (response) should be observed and measured. This theory suggests measurement, because measurement is something important to see whether or not there is a behavioral change.

Good and Brophy (1990: 124) argue that *"Learning is the term we use to describe the processes involved in changing through experience. It is the process of acquiring relatively permanent change in understanding, attitude, knowledge, information, ability, and skill through experience"*. Furthermore, Sowell (1998: 4) suggests that *Learning is what student takes from classrooms in three classes of outcomes: knowledge (facts, concepts, generalizations), techniques (processes, skills, ability) and values (norms, attitudes, interests, appreciation, aversions)*.

b. Learning Media

The word *media* derives from Latin constituting the plural form of word *medium*, literally meaning agent or deliverer. Media is agent or message deliverer from the sender to the receiver of message. Heinich, et al. (2005: 9) defines media as follows: *"A medium (plural, media) is a means of communication and source of information. Derived from the Latin word meaning "between" the term refers to anything that carries information between a source and receiver. Examples include video, television, diagram, printed materials, computer program, and instructor. There are considered instructional media when they provide message with an instructional purpose. The purpose of media is to facilitate communication and learning"*.

Dick, Carey & Carey (2009: 202) explain that: *"One of the most interesting and challenging decisions in the instructional design process is the selection of the medium or media that will be used deliver the instruction. The decision is dependent upon a through knowledge of what is being taught, how it is to be taught how it will be the learners"*. Dick, Carey & Carey (2009: 197) also confirm, *"...although media is less important than other factors, some differences in learning outcomes are reflected in the media used to deliver instruction"*.

From some opinions above, the use or function of learning media is to clarify the delivery of learning material and it is not verbal in nature, so that the students becomes interested in attending the learning.

Teaching-learning process faces the abstract material beyond the students' daily experience, so that this material is difficult to teach by the teacher and less understandable to the students. Regarding this, Ronald G. Held (Rostina Sundayana, 2013:199) states that in an investigation, a student who learn using his auditory sense only, having remembered 70% of what he/she has heard,

he/she will remember only 10% 3 days later, but if a student learns using auditory and visual senses, after 3 hours, he/she will remember 85% of what he/she has seen and heard and he/she can remember 65% 3 days later.

c. Motor Skill

Skill, according to William H. Edwards (2011: 32), is divided into three domains: cognitive, perceptual, and motor skills. Cognitive skill is the one in which finding out what should be done or how to do it is the most important aspect in acquiring the skill. Although perceptual and motor elements can organize a part of cognitive skill, the achievement of targeted skill is largely determined by an individual's knowledge and cognitive ability. Perceptual skill is the one in which the ability of discerning or distinguishing sensory stimuli is very important in acquiring the skill successfully. In other words, to detect information; in achieving perceptual skill, the main objective of players (actors) is not to have motor ability to act on but to feel where and how to act on. Conceptual ability is very important in achieving most motor skill, so that motor skill is often called perceptual-motor skill. Motor skill is not conducted independent of perceptual and cognitive components necessary to complete the assignment. However, in many skills attractive to motor specialist, the quality of movement is the most important. The determinant of success in motor skill is the quality of movement.

William H. Edwards (2011: 38) states that motor skill is an activity studied and oriented to the objective particularly achieved through muscular contribution to movement and requiring various human behaviors.

Skill movement is also used to replace the motor skill. Skill movement is the movement including certain pattern or form requiring coordination and control over a part or whole body that can be mastered through learning process (Sugiyanto, 2007: 88). An individual who can implement the skill movement effectively and efficiently can be called skillful. It is said as efficient if the effort exerted in doing movement is as little as possible, no unnecessarily exerted effort is exerted.

William H. Edwards (2011: 44) also states that the term movement is often used as the synonym of a motor skill, but movement is not as same as the motor skill and these two terms should not be confused and interchanged. Movement refers to the characteristics of physical elements. The change in an individual's position of lower/upper limb or body part is a movement. Movement is one element composing a skill. Motor skill is organized through a series of movements organized simultaneously to realize a complex movement directed to the achievement of certain objective. Furthermore, a certain motor skill can be achieved through diverse movements.

The term *movement* is different from the term *ability*. William H. Edwards (2011: 45) states that ability is another term often used confusedly to mention the motor skill. Ability is the stable and durable characteristics that can be sent down genetically. Ability can be considered as the building block of motor skill, because it underlies the implementation of movement and plays a significant role in determining and individual's capacity of learning and playing the motor skill. The example of motor ability is the hand-eye coordination reaction time and lower/upper limb movement speed.

d. Pencak Silat

Basic movement of *pencak silat* (martial art), according to IPSI, is a planned, directed, coordinated, and controlled movement is an intact and inseparable unit. Meanwhile, according to Johansyah Lubis (2004: 4), there are general and special characteristics of *pencak silat*. Kotot Slamet Riyadi (2003: 4) says that *pencak silat* has four aspects. Each of *pencak silat* aspects represents

objective and they are interrelated. Those four aspects underlie the development of *pencak silat* into 4 goals: (1) mental-spiritual education *pencak silat*, (2) self-defense *pencak silat*, (3) art *pencak silat*, and (4) sport *pencak silat*. To master *pencak silat* skill, an individual should master basic movement skill of *pencak silat*. The basic skill of *pencak silat*, according to Agus Mukholid (2009:4) is divided into four categories: (1) attitude creation, (2) movement creation, (3) defense, and (4) attack.

METHOD

The sample was taken using proportional purposive random sampling technique. The sample consisted of the students who will attend pencak silat course in Penjaskesrek and Penkepor study programs in UNS and Penkepor study program in UTP Surakarta. Techniques of collecting data used were test and measurement of basic pencak silat skill. The data collected was then analyzed descriptively.

RESULTS AND DISCUSSION

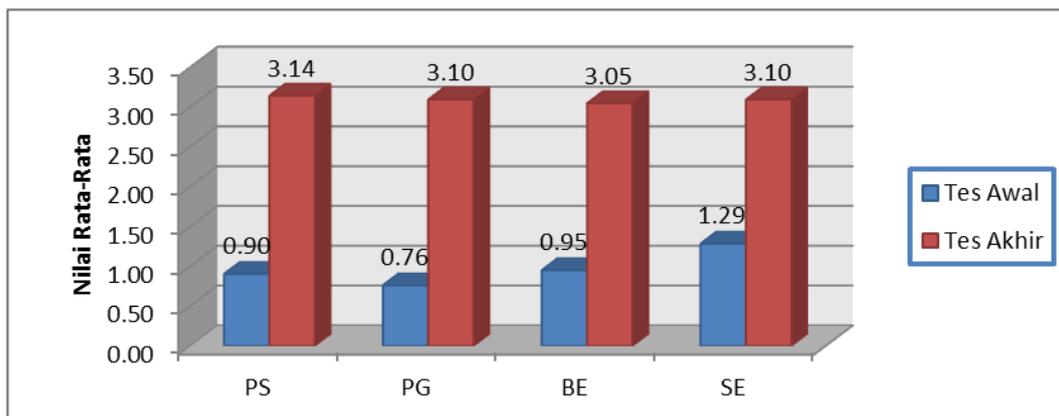
1. Result

The data was collected from 21 students of *Penkepor* study program of UNS Surakarta in Class A.

Table 3. Data of Mean Score for Basic *Pencak Silat* Skill in *Penkepor* study program of UNS Surakarta

No.	Basic component of <i>Pencak Silat</i>		
		<i>Pretest</i>	<i>Posttest</i>
1	Attitude Creation	0.90	3.14
2	Movement Creation	0.76	3.10
3	Defense	0.95	3.05
4	Attack	1.29	3.10

Data of pretest and posttest in *Penkepor* study program of UNS Surakarta is presented in figure 1 and table 4 below.



Note: PS= Attitude Creation; PG: Movement Creation; BE= Defense; SE= Attack

Figure 1. Histogram of mean score for *Pencak Silat* component in *Penkepor* study program of UNS Surakarta

Table 4. Data of Basic *Pencak Silat* Component in *Penkepor* study program of UNS Surakarta

Class B Order Number	PRETEST				Posttest			
	PG	PG	BE	SE	PS	PG	BE	SE
1	1	0	1	1	3	3	3	3
2	1	1	1	1	3	3	3	3
3	1	1	1	1	3	3	3	3
4	0	1	1	1	3	3	3	3
5	1	1	1	2	3	3	3	3
6	1	1	1	1	3	3	3	3
7	1	1	1	1	3	3	3	3
8	1	1	1	1	3	3	3	3
9	2	2	2	2	4	4	4	4
10	1	1	1	1	3	3	3	3
11	1	0	0	1	3	3	3	3
12	1	1	1	2	3	3	3	3
13	1	1	1	2	3	3	3	3
14	1	1	1	2	3	3	3	3
15	1	0	0	1	3	3	3	3
16	1	1	1	1	3	3	3	3
17	1	1	1	1	4	3	3	3
18	0	0	1	1	3	3	3	3
19	1	1	1	2	4	4	3	4
20	0	0	1	1	3	3	3	3
21	1	0	1	1	3	3	3	3
Total	19	16	20	27	66	65	64	65
Mean	0,90	0,76	0,95	1,29	3,14	3,10	3,05	3,10

Note: PS= Attitude Creation; PG: Movement Creation; BE= Defense; SE= Attack

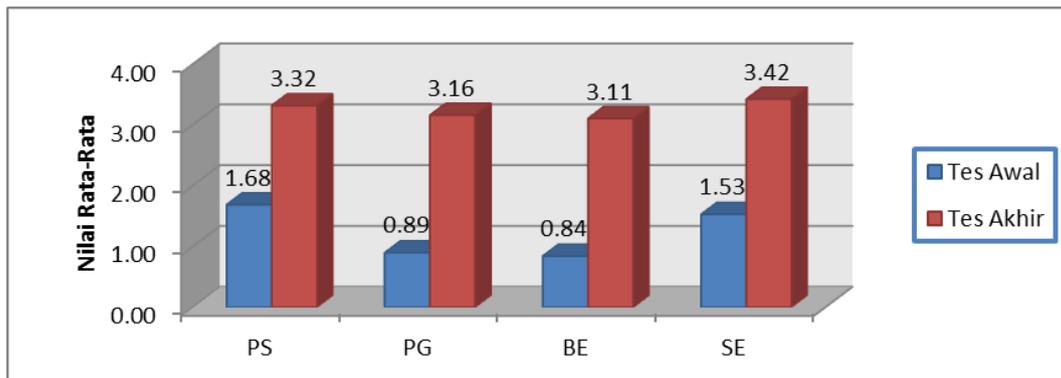
From the data above, it can be seen that there are 21 students. The data of attitude creation component shows mean score of 0.90 for pretest and 3.14 for posttest. There is an increase in the mean score by 2.24. The data of movement creation component shows mean score of 0.76 for pretest and 3.10 for posttest. There is an increase in the mean score by 2.34. The data of defense component shows mean score of 0.95 for pretest and 3.05 for posttest. There is an increase in the mean score by 2.10. Meanwhile, the data of attack component shows mean score of 1.25 for pretest and 3.10 for posttest. There is an increase in the mean score by 2.85. Thus, it can be found that the total mean score for those four basic components of *pencak silat* is 2.38.

Penjaskesrek study program of UNS Surakarta is conducted in the class B with 19 students. The complete data for *Penjaskesrek* study program of UNS Surakarta is presented below.

Table 5. Data of Mean Score for Basic *Pencak Silat* Skill in *Penjaskesrek* study program of UNS Surakarta

No.	Basic <i>Pencak Silat</i> Component	Pretest/posttest	
1	Attitude Creation	1.68	3.32
2	Movement Creation	0.89	3.16
3	Defense	0.84	3.11
4	Attack	1.53	3.42

Data in *Penjaskesrek* study program of UNS Surakarta viewed from individual components of basic *pencak silat* movement is presented below.



Note: PS= Attitude Creation; PG: Movement Creation; BE= Defense; SE= Attack

Figure 2. Histogram of Basic *Pencak Silat* component in *Penjaskesrek* study program of UNS Surakarta

From the data above, it can be seen that there are 19 students. The data of attitude creation component shows mean score of 1.68 for pretest and 3.32 for posttest. There is an increase in the mean score by 1.64. The data of movement creation component shows mean score of 0.89 for pretest and 3.16 for posttest. There is an increase in the mean score by 2.27. The data of defense component shows mean score of 0.84 for pretest and 3.16 for posttest. There is an increase in the mean score by 2.27. Meanwhile, the data of attack component shows mean score of 1.54 for pretest and 3.42 for posttest. There is an increase in the mean score by 1.88. Thus, it can be found that the total mean score for those four basic components of *pencak silat* is 2.01.

DISCUSSION

The score of *pencak silat* for basic motor skill is still low; it is likely because the process of implementing basic *pencak silat* learning has not been optimal yet. The improvement of *pencak silat* learning quality can be viewed from some perspectives, one of which is learning media use.

CONCLUSION AND SUGGESTION

The conclusion of research is that the basic *pencak silat* skill the students have is still low. Even some scores the students obtained after *pencak silat* learning have not been optimal yet.

The recommendation of research is that the implementation of pencak silat learning is very urgent to study in the Colleges in Surakarta, particularly in the term of pencak silat learning media use.

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POWER BAND TRAINING AIDS TOWARDSTHE STUDY RESULT OF GOLF SKILL

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Abstract

Golf is the most difficult sport in the world. In striking the ball, it needs a high concentration level and a good strike technique. It seems that striking the ball is easy. In fact, it is the most difficult technique and known as the most basic technique that should be mastered by golfer. To produce a good result study towards golf subject, so students need a training aid. One of them is power band training aids. Based on the problem, the researcher conducted the research with research questions: 1) does the use of power band training aids give significant result towards golf's study result? 2) is there any significant influence towards golf's result study without the use of power band training aids? Is there any different result study between the use of power band training aids and without the use of power band training aids? By using experiment method, the population in this research is the entire the sixth semester of Physical Education students from STKIP Pasundan Cimahi in academic year 2013-2014. The class ranged from class A-L who joined golf subject with each of class consisted of 27-35 students. The total number of students is 360 students. The technique sampling that is used in this research is cluster sampling. As many as 30 students are chosen from class a as experimental group and the other 30 students are chosen from class Gas control group. Based on the tabulating data using SPSS 20.00, it can be concluded that: 1) there is significant influence from the use of power band training aids towards the result study of golf; 2) there is significant influence towards the result study of golf without the use of power band training aids; and 3) learning using training aids gives more significant influence towards the result study of golf.

Keywords: Golf, Power Band Training Aids, the Result Study

INTRODUCTION

Learning is a complex process that occurs to everyone. It happens continuously in one's life since birth (even when still in womb) until die. Not only in during learning process, but also in education field there would be some obstacles. Those are experienced by teacher in the school and lecturer in the college in achieving the aim of learning. Learning activity will not always happen smoothly. Dalyono (2015, p. 227-229) states that the obstacle from the process of learning could be triggered by students themselves or external factors. Many ways is used to overcome the obstacles for example the use of learning method and interesting learning model, the use of aid device and learning media, the modification of game's instrument and form, etc.

In STKIP Pasundan Cimahi, there are a lot of subjects that should be passed through by the students, especially for Physical Education study program which dominantly consists of practice such as aquatic, *pencak silat*, small ball game, big ball game, even golf.

Golf is quite famous sport, especially in middle to high society. This sport is categorized as elite sport. To rent golf course needs quite expensive funds. Basically, golf is simple. It is only striking the ball using club and putting it into the hole.

The most important in golf is striking ball technique, calmness, and concentration. All of them very influence the golfer's striking. It seems easy but actually it is the most difficult and the most basic technique that should be had by the golfer. In fact, golf is the most difficult sport in the

world. It needs high concentration and good striking technique. Besides, the golfer, who have known and occupied with golf, regards golf as like human life based on the value that consists in golf.

In STKIP Pasundan Cimahi, golf is one of subjects that should be passed through by students in one semester. Certainly, it will not be easy for lecturer to teach striking skill in golf. It invites the researcher to use aid device in facilitating students to master basic technique of golf. It is in line with Djamarah (2014, p. 122), “students’ learning activity using media and aid device will produce better process and study result rather than not using both of them.” The aid device that is used is power band training aids. It is the supported string which helps to restrain legs’ stability when striking the ball. The purpose of this aid device is to make students easier to learn about the study result of golf.

Power band training aids comes from America which helps the golfer to omit the habit of making wrong swing started from set up, back swing, down swing until follow-through. Based on observation to the students who join golf, it is found that error and deficiency often occur in doing swing with excessive hands’ movement and making inappropriate basic technique movement from set up until follow-through. Power band training aids is expected can help in practicing golf’s basic technique. It is made from strong and flexible rubber in order to restrain hands’ position.

This device will help hands’ swing to expand swing movement in doing swing when striking. It can omit bad habit in striking and help to expand left hand but right elbow still constant in body when doing swing. The ribbon string around two arms helps to keep hands’ swing. The power band training aids’ elasticity can spread out when practicing and be used for various swings.

The uses of power band training aids are explained below:

- a. Increase swing movement
- b. Keep the stability of both hands’ swing movement
- c. Restrain the exact connection through swing
- d. Increase the length of hands’ swing



METHOD

In the research, it needs a way or the method to reach the result of the research’s aim. This research uses experimental research. According to Sugiyono (2010, p. 107) experimental research is the method that used to seek the influence of certain treatment towards another controlled conditions. There are many kinds of research design. In this research, true experimental design is

used as an actual research because the researcher controls the entire external variable that influences the research. The form of the research is pretest-posttest control design. There are two groups that are taken randomly. The first group is given treatment (x) as experiment group whereas second group is not given treatment as control group (Sugiyono, 2010, p. 112).

The population in this research is the third level of Physical Education program study in academic year 2013-2014 who join golf subject. There are twelve classes from class A until class L that each class has approximately 27-35 students. The total of population is 360 students. Sugiyono (2010, p. 117) states that population is a generalization area that consists of object or subject which has certain quality and characteristics that determined by the researcher to be studied and drawn its conclusion.

Not all of the population should be involved into the research. The total of population is constricted to represent the entire population in order to make the research easier and economize the cost. Sugiyono (2010, p. 118) describes sample as the part of population. The sample taken is class A as experiment group and class G as control group using cluster sampling. Each class has 30 students. The total of sample is 60 students.

The design of the research can be seen below:

Group	Pretest	Treatment	Posttest
1A	O1	X1	O2
2B	O1	-	O2

The design of the experimental research

Source: Sugiyono (2010, p. 112)

Note:

Group A1 is experiment group that is treated using aid device

Group 2B is control group that is not treated using aid device

O1 is pretest

O2 is posttest

X1 is learning using aid device or as experiment group

RESULT

After getting the data, the next step is tabulating the data in order to make the data has meaning and can answer the research questions.

1. The mean score and standard deviation
 - a. Experiment group

Table 1. The mean score and the standard deviation

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Pre_test	30	100	152	123.07	1.924	10.540
Post_test	30	160	190	176.30	1.660	9.094
Valid N (listwise)	30					

The table above shows the mean score of experiment group's pretest is 123.07; the mean score of experiment group's posttest is 176.30; whereas the standard deviation of pretest is 10.540; and the standard deviation of posttest is 9.094.

b. Control group

Table 2. The mean score and the standard deviation

Descriptive Statistics						
	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Pre-test	30	110	130	118.83	.937	5.133
Post_test	30	140	187	162.90	1.934	10.594
Valid N (listwise)	30					

The table above shows the mean score of control group's pretest is 118.83; the mean score of experiment group's posttest is 162.90; whereas the standard deviation of pretest is 5.133; and the standard deviation of posttest is 10.594.

2. Normality test

a. Experiment group

Table 3. Normality Test Result

One-Sample Kolmogorov-Smirnov Test			
		Pre_test	Post_test
N		30	30
Normal Parameters ^{a,b}	Mean	123.07	176.30
	Std. Deviation	10.540	9.094
	Absolute	.114	.143
Most Extreme Differences	Positive	.114	.093
	Negative	-.078	-.143
Kolmogorov-Smirnov Z		.627	.784
Asymp. Sig. (2-tailed)		.827	.570

a. Test distribution is Normal.

b. Calculated from data.

The table describes the value of Sig. (2-tailed) as many as 0.827 for pretest and 0.570 for posttest. If the value of Sig. (2-tailed) > 0.05 so the data is normal and if the value of Sig. (2-tailed) < 0.05 so the data is not normal. Since 0.827 and 0.570 > 0.05, so both of the data is normal.

b. Control Group

Table 4. Normality Test Result

One-Sample Kolmogorov-Smirnov Test			
		Tes_awal	Tes_akhir
N		30	30
Normal Parameters ^{a,b}	Mean	118.83	162.90
	Std. Deviation	5.133	10.594
	Absolute	.210	.108
Most Extreme Differences	Positive	.210	.108
	Negative	-.094	-.095
Kolmogorov-Smirnov Z		1.151	.591
Asymp. Sig. (2-tailed)		.141	.876

a. Test distribution is Normal.

b. Calculated from data.

The table describes the value of Sig. (2-tailed) as many as 0.141 for pretest and 0.876 for posttest. If the value of Sig. (2-tailed) > 0.05 so the data is normal and if the value of Sig. (2-tailed) < 0.05 so the data is not normal. Since 0.141 and 0.876 > 0.05, so both of the data is normal.

- 3. Homogeneity test
 - a. Experiment group

Table 5. Homogeneity test result

ANOVA					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1899.367	11	172.670	2.350	.052
Within Groups	1322.500	18	73.472		
Total	3221.867	29			

Based on the table above, the value of Sig is 0.052. If the value of Sig > 0.05 so the data is homogeny and if the value of Sig < 0.05 so the data is not homogeny. Since the value of Sig 0.052 > 0.05, so the data is homogeny.

- b. Control group

Table 6. Homogeneity test result

ANOVA					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	277.000	12	23.083	.806	.642
Within Groups	487.167	17	28.657		
Total	764.167	29			

Based on the table above, the value of Sig is 0.642. If the value of Sig > 0.05 so the data is homogeny and if the value of Sig < 0.05 so the data is not homogeny. Since the value of Sig 0.642 > 0.05, so the data is homogeny.

- 4. Hypothesis test

The hypothesis is tested using Paired Samples Test to examine if there is difference in mean for two groups. The subject is equal but experience different treatment.

- a. Control group

Table 7. Hypothesis test result

		Paired Differences				t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower Upper			
Pair 1	Pre_tes							
	Post_tes	-44.067	11.095	2.026	-48.210 -39.924	-21.754	29	.000

The table shows the value of t as many as 21.754 and the value of Sig. (2-tailed) 0.00. Hypothesis:

Ho : there is no significant influence

Hi : there is significant influence

The basic decision based on probability can be seen as follow:

If probability > 0.05, Hi is accepted

If probability < 0.05, Hi is rejected

The basic decision by comparing the value of derived t and t table can be seen as follow:

If the value of derived t < the value of t, Ho is accepted

If the value of derived t > the value of t, Hi is accepted

Since $0.000 < 0.05$, so H_0 is rejected. It means that the use of aid device gives significant influence towards golf's study result.

Also it is found that the value of t is $21.754 > t_{table} 2.018$. So, H_0 is rejected and H_1 is accepted. It means there is significant influence towards golf's study result in control group.

b. Experiment group

Table 8. Hypothesis test result
Paired Samples Test

	Mean	Std. Deviation	Paired Differences		t	df	Sig. (2-tailed)	
			Std. Error Mean	95% Confidence Interval of the Difference				
				Lower				Upper
Pair 1 Pre_test - Post_test	-53.233	12.068	2.203	-57.740 -48.727	-24.161	29	.000	

The table shows the value of t as many as 24.161 and the value of Sig. (2-tailed) 0.00. Hypothesis:

H_0 : there is no significant influence

H_1 : there is significant influence

The basic decision based on probability can be seen as follow:

If probability > 0.05 , H_1 is accepted

If probability < 0.05 , H_0 is rejected

The basic decision by comparing the value of derived t and t_{table} can be seen as follow:

If the value of derived $t < t_{table}$, H_0 is accepted

If the value of derived $t > t_{table}$, H_1 is accepted

Since $0.000 < 0.05$, so H_0 is rejected. It means that the use of aid device gives significant influence towards golf's study result.

Also it is found that the value of t is $24.161 > t_{table} 2.018$. So, H_0 is rejected and H_1 is accepted. It means there is significant influence towards golf's study result in experiment group.

5. Mean score's difference test

This test is conducted to see whether there is difference in mean score in two groups. To know the mean score's difference, independent t test is used.

Tabel 9

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
Nilai	Equal variances assumed	.431	.514	5.257	58	.000	13.400	2.549	8.298	18.502
	Equal variances not assumed			5.257	56.699	.000	13.400	2.549	8.295	18.505

Tabel 10

Group Statistics					
	Group	N	Mean	Std. Deviation	Std. Error Mean
Experiment	Pre test	30	123.07	10.540	1.924
	Post test	30	176.30	9.094	1.660
Control	Pre test	30	118.83	5.133	.937
	Post test	30	162.90	10.594	1.934

Tabel 11

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower		Upper
Experiment	Equal variances assumed	.479	.491	-20.944	58	.000	-53.233	2.542	-58.321	-48.146
	Equal variances not assumed			-20.944	56.781	.000	-53.233	2.542	-58.323	-48.143
control	Equal variances assumed	11.388	.001	-20.503	58	.000	-44.067	2.149	-48.369	-39.764
	Equal variances not assumed			-20.503	41.906	.000	-44.067	2.149	-48.404	-39.729

If the value of derived $t > t$ table, so H_0 is rejected and H_1 is accepted. It means that there is influence or mean's score difference.

If the value of derived $t < t$ table, so H_0 is accepted and H_1 is rejected. It means that there is no influence or mean's score difference.

Result of independent sample t test from experiment group is 20.944 and it can be concluded that the value of derived $t 20.944 > t$ table 2.0148. H_0 is accepted and H_1 is rejected. It means that there is influence. The result of independent sample t test from control group is 20.503 and it can be concluded that the value of derived $t 20.503 > t$ table 2.0148. H_0 is accepted and H_1 is rejected. It means that there is influence. The value of the raising mean score from experiment group is 53.233 and from control group is 44.047. It can be concluded that the mean score of experiment group $53.233 >$ the mean score of control group 44.067. It means that experiment group has more significant influence than control group.

DISCUSSION

1. Based on the calculation of normality and homogeneity test the data that is used in this research is normal and homogeny.
2. The result of the calculation paired samples t test towards experiment group is 20.944. The value of derived $t 20.944 > t$ table 2.018. H_0 is rejected and H_1 is accepted. It can be concluded

that after being conducted paired samples t test towards experiment group. There are difference and enhancement towards the mean score. It means there is influence that is produced by learning using power band training aids towards golf's study result in experiment group. The result from the calculation paired samples t test towards control group is 20.503. The value of derived t $20.503 > t$ table 2.018. It can be concluded that after being conducted paired samples t test towards control group. There are difference and enhancement towards the mean score. It means there is influence that is produced by learning not using power band training aids towards golf's study result in control group.

3. The result of t test to compare the mean score of two groups shows the result from independent samples t test. The value of the mean score's enhancement in experiment group is 53.233 and control group is 44.067. If $53.233 > 44.067$, so H_0 is rejected and H_1 is accepted. It means that there is the mean score's difference in two groups. In experiment group, which learn using power band training aids, gives more significant influence towards golf learning.

CONCLUSION

According to the tabulation of the data using SPSS 20.00, it can be concluded that:

1. Learning using aid device gives significant influence towards golf's study result.
2. Learning without using aid device gives significant influence towards golf's study result.
3. Learning using aid device gives more significant influence towards golf's study result.

RECOMMENDATION

Based on the result the researcher suggests:

1. The institution should be more pay attention to facilitation and infrastructure such as providing aid device to make learning process easier in order to enhance students' study result.
2. The students should be enthusiast in enhancing learning's spirit and motivation in golf subject to enhance their study result.

IMPLICATION

Based on the findings, the use of power band training aids can enhance golf's study result. By using aid device, the students will be helped during learning process to enhance their study result. In this case, media or aid device plays important role in making easier to master the movement and enhance golf's study result. It is in line with Djamarah (2010, p. 122) who states, "the students' learning process using media will produce better process and study result rather than without using media."

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LEARNING BASKETBALL USING TGT MODEL

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Abstract

The purpose of this research is to know the influence of cooperative learning model type TGT and emotional intelligence toward the ability of playing basketball. The method that is used in this method is quasi-experimental using pre-test post-test approach. The population that was taken is the students of SMK Indonesia Raya Bandung, meanwhile the sample taken is the tenth grade of office affairs administration (*administrasi perkantoran*) that consisted of 40 students. The research was held as many as 12 meetings. The instruments used in this research are the questionnaire of emotional intelligence and basketball test. According to the result of data analysis and tabulation by SPSS 16 using paired sample test, 1) there is low influence of emotional intelligence towards the result of basketball test with the value of significance $0.000 < 0.005$, 2) there is high influence of emotional intelligence towards the result of basketball test with the value of significance $0.000 < 0.005$ and based on the result of anova test, it can be concluded that there is significant interaction between emotional intelligence and TGT toward the ability of playing basketball with the value of significance $0.000 < 0.05$

Keywords: Basketball, Emotional Intelligence and TGT

INTRODUCTION

Basketball is one of games that is played in team and included in big ball game. This game should be introduced in physical education subject in school. Its characteristics teach the students to be work in team. The students are expected to develop not only their physic aspect but also their social and emotional aspect. Edi Komarudin (2010, p. 1) states, "basketball is big ball game that is played in team where one team consists of five players in order to put the ball into opponent's ring to get point." The movement in basketball is very complex that is the combination of walking, running, power, speed, accuracy, flexibility, etc. that supports basic technique in basketball. The movement's complexity of basketball makes students should have good physical strength and emotional level. Emotional intelligence in basketball is very important because there are a lot of techniques that should be taught and exercised by students. Goleman (2005, p. 23) mentions that emotional intelligence is able to determine someone' potency to learn practical skills and support his performance. It indicates when playing basketball, the students should have intelligence. This thing makes the teachers have an obstacle in motivating their students to study.

In learning physical education, especially in senior high school, usually students have less motivation in following the learning process. The result of students' motor skill proves that they still don't master the skill. They also have difficulties to understand the basic of learning. The teachers need seriousness to deliver the material in order to make students easier to understand. In learning physical education, it needs seriousness, motivation and high intellectual to support students' understanding. The obstacles faced by teachers are how to embed motivation and how to create students' intelligence and emotional so that they are able to follow the learning process. One way to make students having motivation is by seeking an appropriate learning method. Arend in Suprijono (2010, p. 46) states "learning method refers to an approach that will be used. It includes the purpose of learning, the step of learning activity, the learning environment and the class management." One

of interesting learning methods that can be applied in learning basketball is cooperative learning method type TGT.

Slavin (2005, p.4) defines cooperative learning as various learning method where the students work in small team to help each other in learning material. Taniredja (2012, p.5) states, "cooperative learning is a learning system which gives students the chances to do teamwork in doing structural task." One of cooperative learning types is TGT (Team Game Tournament). According to Slavin (2005, p.163) TGT is cooperative learning model that uses academic tournament and quiz where the students against as team representative with the members who have equal academic performance." Further, Trianto (2010, p.83) adds that in TGT the students are divided into several teams or groups that consist of 3-5 students to play the game with the other teams in order to get point for their team's score." TGT is able to stimulate students' emotional intelligence, motivation, and seriousness so that they can master the basic technique of basketball.

This matter is in line with I Putu Wisnu Yoga Prathama's research (2013) entitled The Implementation of Cooperative Learning Model TGT in Enhancing Activity and Study Result of Passing Technique in Basketball. The researcher states that it is found that students' study result in passing technique (chest past and bounce pass) in basketball increases through the implementation of cooperative learning model TGT. Based on Oktovianus S. Samuel's research (2016) entitled The Application of Cooperative Learning Model TGT in Enhancing Study Result in Football TGT can increase students' study result in football. Tamim et al. with their research entitled Increasing Forehand Technique's Study Result through Cooperative Learning Model TGT in Table Tennis reveal that TGT is able to increase forehand's study result in table tennis. Sonjaya, Azhar Ramadhana's research (2014) which entitled The Influence of Cooperative Learning TGT towards Motivation to Learn and Motoric Skill declares that TGT is better than conventional learning method towards students' motivation to learn and motoric skill. Parendrarti, Restika's Research (2009) which entitled The Application of Cooperative Learning TGT in Increasing Motivation and Study Result in Biology clarifies TGT can increase motivation and study result in biology. Sari's research (2014) which entitled The Experimentation of Cooperative Learning Model Teams Games Tournament and Team Assisted Individualization in Line and Angle Material Viewed from Emotional Intellectual states that TGT can be applied in group that has lower intellectual to reach Math's study result. Sari, Lestari Andika's research (2010) which entitled The Influence of Physics Using Teams Game Tournament and Student Teams Achievement Division towards Achievement Viewed from Motivation to Learn states that TGT is more effective to be implemented in group that has high motivation. The last, Wibowo, Cokro (2014) in his research entitled The Influence of Cooperative Learning TGT and Peer Teaching in Big Ball Game towards the Development of Intellectual Emotional mentions that TGT gives influence towards the development of the students' emotional intellectual.

Referring to the findings and problems that happen in field, the writer interests in discussing further about the influence of TGT and emotional intellectual in basketball. This research is important since learning method is one of supporting factors in enhancing students' study result. This research is expected to contribute in changes and recondition of physical education especially in basketball and to inform the teachers to choose TGT as an effective way reach good study result in learning basketball. The purpose of this research is to know the influence of cooperative learning TGT and low emotional intelligence towards basketball.

METHOD

The method used in this research is quasi-experimental in pretest-posttest one group design that is held in 12 meetings. This research study is conducted to know whether the TGD influence emotional intelligence in basketball. Sugiyono (2012, p. 107) states, “experimental method can be described as research method that is used to seek certain influence towards the other variables in controlled situation.”

The population taken is the tenth grade of SMK Indonesia Raya that consists of two faculties. The total student is 68 students. As many as 40 students are taken as sample using random sampling. There are two variables. First, the independent variable namely TGT learning model and emotional intellectual. Second, the dependent variable namely skill in basketball. There are two instruments in this research. First, questionnaire to measure students’ emotional intelligence where the calculation uses Likert scale. Second, basketball test from Nurhasan (2013, p. 200), that is test in mastering the basic technique of basketball such as dribble, passing and shooting to see students’ skill in play basketball.

The data analysis techniques used are: 1) seeking mean score and standard deviation; 2) testing normality using Liliefors test; 3) testing homogeneity; and 4) test the hypothesis using t test. The calculation is helped using Microsoft Excel 2013 and SPSS 16 application.

RESULT AND DISCUSSION

1. Data description

In describing research finding data, the researcher used Microsoft Excel 2013 to display mean score and standard deviation from emotional intelligence, pre-test and post-test.

Table 1. Skill in Playing Basketball Test and Emotional Intelligence

	Mean score	Standard deviation	max	min
Emotional intelligence	115.3	11.97	137	86
Pretest basketball with low emotional intelligence	16.24	1.393261092	18	15
Posttest basketball with low emotional intelligence	18.65	1.617914416	21	16
Pretest basketball with high emotional intelligence	22.74	2.471977333	28	20
Posttest basketball with high emotional intelligence	26.22	2.066101329	31	24

The table shows the mean score of emotional intelligence is 115.3. The mean score of pretest with low emotional intelligence is 16.24 and the mean score of posttest with low emotional intelligence is 18.65; meanwhile the mean score of pretest with high emotional intelligence is 22.74 and the mean score of posttest with high emotional intelligence is 26.22. It can be seen the difference in the increase of test. The group with low emotional intelligence only increases 2.41; meanwhile the group with high emotional intelligence increase 3.48.

2. Normality And Homogeniety Test

a. Normality test

This research uses one-sample Kolmogorov Smirnov test to examine normality in SPSS 16

Table 2. The Result of Normality Test

One-Sample Kolmogorov-Smirnov Test

		Pretest_Bolabas ket	Posttest_Bolaba sket
N		40	40
Normal Parameters ^a	Mean	19.98	23.00
	Std. Deviation	3.853	4.224
Most Extreme Differences	Absolute	.124	.169
	Positive	.124	.136
	Negative	-.098	-.169
Kolmogorov-Smirnov Z		.784	1.066
Asymp. Sig. (2-tailed)		.571	.206
a. Test distribution is Normal.			

The criteria to test normality:

- 1) If significance > 0.05, so the data is accepted which means the data is normal.
- 2) If significance < 0.05, so the data is rejected which means the data is not normal.

Based on table 2, the result of normality test can be seen in Asymp. Sig. (2-tailed), the pretest is 0.571 and posttest 0.206. Both of them are bigger than 0.05 which means that all of the data is normal

b. Homogeneity Test

This test uses Levene’s test in SPSS 16 application.

Table 3. The Result of Homogeneity Test

Test of Homogeneity of Variances

peningkatan

Levene Statistic	df1	df2	Sig.
.303	1	38	.585

Table 3 shows the value of Sig. is 0.565 > 0.05, which means the data obtained is homogeny. In other words, the population have an equal varian.

3. Hypothesis Test

a. TGT in giving significant influence towards basketball skill

Table 4. The Result of Paired Samples Test

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair pretest_bola_1 basket - posttest_bola_1 basket	-3.025	.974	.154	-3.336	-2.714	19.649	39	.000

The table shows the influence of low emotional intelligence towards basketball skill. It can be concluded that the value of significance as many as 0.000 < 0.05. It means that Ho is rejected. So,

there is significant influence between low emotional intelligence towards basketball skill in SMK Indonesia Raya Bandung.

b. Low emotional intelligence gives significant influence towards basketball skill

Table 5. The Result of Paired Sample Test in Low Emotional Intelligence

Paired Samples Test								
	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 kecerdasan emosional R - Peningkatan	1.016	7.357	1.784	97.81	105.37	56.93	16	.000

From the table, it can be concluded that the value of significance as many as $0.000 < 0.05$. It means that H_0 is rejected. So, there is significant influence between low emotional intelligence towards basketball skill in SMK Indonesia Raya Bandung.

c. Low emotional intelligence gives significant influence towards basketball skill

Table 6. The Result of Paired Sample Test in High Emotional Intelligence

Paired Samples Test								
	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 kecerdasan emosional T - Peningkatan	1.199	5.98	1.247	117.37	112.54	96.19	22	.000

From the table, it can be concluded that the value of significance as many as $0.000 < 0.05$. It means that H_0 is rejected. So, there is significant influence between high emotional intelligence towards basketball skill in SMK Indonesia Raya Bandung.

d. There is Significant Interaction between Emotional Intelligence towards Basketball Skill

Table 7. The Result of ANOVA between Emotional Intelligence and TGT towards Basketball Skill

ANOVA					
peningkatan	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16.113	1	16.113	24.504	.000
Within Groups	24.987	38	.658		
Total	41.100	39			

Based on the calculation of ANOVA test in table 7 about the significant interaction between emotional intelligence and TGT towards basketball, it is known that the value of ANOVA test is $0.000 < 0.05$, which means H_0 is rejected. It can be concluded that there is significant interaction between emotional intelligence and TGT towards basketball skill in SMK Indonesia Raya Bandung.

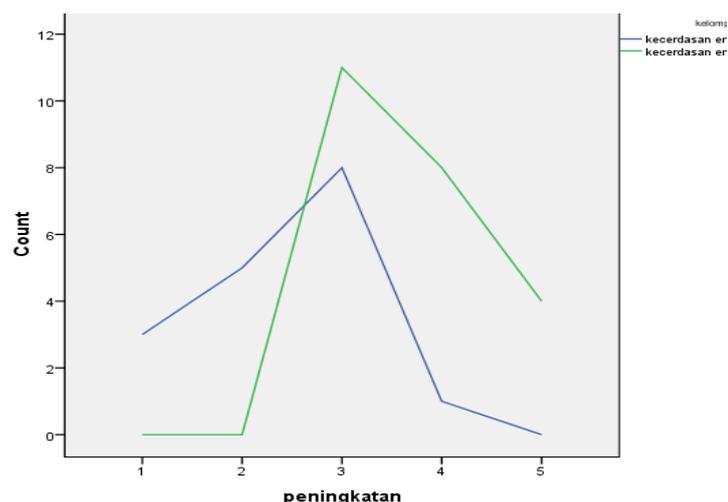


Figure 1. ANOVA Graphic

DISCUSSION

Based on findings from hypothesis testing, the cooperative learning TGT influences towards basketball skill. TGT is cooperative learning model that uses academic tournament and quiz, where students against as team representative with the members who have equal academic performance. Low emotional intelligence influences significantly towards basketball skill. The data tabulation describes there is significant enhancement in experimental group who have low emotional intelligence. Not only doing pretest and posttest, the researcher also conducting observation through questionnaire to know how high and how low students' intelligence. High emotional intelligence gives significant influence towards basketball skill. High emotional intelligence group and low emotional intelligence group were treated same learning. Even high emotional intelligence did learning as usual, but because of repeatedly learning process so the writer concludes that by learning as usual can change basketball skill. The hypothesis test shows that there is different influence between high emotional intelligence group and low emotional intelligence group. Learning used cooperative learning TGT also influence towards the enhancement of basketball skill

CONCLUSION

1. There is significant influence from cooperative learning TGT towards basketball skill.
2. There is significant influence from low emotional intelligence towards basketball skill.
3. There is significant influence from high emotional intelligence towards basketball skill.
4. There is significant interaction between emotional intelligence and TGT towards basketball skill.

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AN ANALYSIS OF FIGHTING STYLES OF FLYWEIGHT BOXERS UNDER NEW OFFICIAL RULES

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Abstract

The purpose of this study was to analyze fighting styles of flyweight winning competing in the Olympic Games 2012. Recorded videos of 20 boxers from 25 fights were analyzed in Focus x2 program for types of punch, types of movement, and duration of activities. Pearson correlation of coefficient was employed to determine bi-variable association between bouts. One-way ANOVA with repeated measures was used to compare differences between rounds of fight in each variable.

Keywords: Styles of Fighting, flyweight, Boxer, Winner

RESULTS

Positive correlation was found among all three rounds in numbers of clinch. While between round one and round three positive correlation was found in numbers of stop by referee, average stoppage time, average fighting time, numbers of counter attack, numbers of single punch, numbers of combo punches, and total numbers of punch ($p \leq 0.05$)

Numbers of stoppage time was found greatest in round three followed by round two and one respectively. In round one, winning boxers showed less numbers of clinch but greater air punches (missing the target), showed non-attack movement the most in round two. The duration from fight initiation to first stoppage time was greater in round one as well as numbers of clinch. ($p \leq 0.05$).

CONCLUSION

While number and duration of most activities were found comparable among all three rounds of fight, it would be necessary for winning boxers to showed greater attacking activities especially in the first round, and had showed more movements in the second round probably to reserve energy so that they could resume the same attacking styles in the third round.

INVESTIGATION INTO CRITICAL PARAMETERS OF SPECIFIC TRAINING OF HIGH INTENSITY PLYOMETRICS (HIP) OF MALE HIGH JUMPER

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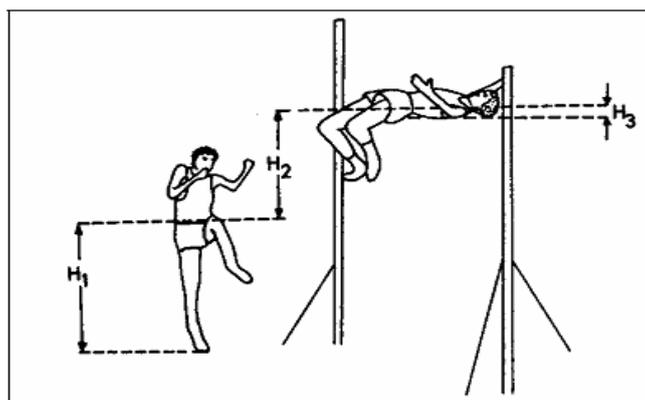
Abstract

The aims of this study was to investigate the most important phase of flop technique, the effect of high intensity of specific plyometric exercises namely *standing flop (SF)*, *short approach (SA)*, *long approach (LA)*, *scissor jumps (SJ)*, *depth jumps (DJ)*, *single leg hops (SLH)*, *single leg jump (SLJ)* and *double leg jump (DLJ)*, volume or the amount of jump repetitions per week categorized into groups A (<128 jumps), B (128-199 jumps), C(199-264 jumps), D(264-323 jumps), E (>323 jumps) as well as the intensity or high of hurdles or barriers used for vertical and horizontal jump classified into 80%, 85%, 90%, 95% and 100% of maximal jump ability in increasing the performance of high jump. The documentation of plyometric training programs using several parameters of 10 (ten) males elite high jumpers (mean age 27.3 ± 1.5 yr; mass 66.8 ± 4.5 kg; height 178.3 ± 4.4 cm; leg length 104.7 ± 1.9 cm) for 9 consecutive years starting from 2007 to 2016 would be reviewed. The result of F calculation ($205.11 \geq F$ table (2. 01) proves it that all forms of plyometric have a positive influence on performance of high jump with differential value of influence. The SLJ ($p < 0.001$), 95% ($p < 0.001$) of intensity and group A of volume (<128 jumps) ($p < 0.001$) per week showed the greatest positive influence on increasing the high jump performance. On the other hand, second results of the statistical analysis indicated that the test parameters of SF proved by regression equation $Y = 129 + 0.5 X7$ ($p < 0.001$) has the greatest correlation compared with the other parameter tests, which means that for every increasing of one (1) centimeter of parameter test of SF (X7) ($p < 0.001$), then the performance of high jump (Y) will be increased 0.0458 ($p < 0.001$) centimeter as well.

Keywords: Plyometrics, High Intensity, High Jump, Flop, Coaching, Elite

INTRODUCTION

The Flop is the latest technique in high jump and was discovered by Richard Fosbury in 1932. Through time, the flop is increasingly changing towards to a perfect technique. The following figure will described an explanation related to phases of the flop. The flop is divided into three principles of main phases and was clarified by the theory which explains that "The flop technique consists of a run-up phase, the take-off phase (Inc. take-off preparation), and flight or bar clearance phase (including landing phase)". (Göhner, 1996.S.60). It explains that the *take.off phase* is a crucial phase in order to provide a great achievement in vertical jump since, the better a vertical jump is performed, the greater the chance it is to obtain a good performance. "The peak height of the center of mass during the flight over the bar is dependent on the height and the vertical velocity of the center of mass at the toe-off instant self, while the height of the jumper's center of mass at the instant of toe off is highly influenced by his physique and his body position at that instant (Dapena et.al., 1990).



The biomechanical partial of body component, Hay (1973, S. 1313)

Based on the analysis of the body components distribution above, it can be concluded that a flop consists of three main components, namely the height of the center of mass (*com*) in a standing/take-off position (H_1), a maximum height of *com* (H_2) and the ability to cross over the bar / difference of *com*-altitude and high bar (H_3). The summation of these three factors ($H = H_1 + H_2 + H_3$) can be used to analyze and predict a performance of high jump.

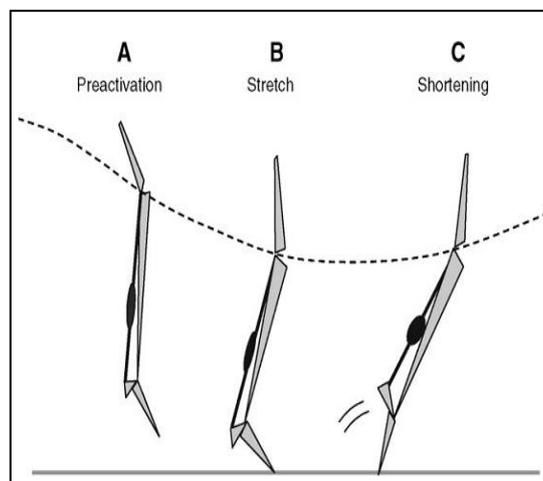
Name	H1 (m)	H2 (m)	H3 (m)	Result (m)	H1%	H2%	H3%
Yuriy Krymareenko	0.88	1.32	2.40	2.32	47.51	71.08	2.40
Victor Moya	0.85	1.40	2.38	2.29	43.52	71.22	2.38
Yaroslav Rybakov	0.99	1.43	2.32	2.29	50.56	72.96	2.32
Mark Boswell	0.88	1.36	2.31	2.29	46.46	72.06	2.31
Jaroslav Baba	0.93	1.41	2.33	2.29	47.40	71.79	2.33
Nicola Ciotti	0.86	1.34	2.33	2.29	45.83	71.76	2.33
Stefan Holm	0.87	1.28	2.32	2.29	48.07	70.72	2.32
Vyacheslav Voronin	0.89	1.39	2.30	2.29	46.95	72.89	2.30
Dracutin Topic	0.99	1.34	2.31	2.25	50.30	67.92	2.31
Kyrikos Iannou	0.98	1.36	2.29	2.25	50.67	70.47	2.29
Oskari Frösen	0.97	1.42	2.29	2.20	50.05	73.40	2.29
Matt Hemingway	0.97	1.43	2.32	2.20	49.19	72.37	2.32
Andriy Sokolovskyy	0.97	1.40	2.24	2.20	49.44	71.33	2.24
average	0.93	1.37	2.32	2.27	48.15	71.54	2.32
standard deviation	0.05	0.05	0.04	0.04	2.15	1.41	0.04

Biomechanical Analysis of Men's High Jump Final 2005 IAAF World Championships, Isolehto, Virmavirta and Komi (2005).

The table above shows that the vertical jumping ability (H_2) is a factor that has the greatest percentage of influence with around 70% compared with Length of Leg (H_1) with percentage of influence only around 50% and factor H_3 as well that only has a percentage of influence less than 3% on supporting the achievement of the high jump. Since the H_1 factor is strongly influenced by genetic factors and cannot be improved anymore except through biological natural growth, then H_2 factor is the only factor that can be improved through physical exercise, most coaches' focus on trying to find an effective exercise to provide optimal vertical jump ability (H_2). A Plyometrics currently become one of the most favorite exercises conducted by the coaches almost in all branches of sport. It used to enhance an explosive power or physical abilities of the athletes especially in sports that require explosive power of the leg or arm muscles. It was defined as a "shock method" and is generally used by athletes to improve his performance in sports, especially those that involve speed, quickness, power and mainly through the kinds of exercises such as jump training, hopping, skipping and throwing or kicking (Yessis et al, 2009). Several plyometric exercises that can increase explosive power are „bound, hops, jumps, box drill, skips, ricochets, jumping in place, standing jump, multiple

hop and jump, box drills, bounding und depth jump“. (*James Radcliffe & Farentinos, 1985: Chu, 1992*). On the other conceptual, explained that plyometric is as a bridge, which has the function as connector factor between speed and strength in order to generate explosive capabilities. Other researches has also shown that by using of plyometric exercise onphysical exercise will have better results than just using speed and strength training separately. This is due to physiological performance of muscles during contraction and relaxation process that occurs continuously, which this physiological process could not be found in normal weight training methods. The physiological characteristic of plyometric exercise itself is using the process of muscle shortening and lengthening rapidly by generating power obtained from the process of stretching before. This process is also referred to process of the *Stretch-Shortening Cycle* (*Bosco, Viitasalo& Komi, 1982*).

It begins with the first phase of SSC and is known as eccentric phase. This phase is the process of preloading and stretching of muscles, which occurs during phase of stretching the muscles to stimulate muscle spindle and then will send a signal back that ultimately causes the muscle to contract. The second phase is the *amortization phase*. It refers to the time of period between the end phase of the eccentric contraction (the loading or deceleration phase) and the initiation of the concentric contraction (the unloading or force production phase), (*Komi, 1993*)“. On the other conceptual, it referred to as the transition phase, is also referred to as the electromechanical delay between the eccentric and concentric contraction during which the muscle must switch from overcoming force to imparting force in the intended direction (*Radcliffe&Farentionos, 1999*)“. The amortization phase is the most crucial phase in plyometric exercises. With a short time of amortization phase, will provide more potential energy for conversion into kinetic energy. “The faster the transition occurs from eccentric to concentric contraction, the greater the muscular tension produced and potentially the greater the muscle power produced, (*Komi, 1973*)“. The final phase is the concentric phase (unloading phase). It occurs immediately after the amortization phase and Involves a concentric contraction and resulting in enhanced muscular performance following the eccentric phase of muscle contraction (*Radcliffe, 1999*)“. The figure below is the process of stretch-shortening cycle contraction.



The phases of SSC

The consequence of pylometric is also that if muscles do not immediately unload after loading, the potential energy will be lost. It means, “the contact time between the legs to the ground during jumps should be as short as possible in order to provide optimal result (*Baechle and Earle,*

2000., Chu, 1998). To be able to do a shortest contact time, it is necessary to be considered on determining the volume and intensity of plyometrics, so neither volume nor intensity are too heavy. The importance of understanding related to the amount of volume and intensity of plyometrics also confirmed that the plyometric exercises that are able to provide effectiveness are a training program oriented to determination of intensity and volume of exercise (Rimmer, Edwin & Sleivert, Gordon, 2000)”. In this case, the number of jump repetition or amount of foot contact with the ground made during the exercise are describe as the volume of plyometric, while the intensity described by the percentage of maximum jumping capacity (100%) when doing jumps during exercise.

METHODS

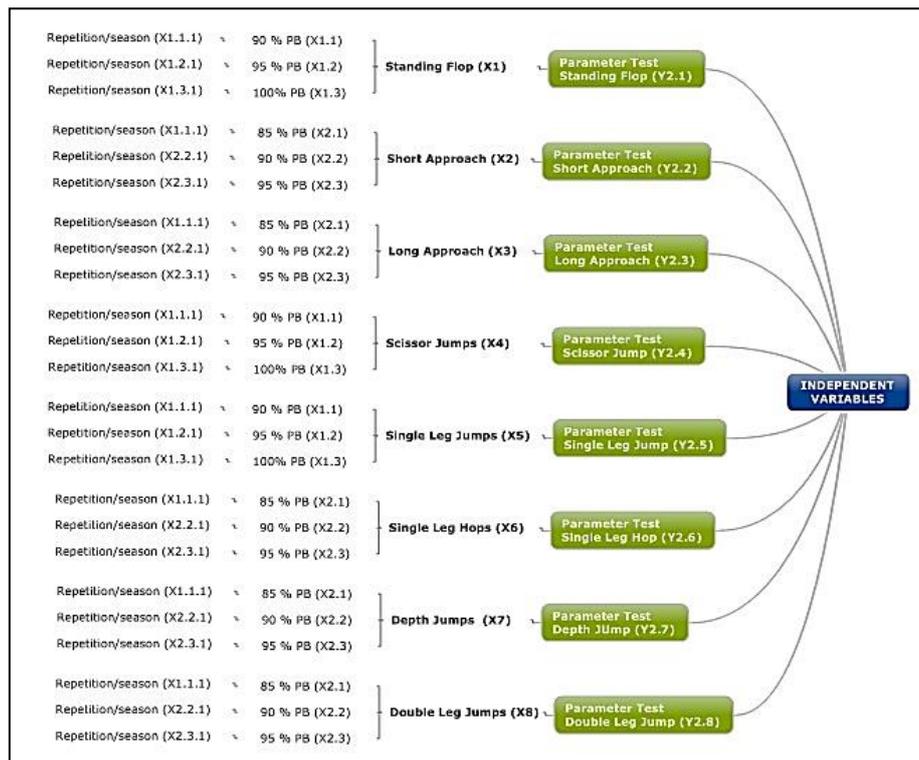
All athletes were measured by their anthropometrical components such as the body height, body weight and length of legs from the feet up to the hips (Trochanter Major). This measurement was performed every year in month of January at the beginning of their annual training program. To measure the body weight a digital anthropometrical tool will be used. The measurement process begins by measuring the weight of the athletes. Athletes must stand on digital measuring tools barefoot and wear only sport clothing. The device calculates the athlete's body weight automatically. This tool detects the parameters to be measured with an accuracy of measurement up to one-gram precision and can measure up to 200 kilograms of mass. The measurement of body height used a standard measurement tool, which is placed on the wall vertically. Athletes had to stand in front of a measurement tool with a normal upright position. A height-measuring tape was pulled from the bottom upwards and placed directly on the upside of the head. This tool can measure the body height parameters with accuracy up to 1 cm and can measure up to 220cm height. The leg length measurement process is done by using a measuring tape with an accuracy of measurement up to one cm. Athletes stand up in the normal upright position and relax then and the length leg is measured starting from the toe of the lowest point up to the hips (trochanters' major).

Remarks	Height (cm)	Weight (cm)	Leg_Length (cm)	Age (yr)
N Valid	10	10	10	10
Mean	178,3	66,8	104,7	27,3
Std. Deviation	4,45	4,5	1,9	1,5
Minimum	173,5	61,6	101,4	25,4
Maximum	187,9	75,7	107	29,8

Result of anthropometric measurements (N=10)

The annual plyometrics training program for one single years session of ten males elite high jumpers (*mean age 27.3 ± 1.5 yr; mass 66.8 ± 4.5 kg; heigth 178.3 ± 4.4 cm; leg length 104.7 ± 1.9 cm*) for 10 consecutive years starting from January to end of July (26 weeks training session) would be collected. The eight forms of plyometrics that would be analyzed are *Standing Flop, Short Approach, Long Approach, Scissor Jump, Depth Jump, Single Leg Jump, Double Leg Jump, and Single Leg Hop*. The volume or amount of jump repetitions of each plyometric form and the intensity of each plyometric form will be calculated. The determination of volume was based on the amount of jump repetition, meanwhile the determination of intensity was based on the height of hurdles, bars or length of hurdles or bars (in horizontal jumps) which is used as additional training kit during

plyometric exercise. The following figure describe the classification of group of plyometric, volume as well as intensity of each plyometric form .

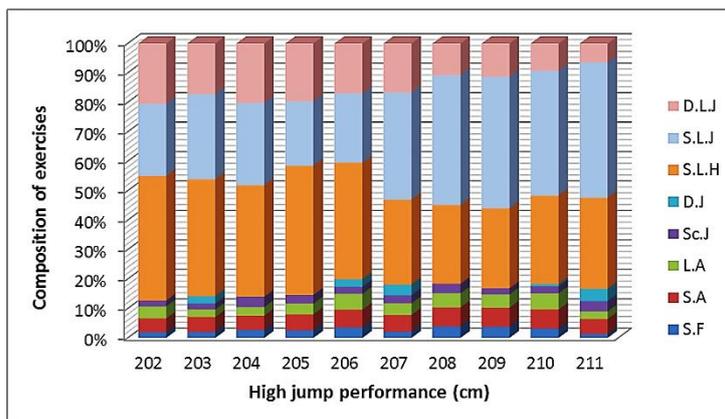


Distribution of variables

The diagram explains that, in every independent variable (e.g. X1) there are still consist of three independent variable components (X1.1, X1.2 and X1.3), which is representing of the intensity of exercise. Furthermore, In every single of independent variable, which is representing of the intensity of exercise there is still consist one independent variable (X1.1.1), which is representing of the volume of exercises.

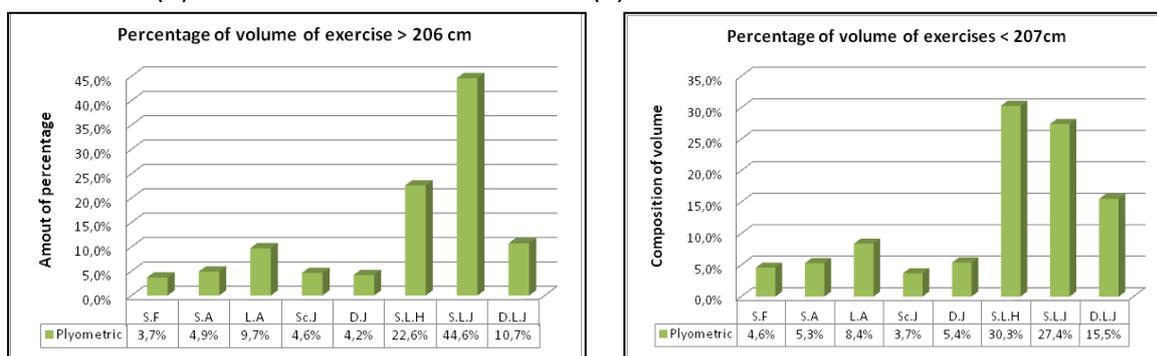
RESULTS AND DISCUSSION

The description data describes that Single Leg Hop (SLH) was the most common plyometric training form performed by athletes with the amount of average nearly 10 times bigger than the average of Standing Flop (SF), which was only around 22 times per week. On the other hand, the average of Single Leg Jump (SLJ) was also often given per week with around 8 to 9 times more compared with the Short Approach (SA), Long Approach (LA) and Scissor Jump (SJ) exercise, which is only performed around 30 to 40 times per week. The composition of volume of exercises from one exercise to other exercises was extremely varied according to performance of high jump. The composition of the average value of each volume of exercises will be shown in the following figure.



The average composition of volume each plyometric exercise according to an average performance of high jump Remark: S.F (Standing Flop), S.A (Short Approach), L.A (Long Approach), D.J (Depth Jump), S.L.H (Single Leg Hop), S.L.J (Single Leg Jump), D.L.J (Double Leg Jump).

The table above provides an overview about the composition of each plyometric form performed by ten high jumper with a proven record of performance from 202 centimetres to 211 centimetres. It shows that the composition of plyometric exercises given between groups of athletes that have performance 202 centimetres to 206 centimetres (A) appear slightly different comparing with the group of athletes, which has performance up to 207 centimetres to 211 centimetres (B). Overall it can be concluded that all athletes often used only three forms of plyometrics as their exercise priorities namely single leg hop, single leg jump and double leg jump. The difference in the composition and both groups are inversely proportional to the composition of exercise of those plyometric exercises. The following figure (23) shows the further composition of the form of plyometric exercises that were often used for group of athletes with a proven record of less than 207 centimetres (A) and above than 206 centimetres (B).

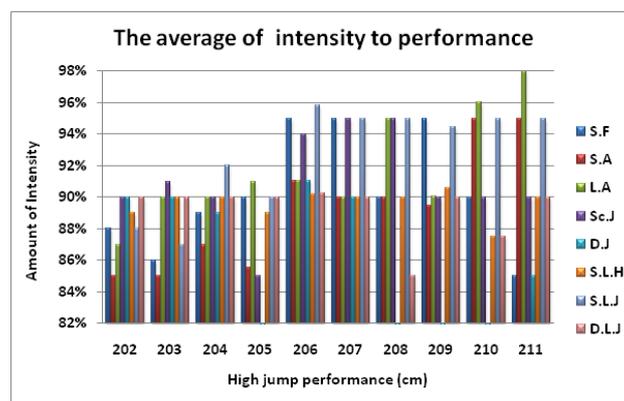


The average of volume performed by group A with proven performance less than 207 centimetres and above 206 centimetres

The single leg hop is the most commonly plyometric form used for the group A (<207cm) with a percentage of average volume around 30%. The percentage of average volume of single leg jump was around 28%, and for double leg jump was only around 15%. Meanwhile the percentages of average volume for other training programs were only around 3%-9%. The group B prefers to choose single leg jump as their primary exercise, with a percentage of average volume was around 45%, while the percentage for the single leg hop was about 23% and double leg jumps around 11%. On the other hand, both groups have nearly the percentage average of volume for the other plyometric

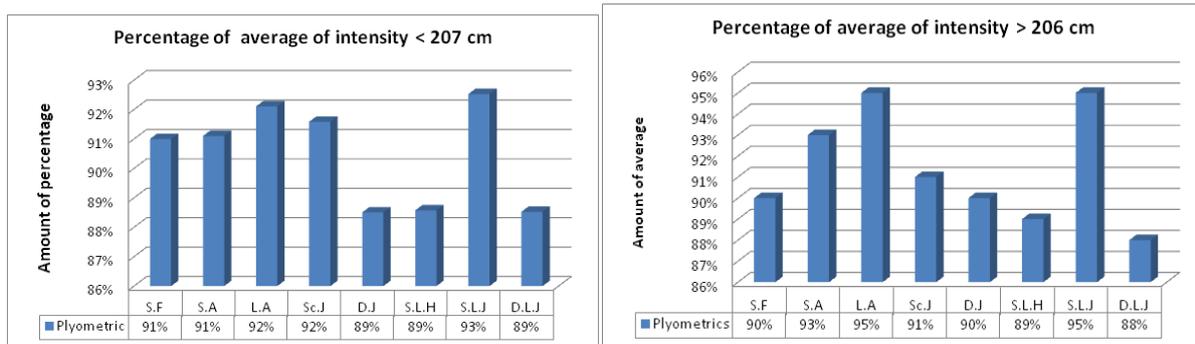
exercises such as standing flop, short approach, long approach and depth jump with around 3% - 5% for each form compared with the percentage of all eight forms of plyometrics. It can be assumed that both groups prefer to perform the single leg jump, single leg hop and double leg jump from the eight forms of plyometrics as the priority exercise, which have always done. The main differences between the both groups was that the group A prefer to use a single leg hop, instead of single leg jump, which is often used by group B, which have performance above 206 centimetres.

The result describes that the trend of sequence of plyometric training was Standing Flop (SF) and Scissor Jump (SJ) as a form of plyometric exercises that have the highest intensity with around 91%. Meanwhile the other forms of plyometric such as Short Approach (SA), Long Approach (LA) and Single Leg Jump (SLJ) are categorized as a form of plyometric exercise that has an intensity of around 90% and Single Leg Jump (SLJ), Double Leg Jump (DLJ) and Depth Jump (DJ) as a form of plyometric exercise which has the lowest intensity with around 89% of maximal intensity. The average of intensity to performance can be seen on following diagram.



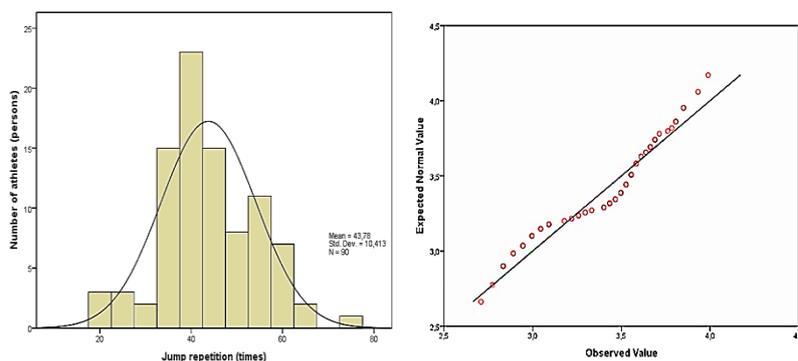
The average composition of intensity each plyometric exercise according to an average performance of high jump

The table above provided an overview about the average of intensity in every plyometric form performed by ten high jumper with a proven record of performance from 202 centimetres to 211 centimetres. It shows that the intensity of plyometric exercises between groups A that have performances of 202 centimetres to 206 centimetres appear slightly different compared with the group B, which has a performance from 207 centimetres to 211 centimetres. Each group has its own characteristic forms of each exercise which were used as a priority in determination of intensity. Overall it can be concluded that all athletes use high-level intensity of exercise. The difference in intensity of the plyometric exercise was nearly visible, especially in the form of standing flop, long approach, short approach and single leg jump. The clearly determination of intensity of plyometric exercises that were often used for group A with a proven record of less than 207 centimetres and above 206 centimetres



The average of intensity performed by group with proven performance less than 207 centimetres and above 206 centimeters.

The standing flop, scissor jump and single leg jump were the most common plyometric form used for group A, who have accomplishments fewer than 207 centimetres, with the average level of intensity around 90% - 92% from maximum performance they can perform in these three plyometric forms. The percentage of average intensity of standing flop and scissor jump was around 92%, and for single leg jump around 93%. Meanwhile the percentages of average intensity for other training programs were around 85%-90% from maximum performance which they can perform in these plyometric exercises. In comparison to the group B, who has a jumps performance over 206 centimetres, it has a different composition of percentage intensity form of exercise. Group B prefer to choose long approach as their primary exercise, with a percentage of average intensity around 95% and single leg jumps was around 95% from the maximum performance, while the percentage for the short approach was around 93%. The following figure (26) provides the average of intensity of plyometric exercises which were often used for group B with a proven record of above 206 centimetres.



The Histogram table (left side) explained that the dissemination of the short approach data showed that the value is still within the normal category. The impression was confirmed by the QQ plot, since the measuring points are remarkably close to the bisector, which means that almost without exception, the observed values agree with the expected values. A Similar distributions were also responsible for supporting of *standing jump, long approach, scissor jump, depth jump, single leg jump, single leg hop, double leg jump (on attachment pages)* Besides the graphical examination of the normal distribution, the following table will verify test results of the statistical tests as well. The

Based on the above calculation results one-way ANOVA it can be concluded there is an influence incurred from plyometric exercises. This means that each form of exercise has an impact the achievement of high jump. The table shows that double leg jump has the least influence compared with other forms of exercise, as well as the effects caused by scissor jump. On the other hand, Single leg hops have the greatest influence with the amount of influence around three times of influence caused by standing jump. Long approach and short approach have also a significant influence with around 1,5 to 2-fold of the influence caused by standing jump. Therefore, according to the above explanation it can be concluded that plyometric exercises of single leg hop is a form of plyometric exercises that has the greatest influence in comparison with other forms of plyometric exercises to performance of high jump. To determine the effect of intensity on the high jump performance, three forms of plyometric exercises will be selected, which have a high influence value, then a test of interaction will be conducted of each form plyometric to of intensity of exercise. This step is aimed to know the influence of intensity on the high jump performance. The third form of exercise chosen was single leg hop, single leg jump and long approach. For this purposes of analysis a method of two-ways variant analysis will be used.

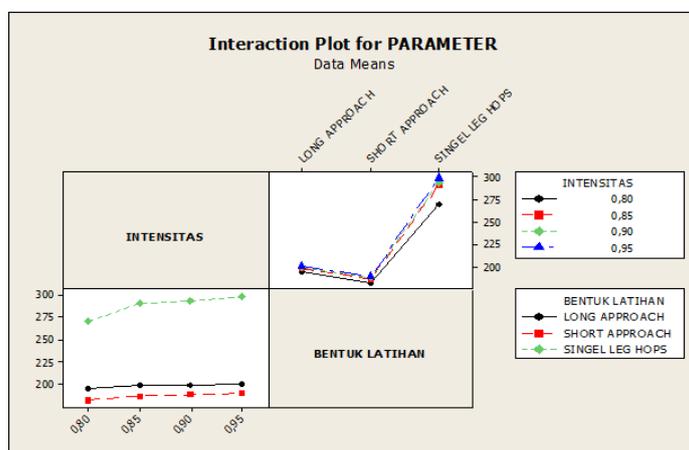
Analysis of Variance for performance, using Adjusted SS for Tests

Source	DF	Seq SS	Adj SS	Adj MS	F	P
PLYOMETRIC	2	1784495	896996	448498	2089,00	0,000
INTENSITY	3	9157	6373	2124	9,89	0,000
PLYOMETRIC*INTENSITY	6	3754	3754	626	2,91	0,008
Error	798	171327	171327	215		
Total	809	1968732				

S = 14,6525 R-Sq = 91,30% R-Sq(adj) = 91,18%

Table 26 : Analysis of interaction variance on Performance using two-ways variants
 Remark : df (degree of freedom), SS (Sum of square), MS (Middle of square) = SS/df

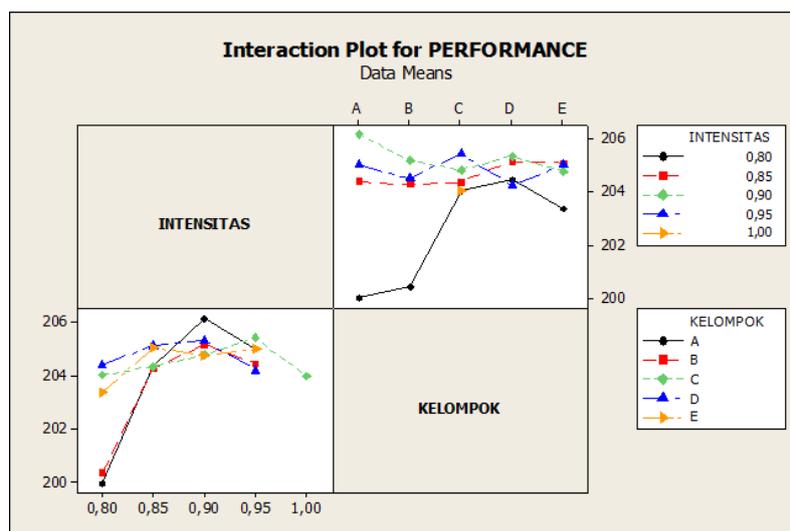
The following diagram will explain the magnitude of influence of each plyometric exercise and intensity of exercise on the achievement of high jump.



Interaction values between performance, plyometric and exercise. Remark : LA (Long Approach, SL.J (Single Leg Jump), S.L.H (Single Leg Hop)

Based on the above results it can be inferred that these three forms of plyometric exercise as well as these fourth values of intensity have a positive interaction and a positive impact on the achievement of high jump. The Interaction plot of form of plyometrics to performance of high jump (left side) shows that the single leg hops provide the highest parameter value in comparison with two other forms of exercise such as single leg jump and long approach. At the same time, the diagram on the right side also provides further supporting information of the analysis of single-leg hop form of exercises. The results of these calculations related to the amount of intensity of single leg hop and the improvement performance of high jump described in the diagram on the right side shows that the intensity of 90% of the single leg hop provides the greatest influence on improving the high jump performance compared with other intensities of 90%, 85% and 80%.

On the other hand, a long approach with an intensity of 95% has also great influence on improving a performance of high jump as well as single leg jump with intensity of 95%. If the analysis was focused on the single leg hop with the reason that the single-leg hop was an exercise that has the most dominant influence on the achievement of high jump, then the most influential value of intensity of single leg hop on the high jump performance is the intensity of 95%. In order to provide a clear description related to the number of jump repetitions of single leg hops that has greatest influence on improving a performance of high jump, and then a further analysis of volume is needed. This result of calculation provided with two-ways variant analysis will be used as a basis to describe a diagram that will give a clear explanation. The following figure will explain the result of interaction form and the magnitude of interaction between these variables.



Interaction values between performance, plyometric and exercise.

Remark : A (<128), B (128 ≤ N <199), C (199 ≤ N <264), D (264 ≤ N <323), E (N ≥ 323)

Based on the above results it can be inferred that the highest value of interaction obtained for single leg hop is with intensity of 90% and with the amount of volume or jump repetitions is in a range of group A or less than 128 times in a week. This form of exercise was able to give an effect on increasing the performance of the high jump on average as high as 206 centimetres. On the other hand, the second highest value of interaction occupied by the single leg hop is with an intensity of 95% and with amount of jump repetition in a range of group D or between 264 to 323 times in a

week. The average of high jump performance, which can be achieved with an intensity of 95% and number of jump repetitions as in-group of D was 204 centimetres. The third highest value of the interaction represented by the single leg hop is within intensity of 85% and jump repetition in a range of group B or between 128 to 199 times in a week. This exercise could give an effect on the enhancement of high jump performance on average as high as 202 centimetres. The lowest value of the interaction owned by the single leg hop exercise is with intensity 80% and the amount of exercise in a range of group E or more than 328 times a week. The average of high jump performance, which can be achieved with this form of exercise, was 200 centimetres. This explanation provides a final conclusion, that the most influential form of plyometric exercise on improving the performance of high jump is single leg hop with the intensity of exercise on 90% and volume of exercise or number of jump repetitions in a range of less than 128 jump repetition in a week. The average of performance of high jump that can be improved with this determination was around 206 centimetres.

CONCLUSION AND SUGGESTION

There are interactions provided by all forms of plyometric exercises such as *standing flop, short approach, long approach, scissor jump, depth jump, single leg jump, single leg hop and double leg jump* in increasing the performance of high jump. This is confirmed by the results of statistical calculations which showed that $F_{\text{calculation}} (205.11) \geq F_{\text{table}} (2.01)$. The results proved that there is interaction and influence of all forms of exercise on the performance of high jump. The value of influence caused by single leg hop on increasing the performance of high jump is the greatest compared with other forms of plyometric exercises. There are interactions provided of all forms of intensity of plyometric exercises such as 80%, 85%, 90% and 95% in increasing the performance of high jump. This is confirmed by the results of statistical calculations which showed that $F_{\text{calculation}} (678.30) \geq F_{\text{table}} (2.01)$. The results proved that there is an interaction and influence on all forms of intensity of single leg hop in improving of performance of high jump. The value of influence caused by the intensity of 90% in increasing of the performance of the high jump was greater than other forms of intensity of exercises. There is an interaction provided by all forms of volume of plyometric exercise classified by several groups such as group A (< 128 jump repetition in a week), group B (128 to 199), group C (199 to 264), group D (264 to 323) and group E (>328 jump repetition in a week) in increasing the performance of the high jump. This is confirmed by the results of statistical calculations which showed that $F_{\text{calculation}} (569.9) \geq F_{\text{table}} (2.01)$. The results proved that there is an interaction and influence by all forms of volume of single leg hop in improving the performance of the high jump. The value of influence caused by group A (< 128 jump repetition in a week) in increasing the performance of the high jump was greater than other forms of volume of plyometric exercises.

Based on of the conclusions of these studies, there are some ideas to be able to improve the results of research more extensively, guided by the implications that can be generated from this study. Overall, it can be said that plyometric exercises provided a positive influence in improving the performance of the high jumpers of Indonesia. The results of this study can be implemented to provide information to coaches in the province in Indonesia, particularly in terms of determining the form of plyometric exercises that are commonly prescribed to elite athletes in Jakarta, so the coaches could get an overview related to form of plyometric exercises that are more specific to the high jump athlete's. This information will greatly assist coaches in selecting and determining the form

of plyometric exercises for athletes in the high jump. On the other hand, there is however several things that still need to be considered. Despite this study showing that the single leg hop with 90% of intensity and volume of around 128 jumps per week provided the greatest influence on performance, it does not however mean that the coaches of Indonesia can apply these results to the athletes directly. Coaches should use the results of this study as guidelines and as additional information, so the understanding of plyometric exercises is not described as general information anymore.

ACKNOWLEDGMENT

I would like to express my first utmost gratitude to Prof. Dr. Ulrich Hartmann, Head of the Institute of Movement and Training Science in Sports, Faculty of Sport Sciences whose has given opportunity and guidance in this research. Secondary, my extraordinary thanks to Mrs. Dr. Margot Niessen, whose sincerity and encouragement for her patience guiding, suggest improvements and willingness in giving new insight in completing this research. To Prof. Dr. Jürgen Krug, Head of Reserach Center of Institute General Movement and Exercise Science, who provide his permission, remarkable facilitates and guidance, advice and assistance to me in dealing with all the issues. This Research was conducted at ABTW (Allgemeine Bewegungs- und Trainingswissenschaft) Department. Last but not the least, gratitude to all of colleagues on the dicsussion group of European Sport Science, Performance Analysis Centre of IAT Leipzig, SHLV Hamburg for helping us.

ANALYSIS OF PHYSICAL CONDITION OF ATHLETES PORDA BEKASI CITY IN 2016

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Abstract

This research is aimed to determine and analyze the physical condition of athletes PORDA Bekasi City in 2016, and evaluate the results of the physical training given by sports coaches. The method of the research is descriptive with test and measurement. The research population is all athletes PORDA in Bekasi City with totaling 576 athletes (42 sports). The research samples are used incidental sampling; the athletes who come during test execution. The total sample of 258 athletes (25 sports). The results showed that the physical condition of athletes PORDA Bekasi City in 2016 as a excellent category is nol athlete (0%), as a very good category are 14 athletes (5.4%), as a good category are 173 atheletes (67.1%), as a fair category are 71 atheletes (27.5%), and as a poor category nol athlete (0%). This results showed that physical exercise athletes PORDA Bekasi City is not optimal. So, to produce optimal achievement need to increase physical training of at least 5-14 times/week with recovery minimum 8 hours/day, the coach needs to revise their physical training program to correct the results of physical tests, and physical tests need to be done periodic every 3 months to review the improvement of training results.

Keywords: physical condition, athletes PORDA Bekasi City

PROFILE OF THE PHYSICAL CONDITION OF THE ATHLETE ATHLETICS KEDIRI

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Abstract

Research in order to see to what extent the level of physical condition athletes Athletics Kediri so it can become a benchmark determination exercise program for PASI Kediri. The specific purpose of the study was to provide information to researchers about the status of the physical condition of the athlete Athletics Kediri consisting of several components of physical condition, among others, flexibility, speed, strength, agility, endurance and aerobic power. This research uses descriptive quantitative survey design. Data collection was conducted to obtain information related to the phenomenon of, condition of, or specific variables and is not intended to perform hypothesis testing. The subject of research is the whole athlete Athletics PASI Kediri totalling 23 athletes. With age range between 13-18 years old, which consists of 11 women and 12 men. This research will use the 8 kinds of tests to uncover physical condition components. Data analysis using quantitative descriptive analysis techniques with percentage. The most out of the whole test is the following 48% excellent flexibility, speed of 4% excellent, only 9% the staying power on the requirement of either leg strenght, 4% are abdominal muscle strength, 87% less, muscle strength requirement of arm 9% moderate, explosive limb muscles well 17% good once, an explosive arm 9%.

Keywords: physical condition, athletic.

TECHNICAL SKILLS WOMAN'S BASKETBALL ATHLETES HIGH SCHOOL IN WEST JAVA

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Abstract

Technical skills is one of the important components that must be controlled well by each athlete and can affect achievement in following a championship. As for the issue that the authors proposed in this study is how the image of technical skills woman's basketball athletes high school (SMA) in West Java. While the purpose of this study is to provide an overview woman's basketball athletes technical skills high school (SMA) in West Java. The method used in this research is descriptive method. The sample consists of three schools in the top three in the championship Detection Basketball League (DBL) woman's in 2016. The research instrument used battery test. Based on the results of data processing and analysis the authors conclude that woman's basketball athletes technical skills high school (SMA) in West Java are in the Good category.

Keywords: Basketball

INTRODUCTION

Basketball is a popular sport. Nowadays, basketball has become one of the most popular sports across the world [1]. The game of basketball is a sport game is more loved by the people, especially by the students. Through the activities of the sport of basketball these young teenagers have benefited particularly in the growth of physical, mental and social. The game of basketball is currently experiencing rapid growth as evidenced by the emergence of tough teams in schools and athletes basketball students, both at school and college level. Supported again by holding frequent inter-club championship, championship students local level to the national. In addition to the variation of the game of basketball with entertainment elements such as *streetball*, *3X3*, *crushbone* make sport of basketball into a prestigious sport and fashion trends among young people.

The game of basketball is a game that has a very complex movement, which includes a combination of road, run, jump, as well as elements of strength, speed, accuracy, flexibility and others. Basic skills basketball game that needs to be controlled to support a good game is *passing and catching*, *chest pass*, *bounce pass*, *overhead pass*, *dribbling*, *lay-up shot*, *shoting*, *pivot*, *jump stop*, and *rebound*.

The development and progress of basketball in West Java strut many school teams, although the role of the club is also large enough to give birth to a basketball player. However, the existence of schools in fostering students' team was able to provide a sizeable contribution to promote this sport.

As for some schools in West Java, which has a high commitment to support student achievement daughter in the field of sports including basketball is SMAN 1 Baleendah, SMAN 2 Purwakarta, SMAN 2 Bandung, SMAN 1 Rancaekek, SMA Bintang Mulia Bandung, SMA Krida Nusantara, SMA BPK Penabur Cirebon, SMA 2 BPK Penabur Bandung, MA Al-Zaytun Indramayu, SMAN 1 Cisarua, SMAN 1 Sindang Indramayu, SMA Trinitas Bandung, SMAN 1 Bandung, SMAN 20 Bandung, SMA Kalam Kudus Bandung, SMA BPK Holis Bandung, dan SMAN 9 Bandung. The schools were included in the list of schools that woman students follow the league's DBL 2016.

- [1]. Mahdi, A Khazaeli,. Heydar S,. Alireza R,. and Masoud M. 2015. *Indian Journal of Fundamental and Applied Life Sciences ISSN: 2231– 6345 (Online) An Open Access, Online International Journal Available at www.cibtech.org/sp.ed/jls/2014/03/jls.htm 2015 Vol. 5(S3), pp. 2549-2553/ARAB KHAZAELI et al.*

Every sport desperately needs basic skills capability in addition to good physical condition should be good anyway. Similarly, for the sport of basketball, where the component needs of highly technical skills necessary to be considered. The main purpose of training Sporting achievement is to improve the skills or accomplishments as much as possible. To achieve this goal there are four aspects of practice that need to be trained carefully namely: physical, technical, tactical and mental [2]. Technical skills is the ability to perform movements skills of a sport from the start of motion skills the simplest to the most difficult movement skills, including feinting which include traits from the sport [3]. Good technical skills and supported by good physical ability is also an asset for a player to be able to perform better. Both components must be owned simultaneously by each player. For the players who will play in the top basketball competition in Indonesia must be prepared technically and physically and mentally.

16-18 years of age is the age of the athletes who will be entering the peak period of athletes. At this age athletes must have good technical skills, so that when the athletes entered the gold will be better prepared and have reached the necessary requirements. According to the author's own experience influence techniques are both very important in basketball athletes have a womens high school level because it will determine the future careers of athletes who need the maturity of technical skills possessed by each athlete.

To create a good basketball player, we have to know what needs to be prepared for each stage. In fact, what should be achieved by the women's basketball athletes high school level until now there is still no data that can be used as a reference or benchmark targets. So it takes the data to be used as a reference or benchmark reference in order to know what needs to be met by women's basketball athletes high school level, because at that level is a gateway for the young seedlings to enter the gates of the sport of professional basketball. With the results of this research are expected coaches can prepare his athletes as well as possible and also the athletes can prepare themselves as much as possible.

Based on the description that has been described above, the authors are interested in examining the "Technical Skills Woman's Basketball Athletes High School in West Java".

Formulation of the problem

The problems that the authors proposed in this study is how the image of technical skills basketball woman's athletes high school (SMA) in West Java?

Research purposes

The purpose of this study is to provide an overview basketball woman's athletes technical skills high school (SMA) in West Java.

Benefits of research

Theoretically to gain an understanding theoretically that could ultimately be used as a reference for any coach athletes to be able to prepare components of technical skills in

order to live a good match. While the practical results of this study can be used as a benchmark in providing technical skills training portion in accordance with the needs of the athlete to improve the athlete's achievement.

METHOD

Research design

A study in order to achieve the objectives of the research requires a method to facilitate further research to obtain data to process and finally be able to summarize the results of the research. The research method is a method used by researchers in collecting research data [4].

[2]. Harsono. 1991. *Coaching dan Aspek-Aspek Psikologis dalam Coaching*. Jakarta: CV. Tambak Kusuma.

[3]. Giriwijoyo, S., & Sidik, D. Z. (2010). *Ilmu Faal Olahraga (Fisiologi Olahraga)*. Bandung: PT. Remaja Rosdakarya.

[4]. Arikunto, S. (2010). *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: PT Rineka Cipta.

He research method is basically a scientific way to get data with a specific purpose and usefulness [5]. The use of research methods tailored to the issues to be examined by the author. The method the researchers use in this research is descriptive quantitative method, it is in line with the proposed This descriptive study is research that really only describe what happened there or in an arena, a field, or a particular region [4].

Research subject

Based on the purpose of the study is to provide a technical skill basketball woman's athletes high school (SMA) in West Java, the research subjects were a group of women's team high school level who entered 3 (three) major events DBL West Java in 2016 as many as 29 people, that is SMA BPK Penabur Cirebon, SMAN 9 Bandung and SMAN 1 Baleendah. Selection of the three schools is considered to represent the best schools in West Java.

Research procedure

Procedures are arranged in order to facilitate research activities carried out in the research. The procedures in this study were:

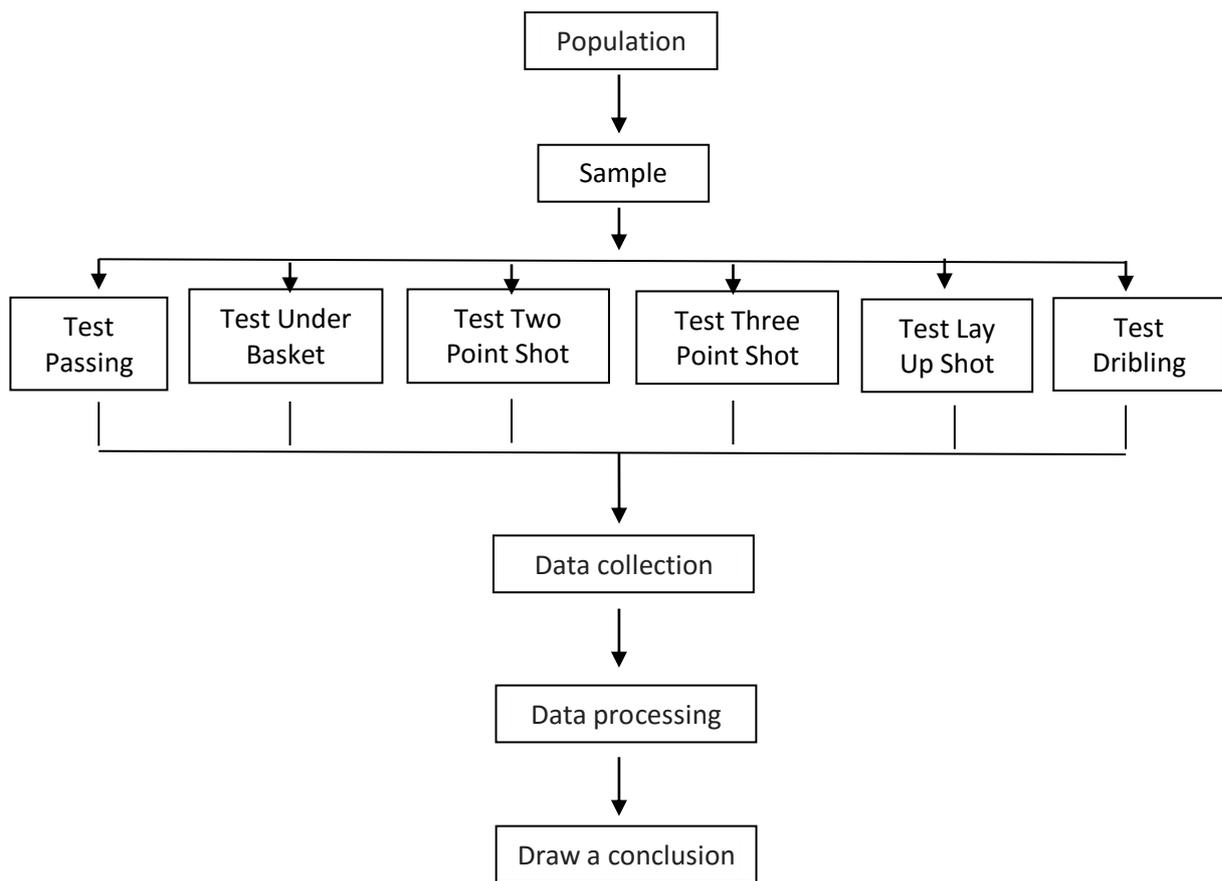


Figure 1
Research Procedure

[4]. Arikunto, S. (2010). *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: PT Rineka Cipta.

[5]. Sugiyono. (2013). *Metode Penelitian Kuantitatif Kualitatif dan R&D*. Bandung: Alfabeta.

Research Instruments

The instrument used in this study are:

1. Passing

Implementation:

People try with the ball in hand stood behind the lines with a distance of 3 meters from the wall. After the cue "yes", testee throw the ball within 30 seconds. During the test, testee should not be stepped on or over the line. Results throws legitimate calculated during the given time.

2. Under Basket

Implementation:

People try with the ball standing on the ring 45 degrees. After the cue "yes", testee trying to put the ball as much as possible from that position to move left and right for 30 seconds, and the ball must first touch the board. Only legitimate incoming ball is calculated into the score obtained.

3. Two Point Shot

Implementation:

People try with the ball stands 3,375 meters away from the basket. After the cue "yes", testee trying to put the ball to the basket basketball. Testee do the shooting of five different points, with each point given the opportunity five balls and each perform shooting five second rule applies. Only legitimate incoming balls were scored. See the figure below:



Figure 2
Two Point Shot Test

4. Three Point Shot

Implementation:

People try with the ball standing behind the three point line. After the cue "yes", testee trying to put the ball to the basket basketball. Testee do the shooting of five different points, with each point given the opportunity five balls and each perform shooting five second rule applies. Only legitimate incoming balls were scored. See the figure below:



Figure 3
Three Point Shot Test

5. Lay Up Shot

Implementation:

Testee standing under the ring for a lay-up test of the two points in turn, that the left and right side. Testee assisted by two colleagues who are behind the three-point line to the left and right while holding the ball. Testee may make lay up left or right once, but it must be done alternately and

rebound the ball itself is then in passing the ball to where they were taken. Scores are calculated is valid without violating the rules. The time given is 60 seconds. See the figure below:

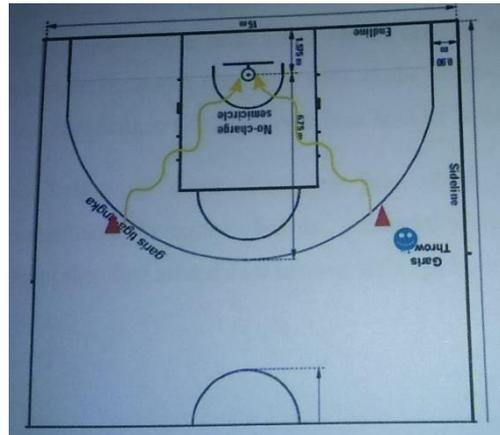


Figure 4
Lay Up Shot Test

6. Dribbling

Implementation:

Testee stood holding the ball behind the start line. After the cue "yes" when turned on and testee dribbling ball past the obstacles in a predetermined direction. If testee has reached the line of Finist the holder of a record results in the can by the testee. Dribbling should be done without violating the rules in basketball. See the figure below:

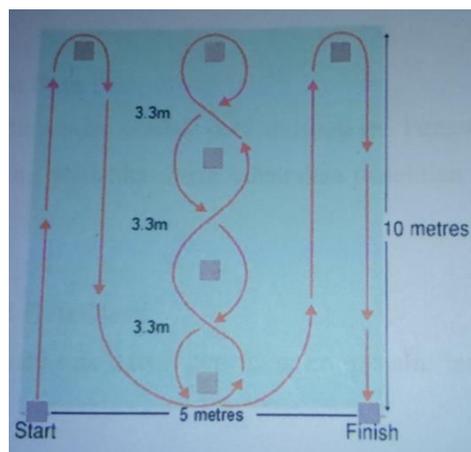


Figure 5
Dribbling Test

Data Analysis

Data analysis in this research is using SPSS 17.

RESULTS AND DISCUSSION

Research result

This study aims to provide an overview basketball woman's athletes technical skills high school (SMA) in West Java. Technical skills of basketball in this research includes several techniques including: passing, under basket, two point shot, three point shot, lay up, and dribbling.

A description of the technical skills of basketball to more details will be presented as follows:

1. *Passing*

Table 1
Statistical Calculation Technique Passing Skills

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Passing	29	25,00	34,00	29,0000	2,18763
Valid N (listwise)	29				

Source: Adapted by the researcher, 2016

Based on the table 1 above, note the lowest value of the test results passing by 25, the largest value of 34, with an average value of 29 and a standard deviation of 2.18. From these calculations obtained a description of the basic techniques of passing the basketball as follows:

Table 2
Description Technical Skills Passing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less	0	0	0	0
	Moderate	3	10,3	10,3	10,3
	Good	14	48,3	48,3	58,6
	Excellent	9	31,0	31,0	89,7
	Perfect	3	10,3	10,3	100,0
	Total	29	100,0	100,0	

Source: Adapted by the researcher, 2016

Thus obtained Norma tests as follows:

Table 3
Table Norma Basketball Passing Test

Score range	Category
Over 32	Perfect
30 – 31	Excellent
27 – 29	Good
25 – 26	Moderate
Under 24	Less

2. Under Basket

Table 4
Statistical Calculation Techniques Under Basket Skills

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Under Basket	29	6,00	18,00	12,0000	2,65922
Valid N (listwise)	29				

Source: Adapted by the researcher, 2016

Based on Table 4 above, known to the lowest value of the test results under basket by 6, the greatest value of 18, with an average value of 12 and a standard deviation of 2.66. From these calculations obtained a description of the basic technique under basket basketball as follows:

Table 5
Description Technical Skills Under Basket

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less	1	3,4	3,4	3,4
	Moderate	5	17,2	17,2	20,7
	Good	16	55,2	55,2	75,9
	Excellent	5	17,2	17,2	93,1
	Perfect	2	6,9	6,9	100,0
Total		29	100,0	100,0	

Source: Adapted by the researcher, 2016

Thus obtained Norma tests as follows:

Table 6
Table Norma Test Under Basket

Score range	Category
Over 17	Perfect
14 – 16	Excellent
10 – 13	Good
7 – 9	Moderate
Under 6	Less

3. Two Point Shot

Table 7
Statistical Calculation Technnical Skills Two Point Shot

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Two Point Shot	29	9,00	20,00	14,5517	3,18014
Valid N (listwise)	29				

Source: Adapted by the researcher, 2016

According to the table 7 above, known to the lowest value of the results of the test medium basketsebesar 9, the greatest value of 20, with an average value of 14.55 and a standard deviation of 3.18. From these calculations obtained a description of the basic techniques two point shot basketball as follows:

Table 8
Description Technical Skills Two Point Shot

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less	0	0	0	0
	Moderate	8	27,6	27,6	27,6
	Good	9	31,0	31,0	58,6
	Excellent	10	34,5	34,5	93,1
	Perfect	2	6,9	6,9	100,0
	Total	29	100,0	100,0	

Source: Adapted by the researcher, 2016

Thus obtained Norma tests as follows:

Table 9
Table Norma Test Two Point Shot

Score range	Category
Over 20	Perfect
16 – 19	Excellent
13 – 15	Good
9 – 12	Moderate
Under 8	Less

4. Three Point Shot

Table 10
Statistical Calculation Technical Skills Three Point Shot

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Three Point Shot	29	2,00	17,00	8,8966	3,63853
Valid N (listwise)	29				

Source: Adapted by the researcher, 2016

According to the table 10 above, known to the lowest value of the test results three point shot by 2, the greatest value of 12, with an average value of 8.90 and a standard deviation of 3.63. From these calculations obtained a description of the basic techniques of basketball three point shot as follows:

Table 11
Technical Skills Description Three Point Shot

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less	0	0	0	0
	Moderate	7	24,1	24,1	24,1
	Good	13	44,8	44,8	69,0
	Excellent	8	27,6	27,6	96,6
	Perfect	1	3,4	3,4	100,0
	Total	29	100,0	100,0	

Source: Adapted by the researcher, 2016

Thus obtained Norma tests as follows:

Table 12
Table Norma Tests Three Point Shot

Score range	Category
Over 16	Perfect
11 – 15	Excellent
7 – 10	Good
2 – 6	Moderate
Under 1	Less

5. Lay up Shot

Table 13
Statistical Calculation Technical Skills Lay up Shot

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Lay Up	29	5,00	14,00	8,4483	2,33890
Valid N (listwise)	29				

Source: Adapted by the researcher, 2016

According to the table 13 above, note the lowest value of the test results lay up by 5, the largest value is 14, with an average value of 8.45 and a standard deviation of 3.34. From these calculations obtained a description of the basic techniques of basketball lay up as follows:

Table 14
Description Technical Skills Lay Up Shot

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less	0	0	0	0
	Moderate	7	24,1	24,1	24,1
	Good	12	41,4	41,4	65,5
	Excellent	9	31,0	31,0	96,6
	Perfect	1	3,4	3,4	100,0
	Total	29	100,0	100,0	

Source: Adapted by the researcher, 2016

Thus obtained Norma tests as follows:

Table 15
Table Norma Test Lay Up Shot

Score range	Category
Over 13	Perfect
10 – 12	Excellent
7 – 9	Good
4 – 6	Moderate
Under 3	Less

6. Dribbling

Table 16
Statistical Calculation Technique Dribbling Skills
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Dribbling	29	18,10	25,50	21,5310	1,74481
Valid N (listwise)	29				

Source: Adapted by the researcher, 2016

According to the table 16 above, note the lowest value of the test results dribblingsebesar 18.10, the biggest value of 25.5 with an average value of 21.53 and a standard deviation of 1.74. From these calculations obtained a description of the basic techniques of dribbling basketballs as follows:

Table 17
Description Technical Dribbling Skills

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Less	2	6,9	6,9	6,9
Moderate	5	17,2	17,2	24,1
Good	15	51,7	51,7	75,9
Excellent	6	20,7	20,7	96,6
Perfect	1	3,4	3,4	100,0
Total	29	100,0	100,0	

Source: Adapted by the researcher, 2016

Thus obtained Norma tests as follows:

Table 18
Table Norma Dribbling Tests

Score range	Category
Under 18,40	Perfect
18,41 – 20,49	Excellent
20,50 – 22,58	Good
22,59 – 24,67	Moderate
Over 24,68	Less

Discussions

Recapitulation of the overall research on the basic techniques of basketball can be seen in the following exposures:

Table 19
Statistical Calculation Summary of Technical Skills
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Teknik Dasar Bola Basket	29	24,00	56,00	37,7931	6,44415
Valid N (listwise)	29				

Source: Adapted by the researcher, 2016

According to the table 19 above, note the lowest value of the test results the basic techniques of basketball by 24 greatest value was 56 with an average value of 37.8 and a standard deviation of 6.44. From these calculations obtained a description of the basic techniques of basketball as follows:

Table 20
Description Technical Skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less	0	0	0	0
	Moderate	11	37,9	37,9	37,9
	Good	15	51,7	51,7	89,7
	Excellent	2	6,9	6,9	96,6
	Perfect	1	3,4	3,4	100,0
	Total	29	100,0	100,0	

Source: Adapted by the researcher, 2016

Based tabel 20 on the description of the basic techniques of basketball in mind there are no respondents with basic techniques in the poor category, a category quite as many as 11 people (37.9%), both categories as many as 15 people (51.7%), both categories once as much as 2 people (6.9%) and the perfect category as much as 1 (3.4%). More details can be seen in the image below:

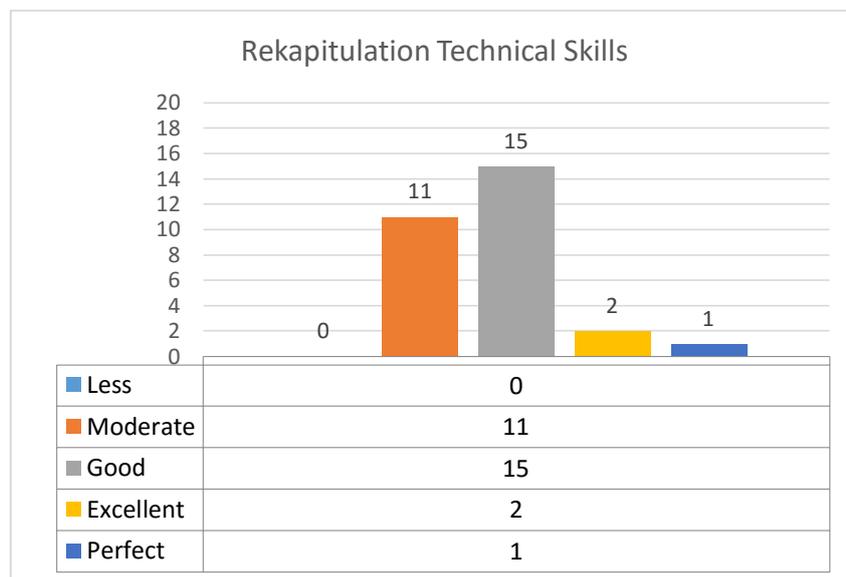


Figure 6
Deskripsi Rekapitulasi Teknik Bola Basket

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Based on the research and analysis of data from the field can be concluded that the overall technical skill on the basketball women's basketball athletes high school level In West Java is in the category of "good".

Suggestion

Based on the conclusions of the research, there is some suggestion from this study include the following:

1. That the results of this study serve as a reference for both trainers and athletes to prepare component basketball skills to be able to live a good match.
2. For the high school coach of this research can be used as a reference in setting the targets to be achieved in practice.

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PHYSICAL FITNESS LEVEL STUDENT EXTRACURRICULAR KARATE AND PENCAK SILAT

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Abstract

The purpose of this study to determine differences in the level of physical fitness of students extracurricular karate and pencak sila. The problem of this research is there any difference in the level of physical fitness of students' extracurricular karate and pencak sila. This research method is korelasonal research design ex post facto by sampling using quota sampling technique with a number of 20 students consisting of 15 male and 5 female for 20 students of karate and pencak sila comprising 15 boys and 5 girls. Instruments used Indonesia Physical Fitness Test (TKJI) aged 16-19 years. Data analysis techniques used two-sample t-test. The analysis showed 0,153 t-count value is smaller than t-table 2.024 with significance level of 0.05, degrees of freedom (df) = 38. The findings in this reseach there is no difference in physical fitness of students extracurricular karate and pencak sila.

Keywords: Physical Fitness, Karate, Pencak silat

INTRODUCTION

Sport is one of the significant activity and a process of activities to encourage, foster and develop the potential of physical, spiritual and social activities applied in a variety of games, competitions and games. For students of physical fitness is very important to maintain the physical condition is currently studying in school and outside of school. With good physical fitness students are expected to learn more passionate, excited, not susceptible to disease, fatigue, creative and innovative, and able to perform optimally, to face the challenges both within the school and community environment.

The success of efforts to improve the physical fitness is not enough if they only do physical activity during school hours of physical education at school, which is only done once a week for 2 hours of lessons. Therefore, it is necessary to implement the activities of other physical activity to support the physical fitness of students, one of them through extracurricular activities in school sports. Extracurricular can be done in the afternoon after school. In addition to improving physical fitness, extracurricular exercise is also beneficial for students 'spare time with positive activities and can develop students' skills. With the extracurricular karate and martial arts is extracurricular sports, is expected to improve the physical fitness of students were deemed less if they only do physical activity in physical education teaching in schools. By doing physical activity in extracurricular exercise regularly then students extracurricular participants karate and martial arts together will have a good physical kebuguran. but there is no data on the physical fitness level of each student participant ekatrakurikuler karate and martial arts.

1. Understanding Physical Freshness

According Arismunandar cited by Sukirno (2012: 37) of physical fitness can be defined as the ability or the ability for someone to be able to carry out or perform activities or performance that requires strength, coordination, skill, and endurance by efficiently that does not cause fatigue meaningful or excessive. The division of components

2. Definition of Physical Fitness

Physical fitness is the ability to perform daily activities without experiencing fatigue and that means that people still have energy left over to do other activities.

According irianto cited by Iskandar (2015: 12) is a physical fitness physical fitness (physical fitness), the person's ability to perform daily work efficiently without causing fatigue berlebihan so that they can enjoy their spare time

3. Factors Affecting the Physical Fitness

Potential for improving aerobic fitness with exercise has limitations, although most researchers confirmed the potential for an increase of 15% to 25% (even more with reduced body fat), only teenagers who have the hope to improve fitness by more than 30%.

a. Gender

Before puberty boys and girls have the aerobic fitness is slightly different, but after the girls left behind.

b. Age

Although the ability of exercise can decrease with age, sport grontologi expert, Dr. Herb de Vries has shown that physical fitness can be improved, even up to the age of 70, and it's never too late to start.

c. Body fat

Remember that fitness is calculated per unit of weight, so if fat increases, your fitness decreases. Approximately one / half decline in fitness with age can be summed up as an increase in body fat.

d. Activity

Remember that what you do day after day, year after year, will form the health, vitality and quality of life. Effect of exercise many know can be lost in just 12 weeks to stop the activity. According irianto was quoted by Iskandar (2015: 14-15) support the physical fitness includes three attempts fitter namely: eat, rest, and exercise.

2. The nature of Karate

Karate is a bare-hand fighting techniques, without weapons, nevertheless karate skills should not be seen just a mere combat technique, because in fact the karate has meaning far beyond just engineering Karate is a Japanese martial art that uses bare hands where the hands and feet are used systematically. At a karate match consists of stance (words) and fighting (committee). Kick (words) is a movement that covers the basic techniques of karate, standing position, the rhythm of movement, coordination and application of martial arts karate itself. While fighting (the Committee) is one method of exercise in martial dirikarate, is a training method that uses the techniques of attacks and techniques to survive in the word applied melaluipertarungan with opponents facing each other. Fighter (the Committee) conducted one round with a time of 3 minutes clean for a son and a 2-minute clean for the daughter to the size of the playing field 8 meters x 8 meters.

e. Itself Pencak Silat

According to the martial arts teacher Bawean, Abdus Gratitude cited by Mulyana (2013: 85) states the beauty of arts is movement by avoiding measures, which included the movement of comedy element. Pencak can be exhibited as a means of entertainment, while silat is an element of self-defense techniques parry, attack, and a lock that can not be exhibited in public. Pencak Silat is a martial art that is organized according to a system which aims to defend themselves from harm and to uphold the respect and culture of Indonesia. Match martial arts fighters carried out by two people who meet as opponents. Both are entitled to defend themselves against attacks by means dodgery and parry or deflect. In addition, also has the right to attack the opponent using hands and feet. Tobuh members are allowed to be attacked are the chest, back, abdomen, hips left or right, and legs. The match is done for 3 rounds, with a time of 2 minutes clean and istirahat time for 30 to 60 seconds of each round.

METHOD

In this study, researchers used a type of research ex post facto, according Kusumawati (2015: 61) ex post facto is the kind of research that distinguishes the possibility of causation, then the data is concluded, to find the percentage, the data is processed with statistical techniques 't' test is used to look for the difference of the two data is done directly what it is. This study was not given treatment / intervention against the independent variable.

According Sugiyono (2013: 07) ex post facto study using the same basic logic to experimental research that if x then y, it's just that in this study there was no direct manipulation of the independent variable.

1. Study Design

The design of this study can be seen in the image below:
Observation Test Results
to school Kesegara Difference

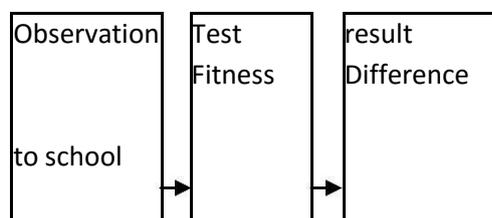


Figure 1 Study Design

(Source: Researcher. 2016)

2. Variable Research

Variables are symptoms that vary, the research object (Arikunto, 2013: 159). The variables in this study are the independent variables karate (X1), pencak silat (X2) and the control variable TKJI Test (Y).

3. Population Research

The population in this study were all students at SMA Negeri 1 Toboali who follow extracurricular karate and martial arts that follow in SMA Negeri 1 Toboali, in the academic year 2016/2017 which berusia 16-19 tahun. Students who take part in extracurricular karate as many as 24 students, consisting of 16 men and 8 women, while students who take martial arts extracurricular activities as much as 21 students, consisting of 16 men and 5 women.

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4. Sample Research

Sampling in this study is the quota sampling technique. According Arikunto (2013: 184) quota sample is in the data collection, the researchers contacted the subjects which meets the requirements of characteristics of the population, regardless of where the origin of the subject (origin is still in the population). Usually called is a subject that easily found, making data collection easy. In this study, the quota was set at 20 karate consisting of 15 sons and five daughters, and pencak silat as many as 20 people consisting of 15 sons and 5 daughters.

5. Data Collection Techniques

To collect research data, Researchers used a technique tests and measurement. Menurut Arikunto (2010: 266), as has already been explained that the data used in the study can be distinguished into three types, namely facts, opinions and the ability to measure the presence or the presence and capabilities besanya object studied, the use test, from the individual. The data collection is a series of statement or exercises used to measure skills knowledge, intelligence, abilities, or talents owned by individuals or groups. Area used to measure fitness karate student extracurricular physical and pencak silat SMA Negeri 1 Toboali Bangka Selatan.

6. Research Instruments

To determine the level difference physical fitness researchers used Physical Freshness test instrument Indonesia.

7. Hypothesis Testing

Test the hypothesis using independent sample t-test. Independent sample t-test is a type of statistical test aimed to compare the average of the two groups are not mutually coupled or not related. Not each pair can be interpreted that the research carried out for two different sample subject. According Sugiyono (2010: 197) t-Test for the same variance (equal variance) using the formula pooled Variance

to determine the difference or not each of the samples with significant level of 5%. If the t-count larger than t-table or $P < \alpha = 0.05$ means that there are differences in the level of physical fitness of students who take karate extracurricular activities with students who take martial arts extracurricular activities.

RESULTS AND DISCUSSION

1. Data Research

Differences in physical fitness level of participants extracurricular karate and martial arts in SMA Negeri 1 Toboali is measured based on the results of physical fitness tests Indonesia for ages 16-19 years that includes a run of 60 meters, bend your elbows and hanging pendants lifting body, lying sit, jump up, and ran 1200 meters / 1000 meters. According Sugiyono (2010: 31) Examining the data that is looking carefully / accurately. The next results are scored based on the guidelines in the table of

values and norms TKJI, and then the data is processed using a technique test "t". The following description of the data presented on each of the student groups.

2. Data Physical Fitness Test Results Karate students

The research process in SMA Negeri 1 Toboali generate data on the implementation of the Indonesian Physical Fitness Test (TKJI) aged 16-19 years in student extracurricular karate as follows: From the field test data Physical Fitness extracurricular karate students at SMA Negeri 1 Toboali based on the results of the analysis obtained the lowest score and 12 the highest score of 19, with an average (mean) of 15.85.

The research process in SMA Negeri 1 Toboali generate data on the implementation of the Indonesian Physical Fitness Test (TKJI) aged 16-19 years in student extracurricular martial arts, known as follows: From the Physical Fitness test data field extracurricular martial arts students in SMA Negeri 1 Toboali South Bangka is based on the analysis results obtained the lowest score and 12 the highest score of 19, with an average (mean) of 15.75.

1. Frequency Distribution Value TKJI Karate results and Pencak Silat

To determine the percentage

samples of students' extracurricular physical fitness and martial arts karate by category value can describe through frequency distribution table below:

N				
o	ai	Absolut e(f)	Persent ase %	ri
1	22- 25	-	-	Good Once (BS)
2	18- 21	4	20%	Good (B)
3	14- 17	14	70%	Moderat e (S)
4	10- 13	2	10%	Less (K)
5	5-9	-	-	Less Once (KS)
Amount		20	100%	

**1. Frequency Distribution Value Results TKJ
Students Extracurricular Pencak Silat**

No	Nilai	Frekuensi		Kategori
		Absolut f	Persentase %	
1	22-25	-	-	Good Once (BS)
2	18-21	6	30%	Good (B)
3	14-17	10	55%	moderate (S)
4	10-13	4	15%	Less (K)
5	5-9	-	-	Less Once (KS)
amount		20	100%	

Based on the table above, the test results of students extracurricular karate which included both categories is absolutely no (0%), the good category 4 students (20%), moderate category 14 students (70%), less category 2 students (10%), and category less is absolutely no (0%). For the test results of students ekstrakurikuler martial arts include both categories is absolutely no (0%), both categories there are 6 students (30%) categories were 10 students (55%) less category 4 students (15%) and less category does not exist (0%). the calculation results are the percentage of students extracurricular martial arts got good value by category of more than karate, because based on the above table it can be seen that the martial arts student extracurricular got good grades there are 6 people, while karate 4 people. However, to take more accurate results that can be done with the data analysis of test requirements that the t test.

1. Test Results Requirements

Prior to statistical analysis, first tested the assumptions or test requirements analysis covering normality test and homogeneity test. Testing normality test to determine whether or not normal distribution of data obtained while testing the homogeneity test to determine whether the sample comes from a population that is homogeneous and also to determine the formula used to analyze the hypothesis test.

2. Normality Test Results

Testing for normality using the slope of the curve with Pearson coefficient formula. In these trials will test the hypothesis whether the samples come from populations with normal distribution. Data is said to be normal if the value of the slope of the curve between -1 to +1 ($-1 < K_m < +1$). For finding the average, mode, and standard deviation of researchers Based on the analysis obtained for extracurricular karate K_m value of 0.94 and a value equal to 0,11 K_m martial arts. considering the second price K_m located between (-1) and (+1), then the data is normally distributed.

3. Test Results Variance Homogeneity

Homogeneity of variance test was conducted to test the similarity between groups of data. Test of homogeneity of variance using the F test To accept or reject by comparing the price of F arithmetic with F table and dk used (n-1) and standard error of 5%. The criteria to accept the hypothesis if prices count f is smaller than F table, if it does not meet these criteria then the hypothesis is rejected.

By using the degrees of freedom (n1-1), (n2-1) so $20-1 = 19$ and $20-1 = 19$. Based on the dk and kesalaha level of 5%, the price of the F distribution tables unreadable F table is 3.52. Given Fhitung 1.24 less than 3.52 Ftable it can be concluded that the second variance is homogeneous.

3. Discussion

Seeing their characteristic differences in karate and martial arts, martial arts players predicted to have a level of physical fitness is better than the player karate, martial arts game for a long time 2 minutes clean for 3 rounds, each round of two minutes clean and there was a pause of 30-60 seconds between innings, thus requiring a good physical endurance. While karate in the game Only one round with a time of 3 minutes clean for a son and a 2-minute clean for princess.

Based on the analysis of hypothesis shows that the t-test significance value greater than 0.05 ($\text{sig} > 0.05$) and t is 0,153 less than the t table is 2.024. Physical fitness level of students is influenced by many factors such as: the lack of passion and discipline in practice extracurricular, lack of time meeting extracurricular activities that one day of the week and also the environment that lacks infrastructure is complete and makes students a little hampered in doing extracurricular activities, From the results of the physical fitness test students' extracurricular karate included in the medium category. Because that fall into either category is absolutely no good 4 student category, the category was 14 students, less category 2 students and less category does not exist.

While the physical fitness of students extracurricular martial arts fall into the category of being. Because that fall into either category is absolutely no good category 6 students, the category was 10 students, less category 4 students and less category does not exist.

Based on the description above, it can be concluded that the level of physical fitness of students extracurricular karate and martial arts were equally categorized. But students extracurricular martial arts more in the category of either of the student extracurricular karate, martial arts and extracurricular students more into the category of less than extracurricular karate students.

Therefore students extracurricular karate and martial arts need to increase the level of physical fitness by means add hours of meetings on extracurricular eg three times in one week. This is done in order to increase student motivation to do physical activity or exercise outside of school. In

addition, students must follow the extracurricular activities were held school with discipline and earnest to extracurricular activities in school have a positive impact on physical fitness. And also should provide motivation and knowledge about the benefits of sport activities, so that students have a high motivation to do sports activities.

For extracurricular coach, it was his responsibility because the purpose of the exercise is to improve the physical fitness of students. If the level of physical fitness of students is low or moderate, mean exercise does not achieve the desired objectives. For that coaches need to reevaluate extracurricular training program provided to students.

CONCLUSIONS AND RECOMMENDATIONS

1. Conclusions

Based on the research that has been described in the chapter, then the conclusion can be stated as follows:

1. From the results of this study concluded that there was no significant difference between the physical fitness of students extracurricular karate and martial arts in SMA Negeri 1 Toboali.
- 2) From the analysis has been done on the physical fitness of students extracurricular karate and martial arts, both of us both have a moderate level of physical fitness.

2. Suggestions

There are some suggestions that need to be submitted in connection with the results of this research, among others:

- 1) From the fitness level physical participants gained extracurricular activities need to be improved in order to have a good physical fitness, can perform physical activity in extracurricular optimally.
- 2) For students in extracurricular so much passion and discipline to follow extracurricular activities in order to achieve a positive impact on physical fitness

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THE EVALUATION OF PHYSICAL FITNESS BEFORE AND AFTER EXERCISING WITH MUAY THAI OF STUDENTS IN KASETSART UNIVERSITY KAMPHAENGAEN CAMPUS

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Abstract

The objective of this research was to compare physical fitness before and after exercising with Muay Thai of students in Kasetsart University Kamphaengsaen Campus. Samples of this study were 30 KU.KPS. students who were volunteering in this research. The instrument used in the research were 1) Muay Thai exercise model consisted of 89 performances under this program 3 days a week, 35 minutes per day. The quality of this model was evaluated by experts; and 2) the physical fitness test. Percentage, mean, standard deviation and dependent t-test were applied to analyze data. Results of this study revealed that the physical fitness of students on push-ups, sit-ups, sit and reach and distance run after attending this exercise program were significantly increased ($p < .05$).

Keywords: Evaluation, Physical fitness, Muay Thai exercise

INTRODUCTION

Exercise is very important to people of all ages because it can result to having a strong body and promote good health. Thus, exercising with Muay Thai is a good physical activity. Muay Thai is a national sport which shows the Thai identity on self-defense. Muay Thai was developed from the Thai ancestors' lifestyles and wisdom which had created the performances for self-defense fighting. Muay Thai got well known inside and outside the country. Moreover, exercising Muay Thai helped to develop the body, mind and social well-being of people.

The study on social status in the present revealed that exercising and sport in Thai youth was decreased. They liked to watch TV., play online games and take extra tutorial class. These activities used less energy than exercising. Besides, there weren't time for exercising which was main reason to have overload (Silapanon, 2007). It causes poor physical fitness including the ability to work. Physical fitness was very important for childrens and adults (Wuest & Bucher, 2003). In addition to, exercise helped to protect them from illness which might happen from without exercising (Power & Howley, 2001). And no exercising will get illness such as Hypercholesterolemia and Hypertension etc. (American College of Sport Medicine, 2000).

From the above issues of problems and concepts, the researcher is interested to evaluate the physical fitness of the project participants before and after exercising with Muay Thai for the purpose of developing and improving the exercise activities of Muay Thai. The objective of this research was to compare physical fitness before and after exercising with Muay Thai of students in Kasetsart University Kamphaengsaen Campus.

METHOD

Research concept

Population and sample

Population of the research were 270 physical education and sport program students at Faculty of Education and Development Science, Kasetsart University Kamphaengsaen Campus, who were enrolled in final semester of 2016.

Samples of this research were 30 volunteer who were PES students at Faculty of Education and Development Science, Kasetsart University Kamphaengsaen Campus, who were enrolled in final semester of 2016.

Period of Research

Period of this study began in January 2016 – March 2016 (3 months).

Variables of Research

1. Independent Variable was the model of exercise with Muay Thai.
2. Dependent Variable was the physical fitness which consisted of BMI, Push-Ups 30 seconds, Sit-Ups 60 seconds, Sit and Reach and Distance running.

Materials of the research

1. The model of exercise with Muay Thai was developed by the researcher. It had a validity of 0.8 – 1.00 by experts and appropriateness of exercise was high level which consisted of warming-up, exercising and muscle stretching. This model spent 35 seconds by using 89 Muay Thai performances.
2. Physical fitness test consisted of height gauge, weighing apparatus, jigsaw puzzle pad, stopwatch and flexmeter.

Data collection

Data was collected by the researcher and 5 assistant researchers. The participants were given a physical fitness test 1 week before using the exercise. Then the model was used by the participants for 3 days in 12 weeks such as Monday Wednesday and Friday. When the program was finished, the participants were given another physical fitness test.

Data analysis

The data was analyzed by using descriptive statistics (percentage, mean, standard deviation) and t-test for dependent

RESULTS AND DISCUSSION

RESULTS

The results of comparison on physical fitness before and after exercising with Muay Thai were divided into 5 aspects as follows;

Table 1 Comparison of differentiation mean of physical fitness between before and after exercising

Physical fitness	Before		After		t	p-value
	\bar{X}	S.D.	\bar{X}	S.D.		
Body Mass Index (BMI)	21.87	2.926	20.67	2.871	1.748	.091
Push-Ups 30 Seconds	25.80	6.870	31.00	6.918	7.944	.000
Sit – Ups 60 Seconds	41.86	9.640	45.26	9.850	6.512	.000
Sit and Reach (cm.)	15.46	5.289	17.70	5.180	7.691	.000
Distance Running (second)	9.94	2.223	8.65	1.643	6.922	.000

$p < .05$

From the table 1, it was found that the mean of Push-Ups (30 seconds), Sit – Ups (60 Seconds), Sit and Reach (cm.) and Distance Running were significantly higher than before attending the exercise program ($p < .05$).

DISCUSSION

The research was showed that the evaluation of physical fitness before and after exercising with Muay Thai were divided into 5 components. This discussion contains explanation supported with references as follows;

Muscular strength by using Push-Ups (30 seconds); it was significantly higher than before attending the exercise program ($p < .05$). Muscular strength happened from Aerobic and empty handed exercise which used their fist, elbow, foot and knee with continuing, according to Praparat (2012) had studied on the results of aerobic dance with Muay Thai toward physical fitness and satisfaction' participants found that the physical fitness on muscular strength after attending was significantly higher than before attending the exercise program ($p < .05$). And confirm with Namueng (2005) had studied on the results of aerobic dance with Muay Thai arts toward flexibility, agility, arms and legs muscular strength. The results found that arms and legs muscular strength was significantly higher after attending ($p < .05$).

Muscular endurance by using Sit – Ups 60 Seconds; it was significantly higher than before attending the exercise program ($p < .05$). Muscular endurance happened from body movement for using fist, knee and foot including their drive from other muscles which according to Thinluang (2012) has studied on activity of Muay Thai aerobic toward physical fitness that was found that muscular endurance was significantly higher after attending ($p < .05$). As Duangchuay (2008) had studied on the effects of Mae Mai Muay Thai Calisthenics training on the health-related physical fitness development of levels 2 students which was found that physical fitness on sit – ups (1 minute)' participants were significantly higher after attending ($p < .05$).

Flexibility by using Sit and Reach (cm.); it was significantly higher than before attending the exercise program ($p < .05$). Flexibility happened from the period of warming-up and stretching with Rai Ram Wai Kru Muay Thai. As Yodkam (2005) had said that muscle stretching before body movement made muscle relaxing. Rai Ram Wai Kru Muay Thai was used for applying to warm-up and stretching. According to Kririkhiew (2010) on the results of Wai Kru Muay Thai training toward flexibility' Matthayomsuksa 1 students, it was found that the flexibility was significantly higher after attending ($p < .01$).

Cardiorespiratory by using Distance running (1,600 meter); it was significantly higher than before attending the exercise program ($p < .05$). Cardiorespiratory happened from using gross muscle (upper arm) and upper legs for 25 minutes of continuing movement which according to Yodkam (2005) muscle stretching before body movement made muscle relaxing. Cardiorespiratory promotion will be using gross muscle and more 15 minutes of continuing movement. As Hemhachat (2010) had studied on the results of basic Muay Thai Chaiya toward physical fitness related health' female teenage which was found that it was significantly. Sutthiphong (2012) had studied on development of community health students' physical fitness by using Muay Thai aerobic dance. It was found that cardiorespiratory was good level.

Body Composition by finding BMI; it wasn't significant because the researcher had defied the time of 35 minutes per day for 3 days in 12 weeks which it was short time to change the weight in relation to the height Both were important factors for BMI. According to Wongsamsorn (2015) had said that exercise for losing weight have to decrease fat in heart rate of 130 – 150 time/minute and continuing 15-45 minutes. Moreover, we have to move and contract each organs for being closed-fitting. There were many activities for losing weight as boxing, hot yoga and agility workout.

CONCLUSION AND SUGGESTION

It is suggested that the period of time and frequency in doing the activity should be increase in order to increase the efficiency of the exercise and its effect to weight and body composition.

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EFFECTS OF EXERCISE WITH RAM WAI KRU MUAYTHAI ON PHYSICAL FITNESS AND ENERGY METABOLISM IN THE ELDERLY

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Abstract

The purpose of this study was to compare the effects of exercise with Ram Wai Kru Muaythai on physical fitness and energy metabolism in an elderly. Subjects were purposive sampling collected. There are 30 elderly ladies consisted of 15 people in experimental group and 15 people in control group at Kaophueng Village, Pakchong sub-district, Chombueng district, Ratchaburi. The Subjects in experimental group were exercise with Ram Wai Kru Muaythai for eight weeks, 3 days a week and in each day for 30 minutes. The subjects in the control group were normal life styles. Physical fitness and energy metabolism were tested before and after experiment in both groups. Statistics analyses were average, standard deviation and t – test. After eight weeks of experimental, the averages of physical fitness were body composition, legs muscle strength, flexibility and Cardio-respiratory endurance. There are different from the control group at the significant .05. The average of energy metabolism of experimental group is different with the control group at the significant .05

Keywords: exercise, Physical fitness, Ram WaiKru Muaythai, Energy Metabolism,Elderly

INTRODUCTION

Human resource is an important factor of sustainable national development in order to population has high quality living condition. Human resources play the important role in overall development of all countries. Capital, emotional, mentality, natural resources and including the important of health prevention and health care of the populations. In the present time, the improvement of health technologies, including of medical practice as well as public health, generates advantages toward the elderly people in the world in terms of the healthcare and longevity. In Thailand, the number of elderly persons has increasing rapidly in every year. Thus, the elderly reflect the importance and necessity for the development and management of services in order to self-care issue of the elderly to live longer (Foundation of Thai Gerontology Research and Development institute, 2015).

Elderly population is a critical issue nowadays in globally. Especially in Thailand has been increasing proportion of elderly rates. In Thailand, the elderly population is growing faster rate than the world elderly population. In 2010 – 2040 the amount of youths, childhood population will be decreases (Office of the National Economics and Social Development Board, 2013). A survey on 2014, amount of elderly population on average 14.9 with total population (men on average 13.8 and woman 16.1). The total of elderly populations in the nation were 10,014,699 consisted of men 4,514,812 people (on average 45.1) and women 5,499,887 people (on average 54.9) (National Statistical Office, 2014) Increasingly, elderly population also effecting to health care because the elderly have health problems due to aging, cells, tissues, degenerate organs naturally can cause Degenerative disease. Need of health care, medical care and the medical expenses are higher than in other ages. In consequence, to make an elderly healthy and reduce burden public health expenditure and find the way prevent and promote the health of an elderly to do exercise activities for develop

physical, mentality, emotional, society and intelligence. An elderly can live in the society happily. Nevertheless, Health promotion is an important focus in the present health care for elderly people as Royal Address by H. M. King Bhumibol Adulyadej On the Occasion of Seminar open ceremony “Exercise for Healthy” on 17 December, 1980 (Royal Address by H. M. King Bhumibol Adulyadej, 1980) stated that

.....Our physicals were created by the nature for exertion, nor do nothing. If always used the suitable power, the physical will be strength, flexibility and sustainable but in contrast, if not use the power, the physical will be weakness and finally pass a way. Thus, people or worker should spend a time for exercise in every single day. Other wish, it will be very disappointing if used intelligence and ability to gain a small benefit for themselves and the nation because the weakness of physical effecting to high quality performance.....

Exercise is activities health promotion for healthy elderly people can do their daily routine and reduce burden public health expenditure (Harper, 1996; Sungworakan, 2008) stated that proper exercise will make the elderly healthier, active, stronger, more bone density and increasing ability on working. Similarly to Krabuanrat, 2006) stated that proper exercise of the body effects to body development effectiveness including prevention and slow down the aging process. The principle of exercise for elderly should be approximately light and heavy exercise for 20 – 30 minutes, 3-5 times a week. Exercise should not do overdose, starting form warm up period, exercise period and stretching period. (Tanomsuk. 2013). Effectiveness exercise must have good systematic circulatory system, heart rate and can generate the muscle strength, healthy bone, muscle flexibility, balance and active immunization.

Muaythai belongs to Thailand’s intangible cultural heritage. The origin to this Traditional Thai martial art can be traced back to the down of the nation’s history. It is the art of efficiently and beautifully using the part of body and human spiritual. Learning Muaythai, Ram Wai Kru Muaythai with all steps effecting beneficial of health, mentality for everyone and society (National Cultural Office, 1997;Kawjaratwilai, 2010; Ulit, 2014) Therefore, exercise with Muaythai is beneficial to the elderly in terms of physical fitness and cultural aspects of the nation.

According to statement of problem above, the researcher interested to use Ram Wai Kru Muaythai exercise program to improve physical fitness and energy metabolism for elderly people. The results of this research will be beneficial for health promotion in elderly people and preserve Thai martial art culture “Muaythai”, adapted to Ram Wai Kru Muaythai exercise program in order to promote health promotion in elderly people to have longevity. The objective of the research was to compare the effects of exercise with Ram WaiKru Muaythai on physical fitness and energy metabolism in an elderly before and after, between the experiment group and the control group.

METHOD

Scope of the study

Populations Scope

The populations of this study were 263 elderly ladies who lived in Kaophueng Village, Pakchong sub-district, Chombueng district, Ratchaburi.

Subjects were 30 elderly ladiesin Kaophueng Village, Pakchong sub-district, Chombueng district, Ratchaburi.

Timing Scope

Research period of this study: October, 2016 – December, 2016 (3 months).

Variable Scope

1. Independent Variables) was Ram Wai Kru Muaythai program.
2. Dependent Variables was physical fitness consisted of Body Mass Index, Cardio respiratory Endurance, strength and endurance of muscle and energy metabolism.

Instruments

The instruments of the study were

1. Ram Wai Kru Muaythai exercise program was created by the researcher and examined contents validity by an expert at 0.8 – 1.0.
2. Five minutes warm-up by using stretch exercise, static stretching and movement amount 8steps (Tanomsuk. 2013)
3. Twenty minutes exercise by using 10 steps of Ram Wai Kru Muaythai for exercise
4. Five minutes Cool down period, with Stretch Exercise, Static Stretchin gand movement amount 10 steps (Tanomsuk. 2013)
5. The physical fitness test (PFT) for an elderly (Rikli, E.R. and Jones, C.J. 2002) composed of:
 - a. Testing strength and endurance of physical fitness of legs muscle (30-second chair stand test).
 - b. Strength and endurance on physical fitness of hand muscle test by using the dumbbell test (30-second arm curl test).
 - c. Body Mass Index test by using weight meter for calculate BMI.
 - d. Cardio respiratory Endurance test by doing legs up and down (2-minute step test).
 - e. Flexibility test by doing chair and touching toes (chair sit-and-reach test)
6. Energy metabolism test was fitness meter (Feel fit band)

Data Collection

The main instrument used in this study was Ram Wai Kru Muaythai program. The researcher and 3 researcher assistants collected the data with the procedure as follow: first, physical fitness test in both of subjects group in one week before exercise. The experiment group practice Ram Wai Kru Muaythai program for 8 weeks, 3 days a week (Monday, Wednesday and Friday). In the other hands, the control group used their normal lifestyle. After finished an exercise for 8 weeks, continued on physical fitness test again with both of subjects group

Data Analysis

Data analysis of this study were statistic description composed of average, mean, standard deviation and t-test for Independent.

RESULTS AND DISCUSSION

RESULT

The result of comparison on physical fitness between the control group and the experimental group, before and after exercise with Ram Wai Kru Muaythai has classified in to factors of physical fitness and energy metabolism as below:

Table 1. Comparison of differences on an average of physical fitness and energy metabolism before and after, between the experiment group and the control group

Data	Control Group		Experimental Group		T	p-value
	\bar{X}	S.D.	\bar{X}	S.D.		
Body Mass Index: BMI(kg./sqm.)	0.94	0.896	- 0.48	0.261	5.902	.000
Cardio respiratory Endurance(time/2 minutes)	-5.33	6.872	25.53	10.842	-9.312	.000
Legs muscle strength and endurance of (time/30 seconds)	-2	1.362	5	1.362	-14.067	.000
Hands strength and endurance (time/30 seconds)	-1.66	2.609	5.66	2.160	-8.383	.000
Flexibility (Fingers)	-1.10	1.021	2.96	1.060	6.922	.000
Energy metabolism(kcal)	-3.60	12.240	39.06	10.361	-10.304	.000

p < .05

According to table1 showed that physical fitness and energy metabolism between the control group and the experimental group has statistic significant at .05

Discussion

The findings of the research were discussed as follow:

Body Mass Index: BMI, after testing showed that experiment group that used Ram Wai Kru Muaythai exercise program had low body mass index. When compared with the control group which spent their normal daily life in the significant at .05, relating to the hypothesis of the research. Ram Wai Kru Muaythai exercise program is kind of aerobic exercise that use a part of body movements continuing for 30 minutes effecting to low body mass index. One explanation for this finding may be Sungworakan (2008) found that Krabi Kabong exercise program can be health related fitness consisted of low body fat percentage in the statistic significant at .05 and similar to Krasasaing (2011) studied the comparison of physical fitness during practice Ram Wai Kru Muaythai and Yoga training's Thai youth, reported that body weight slowing down in the statistic significant in Yoga group (p<0.05) and Ram Wai Kru Muaythai group (p<0.01). Interestingly, Ram Wai Kru Muaythai is the way to use for exercise to get more health and fitness.

Cardio respiratory Endurance with 2-minute step test, after testing found that experimental group that used Ram Wai Kru Muaythai exercise program had increase cardio respiratory endurance. When compared the control group which spent their normal daily life in the significant at .05, relating to the hypothesis of the research. Ram Wai Kru Muaythai exercise program is kind of aerobic exercise that use a part of body movements continuing, training 30 minutes in each day, 3 days a week (8 weeks) effecting to increase cardio respiratory endurance. The results were supported on

the study of Rattanasiri (2008), studied the effect of fawn Jerng Mor Chor exercise on physical fitness showed that physical fitness, factor of flexibility in the experimental group after receiving Fawn Jerng Mor Chor exercise was not significantly higher than that of the control group in the statistic significant .05 and the physical fitness of cardio respiratory endurance in the experimental group after receiving Fawn Jerng Mor Chor exercise was significantly higher than that of the control group in the statistic significant .01

Strength and endurance of Legs muscle with 30-second chair stand test, after testing found that the experimental group that used Ram Wai Kru Muaythai exercise program had increase strength and endurance of Legs muscle. When compared the control group which spent their normal daily life in the significant at .05, relating to the hypothesis of the research because Ram Wai Kru Muaythai exercise program switched legs and muscle contraction continually effecting to gain high strength and endurance of legs muscle. Kinsong (2008) studies the effects of exercise by applied Northeastern Folk Dance on balance and leg muscle strength of elderly women found out that of after 8 weeks of testing, the experimental group has an average of strength and endurance of Legs muscle higher than before testing in statistic significant at.05, supported by Meeton (2013) studied the effects of Ram Muaythai exercise on strength and endurance's elderly people indicated that Ram Muaythai exercise can increase the strength and endurance of legs muscle.

Strength and endurance of hands muscle by 30-second arm curl test, after testing showed that the experimental group that used Ram Wai Kru Muaythai exercise program had increase strength and endurance of hands muscle. When compared the control group which spent their normal daily life in the significant at .05, relating to the hypothesis of the research because Ram Wai Kru Muaythai exercise program switched legs and muscle contraction continually effecting to gain high strength and endurance of legs muscle. The results of the study were also supported by Kunthong (2011) studies the effect of Manora classical dance training on strength and balance of the elders reported that after 8 weeks testing, an average on strength and endurance of hands muscle has better than before experimental in statistic significant at.05

Flexibility of muscle by chair sit-and-reach test, after testing found that the experimental group that used Ram Wai Kru Muaythai exercise program had increased Flexibility of muscle. When compared the control group which spent their normal daily life in the significant at .05, relating to the hypothesis of the research because Ram Wai Kru Muaythai exercise program including starting form warm up period, bowel movements and stretching can help body flexibility which supported by Yamwong (2008) studied the effect of modified Ram Muaythai Boran and traditional aerobic dance on dynamic balance flexibility and falling in aging women pointed that Ram Muaythai Boran and Traditional Aerobic Dance can increase the ability of the dynamics balance. Sungworakan (2008) studied the effects of Ram Kra Bi exercise training program on health related physical fitness and balance of the elderly showed that the experimental group, which was performed Ram-kra-bi exercise training program, had the difference in health-related physical at the $p < .05$ and similar to Kinsong (2008) studies the effects of exercise by applied northeastern folk dance on balance and leg muscle strength of elderly women found out that of after 8 weeks of testing, the experimental group has an average of flexibility muscle higher than for testing in statistic significant at.05

Energy metabolism, after testing with fitness meter (Feel fit band) found that the experimental group that used Ram Wai Kru Muaythai exercise program had increase energy metabolism. When compared the control group which spent their normal daily life in the significant

at .05, relating to the hypothesis of the research because Ram Wai Kru Muaythai exercise program is kind of aerobic exercise that use a part of body movements can also help build endurance and energy metabolism levels. As Suntraluck (2008) studied the effects of aerobic exercise and aerobic combined with resistance exercise training on energy expenditure, health-related physical fitness and cutaneous blood flow in normal weight and overweight women indicated that aerobic exercise combined with resistance exercise training has more effective in increasing energy expenditure and improving health-related physical fitness as well as cutaneous blood flow than aerobic exercise alone in both normal weight and overweight persons.

CONCLUSION AND SUGGESTION

Researcher should study another sample group such as elderly men, increase duration of the exercise and frequency of the exercise for high effectiveness

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FACTORS INFLUENCING THE IMPLEMENTATION LEVEL OF PHYSICAL EDUCATION IN PRIMARY SCHOOLS IN SELANGOR

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Abstract

Although all schools in Malaysia implement the same Physical Education (PE) curriculum, have the same number of teaching-learning periods weekly, and use standard textbooks, studies have reported that the implementation level of PE differed from one school to another due to several factors. Therefore, this study aimed to determine what factors influences PE implementation level in primary schools. The levels of PE implementation of 111 primary schools in Selangor were measured using the Malaysian Educational Quality Standard 2010 (SKPM 2010). Analysis of variance (ANOVA) revealed that there were significant differences in all factors (leadership and vision $p = .0001$; organizational management $p = .0001$; curriculum, co-curriculum and sport, and student affairs $p = .0001$; teaching and learning $p = .0001$; student achievability $p = .0001$) among schools with high, medium and low PE implementation levels. Specifically, post-hoc (Bonferroni) indicated that student achievability did not differ significantly between schools with low and average PE implementation level suggesting that higher implementation level in all factors contributed to higher PE implementation.

Keywords: physical education, SKPM 2010, implementation

INTRODUCTION

Physical Education Curriculum (PE) is a core subject taught in primary and secondary schools in Malaysia. Each school uses a standard curriculum prepared by the Curriculum Development Centre, Ministry of Education (MOE) and the use of textbooks supplied by the Unit Textbook, KPM. The standard allocated time for physical education is 40 minutes per session for high schools and 30 minutes per session for primary schools. PE curriculum is regularly reviewed to ensure that it is up-to-date with current trends. PE implementation in schools is designed to produce well-rounded education including in the domains of psychomotor, cognitive and affective.

However, curriculum improvements alone are not sufficient. Wee (2008) argued that a successful PE program at school requires effective management. Although the characteristics of the PE program in Malaysia are the same, its success depends, in part on the use of good resources and facilities to effectively achieve the objectives of the PE curriculum, as described in Figure 1. Reports regarding the overall implementation of PE in Malaysia remains low (Wee, 2002). Syed and Julismah (2010) explained that the level of implementation of PE simply refers to providing the teaching materials, resources, tools, and facilities to pursue the PE curriculum, whereas the evaluation of its efficacy refers to an examination of how the PE curriculum is executed. The Curriculum Development Centre (2001) reported that PE teachers in Kelantan and Sabah did not observe the daily lesson plans or update their curriculum. Daily lesson plans were not carefully planned, and the PE class was not monitored and student PE performance was not assessed. The Pahang State Education Department found that throughout all state schools PE was poorly executed and failed to observe the Annual Education Plan in the design of their daily lesson plans. As many as 95% of all teachers failed to

provide written notes, exercises, or mid and end term examinations (Education Department, 2012). The situation became critical when PE was being taught by non-qualified teachers (Unit Planning and Policy Studies in Education, 2005).

The objective of PE Curriculum
<ul style="list-style-type: none"> • Improve and maintain health based on fitness • Mastering basic movements and games • Exercise and physical activity as a daily routine • Apply knowledge of health and safety while participating in various physical activities • Build character and self-discipline • Make wise decisions in life

Figure 1: The objective of physical education (MOE, 2001)

To ensure quality education in Malaysia, the Inspectorate Unit, Ministry of Education uses the Standard for Quality Education in Malaysia (SQEM 2010) to assess how five aspects contribute to the quality of education. Referring to SQEM, 2010, there are five standards that determine the quality of education. These include leadership, administrative management, organizational management that covers the needs of the staff and facilities, curriculum management, planning and implementation process of teaching and learning, and student producibility. Each of these standards is interrelated and plays important roles toward ensuring a high level of implementation to best achieve the curriculum.

Physical education should encourage pupils to acquire knowledge, skills, and values of personal development through planned physical activity. Activities should be suited to the needs and characteristics of students and stimulate them towards a healthier lifestyle. To carry out these activities, the PE teacher is instrumental in ensuring the proper implementation of PE. Graham (2008) added that other qualified instructors, teaching time allocation and achievement of objectives should be suited to the task, and teaching environments such as class size and the ratio of the equipment and facilities provided should be sufficient. As such, non-conducive school environments and poor support for PE affected the implementation of the curriculum.

Referring to previous studies, there are various factors that affect the implementation of PE in schools. PE is a subject that is based on practices, values, and beliefs on how to live a healthy and active life. To ensure that the PE is successful, teachers play a very important role. According to Shulman (1987), a teacher must master the core knowledge for implementing an effective learning process. A successful teacher is one who is able to deliver the learning content towards the attainment of the objectives and make the learning environment attractive and motivational (Christensen, 1996). In addition, effective teaching is accompanied by a sound pedagogy such as the ability to control a class, use of tools and optimal facilities will provide a more positive impact on the achievement of learning objectives (Julismah, 2006). Conversely, poor teacher content knowledge has implications for teaching and learning PE such as low student participation, less mastery among students, students who do not produce quality work, unable to plan and deliver effective teaching sessions, ineffective presentation and communication skills, and are unable to carry out assessments efficiently.

Figure 2 illustrates how these aspects influence the level of implementation of physical education in schools. The conceptual model is constructed based on the concept of valuation of Education Malaysia 2010 Quality Standard and PE curriculum objectives.

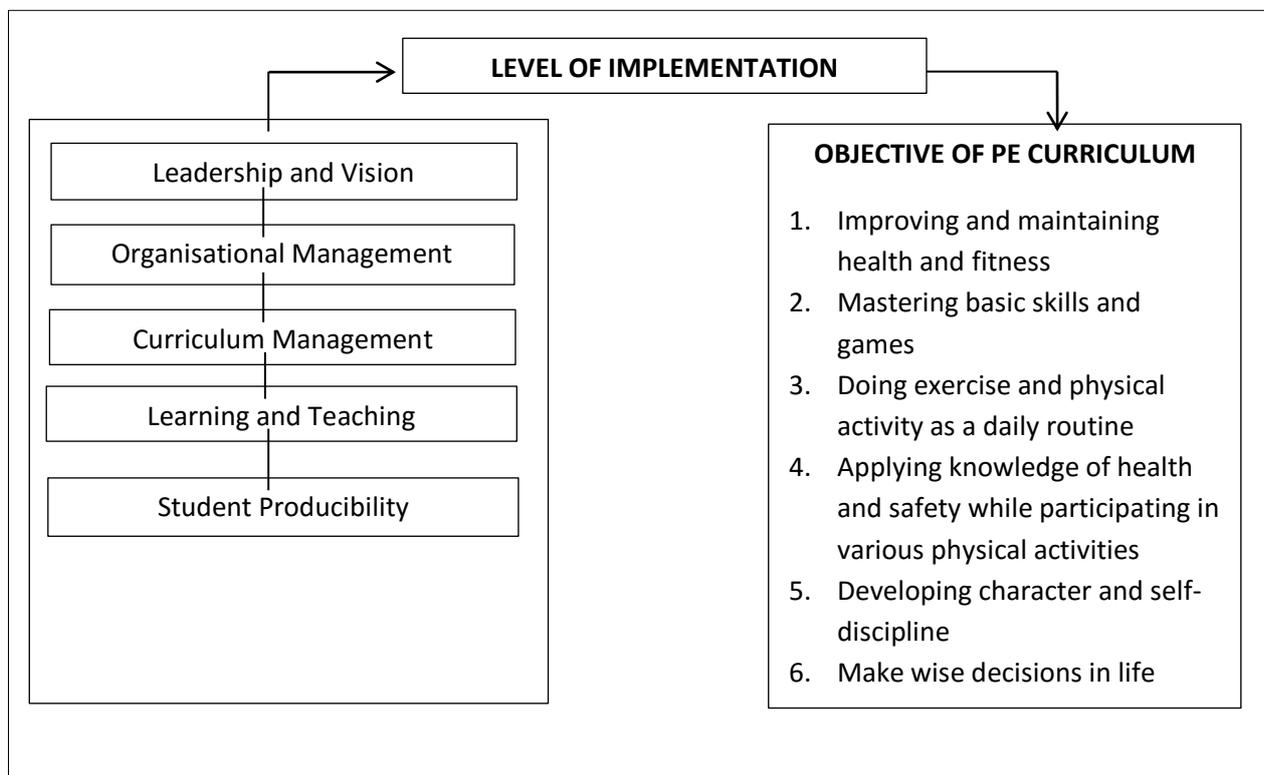


Figure 2: Conceptual model based on the Standard for Quality Education in Malaysia 2010, which describes the relationship between the factors that influence the level of implementation and the achievement of the objectives of Physical Education

Students need quality instruction and experience of using tools (Wall, Rudisill, Goodway & Parish, 2004). To this end, teachers must possess and demonstrate knowledge and skills in conducting such activities. Furthermore, the allocated time for PE is short, ranging from 30 to 40 minutes per session. Thus, teacher competence in managing the limited time is important. The findings by Mitchell and Earls (1987) shows the overall time allocated to physical education is only 27% for content related subjects, while 75% is wasted on things like waiting and administrating pupils. With these statistics, a PE class of 40 minutes on average has an estimated 10 minutes for content delivery. A review by Julismah (2006) found that PE teacher content knowledge is at a moderate level. Given that the content delivery is important in ensuring the effectiveness of the PE program, if this situation persists and remedial actions are not taken, PE education in school will fail compared to other subjects.

Administrators' attitude also plays a role in the achievement of the PE objectives in schools. However, most school administrators focus on academic achievement in order to maintain the status of the school so as not to be categorised as a low-performing schools (achieving less than a 60% pass rate in exams organized by the Ministry of Education). As such, PE programs and activities are not

emphasised. This causes imbalances in the implementation of educational programs, particularly PE. In terms of continuum, PE was ranked last as it was not considered an academic subject (Corbin, 1983). If teachers and administrators encourage students and provide support for the PE curriculum similar to their support for other subjects, this will enhance the achievements in PE. Human resource (2004) argue that the PE program can be more affective and significantly add to the growth and physical maturity of pupils with a high level of organizational leadership as practiced in some schools in the United States. In such schools, the teachers showed a keen interest in PE students with ways to diversify the activities that students can choose so that they may choose their preferred activity.

Luke and Cope (1994) reviewed the perceptions of male and female students in secondary schools on the subjects of Physical Education and Health and found that 64% are not interested in PE and Health because the implementation of the program is unattractive, 42% lacked interest in sports, 40% did not consider it enjoyable, and lack of interest of the teachers (39%). This illustrates that these elements are important in PE and must be injected in the process of teaching and learning. Creativity is a necessary aspect of a PE teacher because in the process of teaching sports, diversity of creative delivery methods must be applied to ensure that there is an element of fun in physical activity while at the same time delivering meaningful content to achieve the teaching objectives.

The issue of lack of equipment and facilities for teaching and learning purposes in PE also contributed to the poor implementation of PE. The Ministry of Education (2008a) reported that 98.9% of schools do not allocate the budget granted to purchase and rehabilitate sports equipment and teaching aids for PE (Shabeshan, 1998). This causes resource constraints for PE. It is more troubling when the tools and facilities that are no longer appropriate and insecure continue to be used.

Since PE implementation in schools is managed by the school management, it is not surprising that there is poor implementation of PE despite being a core subject (Syed & Julismah Syed, 2010). Implementation of PE programs in schools in Malaysia varies depending on the readiness factors such as equipment and sports facilities, high skilled teaching, well planned learning and teaching processes, higher student engagement, status of PE as a subject, and financial support. This leads to question the level of implementation of PE in schools in Malaysia and the achievement of its objectives in developing gross motor skills of children. Therefore, this study was conducted with the purpose of measuring the level of PE implementation in primary schools in Selangor and compare the factors that affect the implementation of school-based PE according to the level of implementation.

METHODOLOGY

To assess the level of PE implementation in schools, 111 primary school teachers on the PE committee in Selangor were selected through random sampling to answer a questionnaire on Standard Quality of Education Malaysia (MOE, 2010) by the Inspectorate Unit of the Ministry of Education that focuses on the subject of PE ($r = .96$). This questionnaire assesses five aspects of education quality standards; 1) Standard 1: Leadership and Vision, 2) Standard 2: Organisational Management, 3) Standard 3: Curriculum Management, Co-curricular and Sports and Welfare, 4) Standard 4: Learning and Teaching and 5) Standard 5: Student Producibility. The scores provide an overview of the implementation process of education at the school and is categorised into three stages: a score between 0 to 39 is categorised as low, 40 to 79 moderate, and 80 to 100 high.

FINDINGS

Based on descriptive analysis, the samples obtained from the 111 respondents, 94 showed a medium level of implementation (83.9%) while only 7 (6.3%) schools performed at a low level, and 10 (8.9%) at a high level.

Table 1 Mean scores according to aspects of PE implementation of school based on the level of implementation

Implementation Aspects	Low (n=7)		Moderate (n=94)		High (n=10)	
	Mean	SD	Mean	SD	Mean	SD
1. Leadership and Vision	2.75	.43	4.32	.89	5.25	.47
2. Organisational Management	2.79	.25	4.36	.68	5.20	.33
3. Curriculum Management, Curriculum & Sports and Student Affairs	8.75	1.94	13.5	1.94	16.5	1.10
4. Learning & Teaching	3.08	.30	4.53	.60	5.60	.35
5. Student Producibility	8.49	3.83	13.96	7.73	28.11	3.51

A descriptive analysis of Table 1 shows the mean scores for each aspect measured to determine the level of PE implementation in schools. Aspects of leadership and vision for the high level of school performance showed the highest mean score (M = 5.25, SD = .47), followed by a moderate level of school performance (M = 4.32, SD = .89) and low levels of school performance (M = 2.75, SD = .43). For the aspects of organisational management, high-school level implementation also showed the highest mean score (M = 5.20, SD = .33), followed by a moderate level of school performance (M = 4.36, SD = .68) and low levels of school performance (M = 2.79, SD = .25). The findings also showed high levels of school performance to obtain the highest mean score in three other aspects of management aspects of curriculum, Curriculum & Sports and Student Affairs, learning and teaching and student excellence (M = 13.5, SD = .2.37; M = 5.60, SD = .35; M = 28.11, SD = 3.51), followed by a moderate level of school performance (M = 13.5, SD = .1.94; M = 4.53, SD = .60; M = 13.96, SD = 7.73) and low levels of school performance (M = 8.75, SD = .1.94; M = 3.08, SD = .30; M = 8.49, SD = 3.83). This shows that every aspect of PE for high school levels is better than the middle and lower level schools.

Post Hoc test Bonferonni Difference Mean Score by PE Implementation Level

Aspek	Min	F	Post-hoc (Bonferroni)
1. Leadership and Vision	Low (2.75)	18.18*	T>R*
	Moderate (4.32)		S>R*
	High (5.25)		T>R*
2. Organisational Management	Low (2.79)	28.93*	T>R*
	Moderate (4.36)		S>R*
	High (5.20)		T>S*
3. Curriculum Management, Curriculum & Sports and Student Affairs	Low (8.75)	33.11	T>R*
	Moderate (13.59)		S>R*
	High (16.29)		T>S*

4. Learning & Teaching	Low (3.08) Moderate (4.53) High (5.60)	40.20	T>R* S>R* T>S*
5. Student Producibility	Low (8.49) Moderate (13.96) High (28.11)	19.80	T>R* S>R* T>S

*p <.0001

The Bonferonni Post Hoc test showed a significant difference in terms of performance between schools concerning PE implementation level for these five aspects of school performance. Leadership and Vision [F (2, 108) = 18:18, p <.05], Organisational Management [F (2, 108) = 28.93, p <.05], Curriculum Management, Curriculum & Sports and Student Affairs [F (2, 108) = 33.13, p <.05], Teaching and Learning [F (2, 108) = 40.20, p <.05] and Student Producibility [F (2, 108) = 19.80, p <.05].

DISCUSSION

PE curriculum implementation is essentially based on the guidelines provided by the Ministry of Education. Education quality standards are also evaluated. PE teachers were seen as key factors in ensuring high PE implementation. Based on these findings, PE teacher placement in schools is inadequate due to the lack of qualified PE teachers (n = 605) compared to other qualified teachers (n = 398). The visible impact on the ability to deliver learning content for non-qualified is evident, as the findings by Julismah (2006) states that mastery in core teaching knowledge is an important aspect that needs to be there to teach. Teacher shortages is another reason why the administration assigned non-qualified teachers to teach PE.

Administrator also plays a major role in ensuring high PE implementation. The teacher needs to emphasise the importance of PE and value it similar to other subjects. The administrator should strive to ensure that the PE curriculum is properly pursued by assigning it its due budget and allocating proper resources so that activities can be carried out in accordance with the syllabus. The lack of resources for PE activities results in a general lack of enthusiasm among students for PE.

Based on the results of the above discussion, it can be concluded that each of the five aspects influence the level of PE implementation. This will naturally affect the level of achievement of the objectives of physical education as a whole, particularly in developing motor skills at an early stage fundamental to a healthy lifestyle. Failure to support the PE program will weaken student interest in physical activity, cause poor physical fitness, lead to poor self-confidence, and an increase of health problems (Brown, Walkley & Holland, 2004). Therefore, it is proposed that a follow-up study is conducted to determine the effect of the level of achievement of the objectives of the PE implementation, especially in developing gross motor skills of children.

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PHYSICAL FITNESS OF SOUTH SUMATERA FOOTBALL ATHLETES FOR PON XIX 2016

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Abstract

This study aims to determine the physical fitness of South Sumatera football athletes for PON XIX 2016. The method used is survey method with test and measurement techniques. The physical components include power, muscular endurance, agility, flexibility, speed, aerobic capacity (VO₂max). The results for the power physical components gain average categories in 75% with medicine ball test. The muscular endurance physical components gain poor category with 83% in sit up test. The agility physical components gain excellent category with 58% in shuttle run test. The flexibility physical components gain good category with 46% in sit and reach test. The speed physical components gain excellent category with 63% in 20 m run test and the aerobic capacity (VO₂ max) physical components gain good category with 50% in bleeb test.

Keywords: Physical Fitness, Athletes, Football, PON XIX 2016.

INTRODUCTION

Football game consists of two teams, each team consists of eleven players who played on a rectangular open field with the aim of the game is to score as much as possible into the opposing goal. In Indonesia itself the popularity of this sport is increasing from year to year. More and more football teams are popping up, as well as the proliferation of matches are held.

Branch football is a sport game which is very popular with the people of Indonesia, including South Sumatra province. South Sumatra football team is a team that qualified for the Pre PON in Bangka Belitung 2015 as group winners and entitled as one of the teams of the 16 teams that follow the National Pekan Olahraga Nasional (PON) XIX September 2016 in Bandung, West Java.

Carrying the gold medal target at the PON XIX in 2016 in West Java, South Sumatra football team started training at Wisma Atlet Center Jaka Baring with a magnitude 26 athletes, four coaches under the command of the legendary Rudi Kelces. After a physical test against 24 athletes of the team coaches draw up an exercise program for 9 months with the first 3 months focusing on the physical aspects of the player, 3 months both on technical and tactical aspects and 3 months on strengthening the aspects of the team or trial. In this study the authors wanted to describe the physical condition of the athlete South Sumatra provincial football while competing in PON XIX in 2016 in Bandung, West Java which only reached the last eight large and thus a PON XIX football team in 2016 failed to achieve the target of a gold medal for the contingent South Sumatra.

Bompa opinions (2009), the physical condition is one element in achieving peak performance, to be able to achieve peak performance must be the physical exercise and the aim is to prepare physiological athletes to adapt to the load and exercise form. Then, according to (Fox, 2000), physical exercise is a systematic process of preparing athletes at the highest level performances done repeatedly with increasingly higher loads. Then Soekarman opinion (2000) that major achievement was to prepare the physical condition of athletes in accordance with the dominant component of the sport concerned.

Some of above opinion can be concluded that a good physical condition with regular and sustained exercise will be able to increase the ability of organs work and skill athletes, thus excellent physical condition will support the techniques, tactics and overall athlete appearances, in other words a peak physical condition to be able to determine the achievement of a championship team.

Theoretical Background

On the branches of sports games that require a long time needed a good physical condition, it is in accordance with the opinion of Bompa (2009) physical endurance will determine the success in achievement, especially in sports that require endurance in long periods of time without experiencing fatigue in when the game or race.

Physical ability according to Fox (2000), is the ability of functioning the organs of the body in physical activity. Physical ability is very important because skilled movements can be done if his physical ability is adequate to support developing psychomotor activity. Pate (1990) argues, physical condition is the complete unity of the physical components that can not be separated from one another, both increases and maintenance. Thus, in improving the physical condition of the entire physical component must be trained to develop.

The physical condition can reach the optimum point when to start training as early as possible and is done continuously and continuing based on the basic principles of exercise. The ability of a person's physical condition can be determined by doing a physical exam, can be done in laboratory or in the field. Good physical condition has advantages such as fatigue while training or matches, capable and easily learn the skills that are relatively difficult, exercise programs can be completed without having a lot of obstacles and can complete the strenuous exercise (Iyakrus,2013). The physical condition is required by an athlete, because without the support of top physical condition then the achievement of the peak will encounter many obstacles, and impossible to reach high achievement. Thus, it is necessary for the physical test of physical ability and determine the future direction of physical exercises for an athlete.

The role of physical test for an athlete is to see the weakness and disability, in order to do the exercises directed towards maximum performance in the face of a match or competition. This is in line with the opinion of Widiastuti (2015) physical test aims to: a) identify the physical condition of athletes, b) monitor the progress of the exercise, c) diagnose the weaknesses of the athlete, d) equalize the target coaches and athletes, e) predict potential achievements, and f) evaluate the program and the implementation of the exercise.

METHOD

The type of research used in this research is descriptive quantitative research with survey research methods to see the physical ability of South Sumatera football athletes for PON XIX 2016, with data collecting technique used test. This research was conducted in Jakabaring Sport City complex of Palembang, with a period of research in August 2016. The sample in this study is the South Sumatera football athletes for PON XIX 2016 consisting 24 people who follow the training center at Wisma Atlet Jakabaring Palembang. Data collection techniques used in this research is a form of field test as follows: a) vertical jump test to measure leg muscle strength, b) medicine ball test to measure arm muscles strength, c) push-up tests to measure muscle endurance arm, d) sit-up test to measure endurance abdominal muscles, e) shuttle run test to measure agility, f) sit and reach

test to measure flexibility waist, g) run 20 meter test to measure speed, and h) bleeb test to measure aerobic capacity (VO2 max) aerobic endurance (VO2 max) with a bleep test. The collected data is then analyzed statistically using the percentage was then calculated at each test category.

RESULT AND DISCUSSION

The test results in this study are described in the form of a frequency distribution data as shown in table 1 below:

Table 1. Data Description the results of physical tests South Sumatera football athletes for PON XIX 2016.

No	Component Fisik	Jenis Test	Category									
			Excellent		Good		Average		Fair		Poor	
			f	%	F	%	f	%	f	%	f	%
1	Power	Vertical jump	0	0	1	4	1	4	5	21	17	71
2		Medicine ball	6	25	0	0	18	75	0	0	0	0
3	Muscular Endurance	Push up	4	17	9	38	5	21	6	25	0	0
4		Sit up	2	8	0	0	1	4	1	4	20	83
5	Agility	Shuttle run	14	58	10	42	0	0	0	0	0	0
6	Flexibility	Sit and Reach	2	8	11	46	8	33	3	13	0	0
7	Speed	Run 20M	15	63	8	33	1	4	0	0	0	0
8	Aerobic Capacity (vo2 max)	Bleeb	1	4	12	50	3	13	1	4	7	29

Table 2. Data Description the results of physical tests South Sumatera football athletes for PON XIX 2016 based on percentage.

No	Component Fisik	Jenis Test	Mean	Category
1	Power	Vertical jump	63.91	Poor
2		Medicine ball	5.41	Average
3	Muscular Endurance	Push up	44.00	Average
4		Sit up	50.45	Poor
5	Agility	Shuttle run	11.63	Excellent
6	Flexibility	Sit and Reach	20.29	Average
7	Speed	Run 20M	2.95	Excellent
8	Aerobic Capacity (vo2 max)	Bleeb	50.77	Average

Diagram of test results by categories can be viewed as follows:

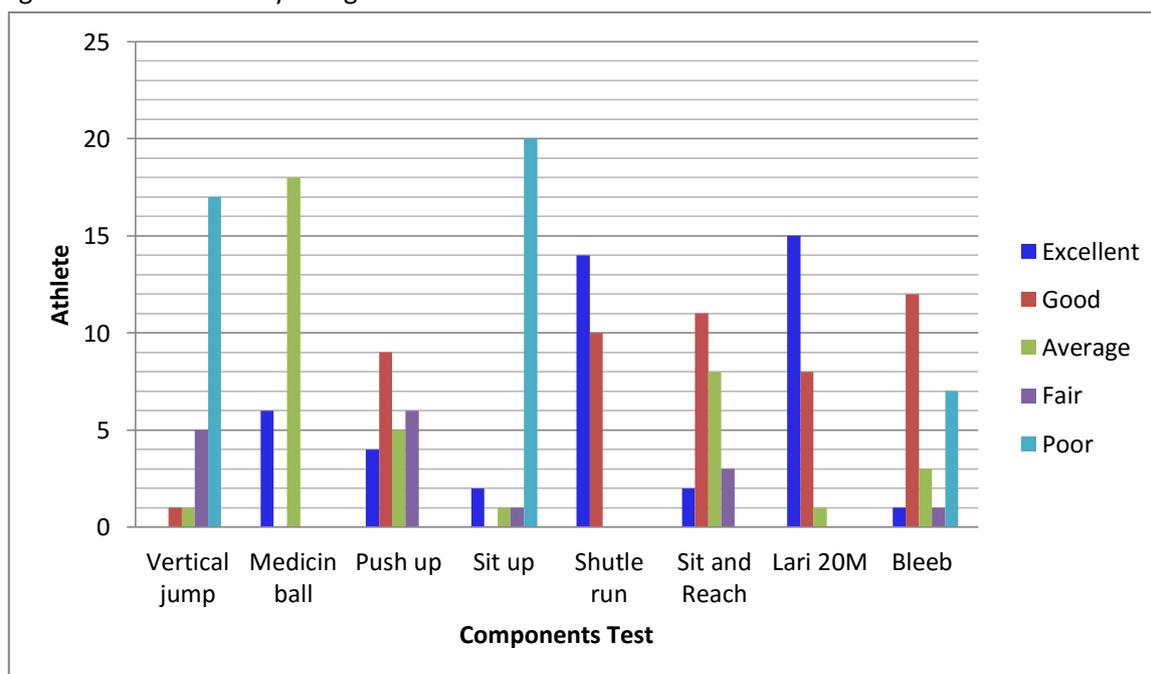


Figure 1. Categories Physical Tests PON Football Athletes

In Table 1 above leg muscle strength test results are 0 (0%) athlete with an excellent category, 1 (4%) athlete with a good category, 1 (4%) athlete with an average category, 5 (21%) athlete with a fair category, and 17 (71%) athlete with a poor category. Arm muscle strength test results, there are 6 (25%) athlete with an excellent category, 0 (0%) athlete with a good category, 18 (75%) athlete with an average category, 0 (0%) athlete with a fair category, and 0 (0%) athlete with a poor category. The push up test results, 4 (17%) athlete with an excellent category, 9 (38%) athlete with a good category, 5 (21%) athlete with an average category, 6 (25%) athlete with a fair category, and 0 (0%) athlete with a poor category. The sit up test results, 2 (8%) athlete with an excellent category, 0 (0%) athlete with a good category, 1 (4%) athlete with an average category, 1 (4%) athlete with a fair category, and 20 (83%) athlete with a poor category. The suttle run test results, 14 (58%) athlete with an excellent category, 10 (42%) athlete with a good category, 0 (0%) athlete with an average category, 0 (0%) athlete with a fair category, and 0 (0%) athlete with a poor category. The sit and reach test results, 2 (8%) athlete with an excellent category, 11 (46%) athlete with a good category, 8 (33%) athlete with an average category, 3 (13%) athlete with a fair category, and 0 (0%) athlete with a poor category. Run 20 meter test results, 15 (63%) athlete with an excellent category, 8 (33%) athlete with a good category, 1 (4%) athlete with an average category, 0 (0%) athlete with a fair category, and 0 (0%) athlete with a poor category. The bleeb (VO2 max) test results, 1 (4%) athlete with an excellent category, 12 (50%) athlete with a good category, 3 (13%) athlete with an average category, 1 (4%) athlete with a fair category, and 7 (29%) athlete with a poor category.

The results of the above research was supported by the opinion of Soekarman (2000) which states that the physical condition of athletes is of utmost importance to achievement, especially in a sport that requires excellent physical elements such as football. Then, research Iyakrus (2013) Physical exercise specifically leading to the physical needs of the dominant sports games such as branch sepaktakraw is an absolute thing to do, in other words physical exercise in a physiological

sense is an improved system and organ function in its duty to realize an athlete's performance by physical aspects. The opinions above are supported by research Pate (1990) mentions physical exercise can increase the efficiency of several organs and functions involved in the implementation of the exercise. Physical exercise in principle is to provide the physical stress on the body on a regular basis, systematic, continuous so that can lead to their ability to do work.

The opinions above are supported with theory Bompa (2009) which states that the role of the dominant phases in the sports game is the physical condition of athletes that can sustain technique and appearance of confidence, so that, to achieve these conditions are the main physical exercise is carried out repeatedly and increases the resistance to increase strength and muscle endurance, physical exercise is also aimed at achieving a biological adjustment so that the activity can be displayed optimally. In principle, the exercise must be in accordance with the needs and must occur in order to face the task of biological stress or heavy work. In principle, the exercise must be in accordance with the needs and must occur in order to face the task of biological stress or heavy work. This opinion is consistent with research Marcello, F (2009) if you want to develop the physical condition of athletes must exercise in accordance with the dominant physical aspects, aspects of the power should exercise the power, if it wants to develop the aspect of speed should exercise speed, and if you want to develop the aspect of speed endurance should exercise speed endurance. According to Jan Hoff (2007) physiologically most basic principle of training is specific adaptations to imposed demand and progressive overload principle.

CONCLUSION AND REMARK

The results of physical tests South Sumatera football athletes for PON XIX 2016 can be summarized as follows: 1) leg muscle strength aspect with poor category, 2) arm muscles strength aspects with average category, 3) abdominal muscle strength and arm muscles aspect with average and poor category, 4) agility aspects with excellent category, 5) the aspect of flexibility with average category, 6) aspect of the speed with excellent category, and 7) aspects of aerobic capacity (VO₂ max) with average category.

Physical condition is an absolute thing that must be possessed by a football athlete in accordance with the physical components of the dominant sport, and physical test is an instrument that is necessary for an athlete to see his physical abilities and shortcomings in order to perform optimally in accordance with the coaches training program.

Suggested to the coaches that the above benefits to be trained according to the needs of a soccer athlete.

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EXCITING HOCKEY COMPETITION FOR CHILDREN

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Abstract

The concept of implementation "Exciting Hockey Competition for Children" is one attempt to introduce hockey sport to the general public easily, in this case children aged 10-13 years or sixth grade elementary school and junior high grades 7 and 8 . in the development of hockey sport in the Central Java community, Semarang In particular is to introduced this sport from an early age, the same as saving or investing athletes in the long term especially welcome in coaching athletes early age. This is because other regions such as East Java, West Java and Jakarta, has been introduced, enliven, train and make the concept of a special championship for early childhood, in steps, gradually and continuously all there is estuary namely to increase the achievement in the future. The concept of "Exciting Hockey Competition for Children" is a competition of each participant who followed and shared some groups. In this case there are five posts that must be passed by each participant, in each post will be judged by a jury that would provide guidance and grades. Each post consists of techniques and variations of some techniques that combined and given a direct vote by the jury. The benefits of the implementation of the "Exciting Hockey Competition for Children" will be easily and motivated children with basic hockey techniques that competed. So planting fundamental hockey more robust from an early age. After testing experimented of concept "Exciting Hockey Competition for Children", there are some important things to got by researchers that, 1. Children will be curious to learn the basic techniques of hockey, 2. Child jealous of his friend who got the winner and the prize so motivated for the practice more, 3. the children will make this hockey sport as a hobby to spend free time to always practice, 4. indirectly attention of parents, teachers, and the school will support hockey sports as a major sport and opportunities for achievement. The conclusion of "Hockey League who fun to children ", that hockey is a sport that is easy to learn and how to introduce the sport hockey at school, so that indirectly hockey was becoming known and the free time of the child is made to practice.

Keywords: Hockey, Competition, Children

INTRODUCTION

In the modern era the lifestyle of the community has changed, health and sport is a major requirement. With lifestyle changes, strange disease began to appear, young people start feel ill by disease parents like cholesterol, diabetes, cancer and others. In this case the effectively is doing exercise. Sports is not only done by a young children, exercise can be done by all people. with doing sports we can do with the spirit and to be lifestyle of this modern era.

Hockey is one sport that is very loved by young people now, it is proved many championships are held that involves a young people and children. one of them, last week Governor Cup hockey championship are held West Java on February 15 to 20, 2017, in Stadium Hockey Si Jalak Harupat, soreang Bandung with age categories U-21, U-15, U-12, then last November also held an exhibition in order Invitation Cup Hockey Championship Mayor of Surabaya in 2016 which was followed by children aged 12-15 years Hockey field Dharmawangsa. and in October 2016 in Semarang also are held Regional Youth Championship which was attended by participants from elementary school, junior high, and high schools between schools of the District and City of Central Java.

With so many championships and enthusiasm of students do this sport, especially participants from among students of primary school and junior high school unpredictable this sport will evolve in the coming 5 years. infrastructure and facilities are easily available in the modern era, the online media is looking for hockey equipment. a good pitch are already available. It is supporting the development of this sport.

In this sport development in particular early childhood participants between 10-13 years is very appropriate in starting hockey practice. This is because if we start to training sooner at an early age, the nerve motor muscles will grow through custom and practice. So with the rapid development of the sport hockey, the author intends to provide an alternative that hockey sport is growing and enthused, especially of children aged 13-15 to hold and test "Exciting Hockey Competition for Children". If this competition runs with fun and interest of children, it can be done every one or two monthsthis is done and be the basis because of still not certainly schedule of the championship that was in the area of Indonesia, so the competition is easy to do this will give effect to the development of hockey sport in certain areas in the city of Semarang and Central Java in general.

METHOD

A. Goal concept

The main purpose of the competition concept are:

1. to introduce hockey to the general public, especially children aged 10-13 years.
2. Filling the free time when there is no championship is not certain, so the competition can be done to boost performance and technique of each individual child.
3. Only individual techniques that competed.
4. Mechanical competed is a fundamental basic techniques that must be mastered since early childhood.
5. Each post is a basic technique in the sport of hockey in the improvement to next techniques from beginners to junior.

B. The tools used

1. Stick with the standard set by the FIH for the age of the children or youth with a size of 30 - 33
2. The ball with a circumference of between 224-235 mm and a weight of 156-235 grams
3. funnel.
4. Fields astro turf or grass flat field.

C. The concept of implementation

The concept of the implementation of the hockey competition are:

1. The participants consisted of children ages 10 to 13 years of age or children who are still in primary school classes VI, VII and VIII after junior high school (SMP).
2. Each child is already know hockey at least 3 months.
3. Divided several posts (attached the implementation).
4. Each child must complete challenges basic techniques in every post.
5. The assessment team or the jury of the implementation of the competition are:

- a. Students or adults who already know hockey sport at least 2 years.
- b. Can perform basic techniques with good hockey.
- c. Never follow the national championship at least 1 x.
- d. Can provide an example to play hockey well.
- e. Have good ethics to students.
- f. Dress modestly and neatly.

D. Challenges in Each Post

1. Pos 1:

Technique that is used: Close drible, 3 balls, a distance of 10 meters.

implementation:

- a. Kids get ready at the starting line.
- b. There cue whistle, the children ran away carrying the ball with close drible
- c. The fastest children's entering the finish line he would the highest score
- d. Each post will be taken third best time that will be granted



2. Post 2:

Technique that is used: Indian drible, 3 balls, a distance of 10 meters.

implementation:

- a. Kids preparing in the start line.
- b. The child is ready to start the competition when the whistle sounded, then took the ball and passed the limits that have been set up to resolve the underlined finish
- c. When the child has to finish underlined, then it should take the next ball by running to the starting line.
- d. Children who can finish first will get the highest score.

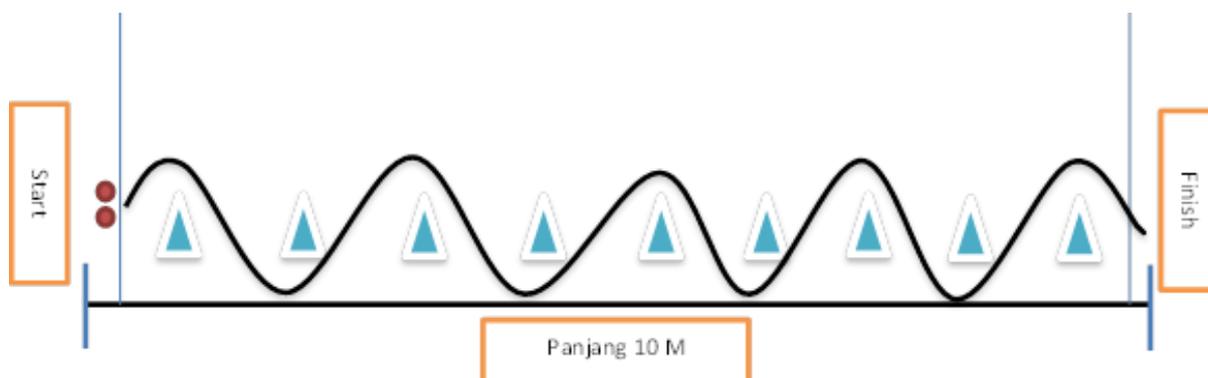


3. Post 3:

Technique that is used: Zig Zag dribble, 2 balls, a distance of 10 meters.

implementation:

- Kids preparing in the start line.
- Starting from the start line on the right side kun or a funnel and passes through each funnel.
- After the first ball is placed in the finish line, then the child ran to get the second ball to led until the finish line.
- The child must be able to pass each funnel perfectly without having to touch any kun passed.
- Children who entered the finish line first without touching kun will get the highest score.



4. Post 4:

techniques that is used: Open dribble, 2 balls, Distance 10 meters.

implementation:

- Kids preparing in start line
- The highest value obtained is when a child who can finish with 2 balls fastest in finish line

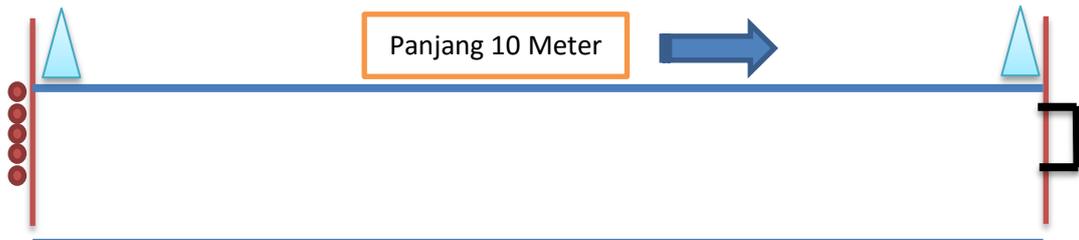


5. Post 5:

The techniques used: Push flat, 5 balls, a distance of 10 meters.

implementation:

- Kids preparing in start line.
- Every child did push technique as much as 5 times,
- If the child is able to put the ball in the right direction on target will get the highest score and so on.
- Children who can put the ball in the corner of the goal to get 3 point.
- And if the child is not able to put the ball at all to target it will get only 1 point.



E. Assessment

Assessment of the competition is based on the highest point obtained in every child who passed each post with time and targets that have been set by the researchers. As for the explanation of the highest value, as follows:

1. Post 1

NO.	CRITERIA.	VALUE
1.	Sign the finish line + perform with perfect technique	A = 90
2.	Sign the finish line and get the second place + one technique is not perfect	B = 80
3.	Sign the finish line + dribble technique is still less than juries	C = 70

2. Post 2

NO.	CRITERIA.	VALUE
1.	Be able to do Indian dribble from the start line to finish with a good and wide with less than 5 minutes	A = 90
2.	Be able to do Indian dribble from the start line to finish with a good and wide with less than 6 minutes	B = 80
3.	Be able to do Indian dribble from the start line to finish with a good and wide with a time of more than 6 minutes	C = 70

3. Post 3

NO.	CRITERIA.	VALUE
1.	Be able to do zigzag dribble until the finish line in a period of 3 minutes.	A = 90
2.	Be able to do zigzag dribble until the finish line with a time of less than 4 minutes.	B = 80
3.	Be able to do zigzag dribble until the finish line with a time of less than 5 minutes.	C = 70

4. Post 4

NO.	CRITERIA.	VALUE
1.	Do the open dribble perfectly from start line to finish line less than 3 minutes.	A = 90
2.	Do the open dribble perfectly from start line to finish line less than 4 minutes.	B = 80
3.	Do the open dribble perfectly from start line to finish line more than 4 minutes.	C = 70

5. Post 5

NO.	CRITERIA.	VALUE
1.	3 balls entered in the corner of the goal with perfectly and 2 balls entered in the middle of the goal.	A = 90
2.	1 ball entered in the corner of the goal with perfectly and 4 balls entered in the middle of of the goal.	B = 80
3.	at least 3 ball entered the goal without into the top corner and the remaining out of the goal.	C = 70

THE FINAL RESULT

The results of this competition can be explained through, namely:

1. The number of children who are interested to participate in this competition from each group
2. The number of results points collected of each participant who follow will be explained through by diagrams histogram.
3. Can you explain how the mapping of coaching hockey early age in a particular area.
4. Knowing the extent of the basic fundamental skill ability of children who like hockey sport in Central Java

The final results of the competition can be judged from the techniques used each child in every area. although there are differences or similarities with the results of the assessment in every jury the most important is the competition can be done consistently, even if a different result in further improvements there will be change in the assessment of the judges or referees.

SUGGESTION

Apparently there is input from the implementation of the concept of this competition will be a new breakthroughs in the development of the hockey sport in the future in a specified area, it is becoming an alternative effort to develop the sport to be liked by younger children. After this is done then the competition needs to improve the management system and the alternative match in this hockey sport.

FEEDBACK

breakthroughs in this competition are still many shortcomings, especially in the assessment of this case that became important because every individual who judge have different characters. Habit and culture when training hockey from an early age influenced the assessment, so there is perception of each jury when assessing

IMPROVED ABILITY LONG JUMP SQUAT STYLE WITH THE TRADITIONAL GAME OF JANGKA

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Abstracts

The research objective to be achieved is to describe the learning process using the traditional games of Jangka in improving the learning outcomes of the long jump, the first conditions of learning outcomes squat-style long jump ability learners class VII G of The Junior High School 3 Larangan of Brebes Regency in the first semester of school year 2013-2014 is minimum the ability to jump away on aspects jump results under than the minimum completeness criteria. This research was conducted in the mid second semester of school year 2013-2014 learner class VII G of The Junior High School 3 Larangan of Brebes Regency in the learning process long jump squat style using the traditional games of Jangka, in the collection of the data using the long jump technique skills tests to the results of a leap. The analysis shows that the increase jumping ability Cycle 1 by 64.70% to 79.41% in Cycle 2, it can be concluded in this study that there is a learning outcome squat-style long jump ability learners class VII G of The Junior High School 3 Larangan of Brebes Regency

Keyword: long jump, the traditional game of jangka, jumping ability

INTRODUCTION

Efforts to improve the learning outcomes continue to be pursued as concrete steps an educator who do meet and achieve the learning objectives. Step-by-step development of a learning strategy that includes a step learning approach that is more progressive in curriculum implementation in 2013 of learning approaches prior to developing the potential of learners optimally in terms of the ability of reasoning (kognitive), attitude (afektive) and skills (psikomotor) and can build character learners with a scientific approach

Based on observations and analysis of the long jump ability test results of students of class VII G SMP Negeri 3 Larangan of Brebes Regency earned skills long jump is still less than the maximum. From the data obtained learning outcomes in the long jump long jump skill aspect of 52, 94% (18 learners) have not been completed and 47.06% (16 learners) that have been completed from the number at the minimum completeness criteria which have been established and results of process skills that jump still below the average that has been set, then observations of affective and cognitive aspects observed excites researchers are still lacking in the learning process

Use of the traditional games of Jangka is an effort that can be used to improve the learning outcomes of the long jump and develop value - value in self-learners fully. Long a traditional game as a game that has been there a lot of kids play of Brebes regency, a rural community in the region, during the game period can be done with a leap as regulation games are played in teams or individually in a form boundary lines game building frame-shaped wake. Movements leap exhibited the traditional game of Jangka is a series of forms of exercises to strengthen the legs, which is one important aspect to be able to perform range of motion in the technique of long jump to the fullest and the traditional game of Jangka this can be done in groups to make suggestions of social interaction among learners in developing character personality and can to develop reasoning learners in competition between groups

Jangka game is one of the traditional games that exist in these communities by Mahendra (2008: 3.3), the game is if the game is called Bejingklak Lombok society, forms of activity the game commonly played particular community children's spare time he had, if evolving from a certain social custom then to be able to serve as one of the traditional game, then the game should be no element of regional values are symbolized wealth of local culture. Jangka game, a game which aims to train agility, strength, coordination. The game is played with rules began with each child prepare a stone slab that was thrown into the room woke up as a form of trajectory bypassed by jumping using one of the strongest legs of players

The long jump is the result of running speed prefix and repulsion foot on the starting board. In the series achieve a jump that far then begins with movement run quickly reach maximum speed to reach a height of maximum results strength footstep and running speed then terminated achieve a perfect landing, it is appropriate stationing Muller and Ritzdorf (2000: 70) states the aspect of biomechanics determine distance jumps by three parameters: 1) the current speed contrary, 2) angle of the pedestal, 3) the high point of the center of mass while rejecting. The third aspect of the long jump movement biomechanics of special concern lies in the current biomechanical aspects and angles pedestal opposite the second will produce a horizontal speed and vertical speed

Horizontal velocity is the speed resulting from a series of motion ran up through the movement of the rate of running jumper on the track through a frequency step and step length jumper as possible until the motion repulsion board feet of departure, while the vertical speed is a result of the strength of the legs while doing repercussion on board fulcrum so that the speed of the horizontal and vertical speed can be called the speed of refuse

Speed refused, corner pedestal and high point of the center of mass will determine the curve of body weight followed Kite jumper as the chain of motion when suspended in air. This is consistent with the statement of Muller and Ritzdorf (2001: 11) states that a series of speed motion rejecting followed repulsion angle and elevation of the masses will affect drift curve (trajectory) leap. What is meant by this statement is a long jumper did start to run high-speed circuit which continued refusing speed will affect the flow path when the bodies floated in the air

The research of this class action is how the learning outcome long jump squat style by using the traditional game of Jangka for learners of class VII SMP Negeri 3 Larangan of Brebes Regency and the purpose of this study is to describe upgrades long jump squat style using the traditional game of Jangka

The results of this study would be useful to learners can improve the long jump and appreciation of behavior change - the practice of religious values, changes the behavior of the appreciation of the award-social behavior and improve the understanding of knowledge by using the term game. As for the teachers of this study can provide inspiration and motivation in order to carry out action research in an effort to improve the quality of learning. Then the school is expected research can improve scientific culture as one of the characters developed

METHOD

Research was conducted in the second semester of school year 2013-2014 for eight weeks, which begins the second week in March 2014 until the first week in May 2014 with the drafting of research proposals, preparation of the instrument, which continued implementation of Cycle 1 and

Cycle 2 and its activity analysis and discussion, then topped with reporting research results, that every cycle there are two meetings

Implementation research is at SMP Negeri 3 Larangan of Brebes Regency with study subjects were students of class VII G, totaling 34 students comprising 16 male and 18 female learners

Method in class action research is experimental method used to test and non-test techniques. Mechanical tests used to measure: a) The ability of the results of the jump learners performed in the Pre-Cycle, the final phase of Cycle 1, the final phase of Cycle 2, b) Techniques style of the jump performed in the Pre-Cycle, the final phase of Cycle 1, the final phase of Cycle 2

The subject of research conducted on learners of class VII G totaling 34 learners comprising 16 learners male and 18 learners educate women with the procedure classroom action research conducted in two cycles, each cycle is divided into four steps : 1) Planning, 2) Implementation, 3) observation, and 4) reflection

The planning stages in the form of preparatory steps all the needs required in the implementation of learning, including the preparation of lesson plans included in any device that needs the continued phase of the lesson plan refers to the beginning of the introduction, core drills, cover up to implement the assessment. Stages of observation are the steps taken to measure the achievement of the implementation of the learning that has taken place before, using sheets of observations that have been prepared, as well as charging datasheets results of learning achievement that has been tested in the form of skills results jump and techniques result in jump which passed the stage of reflection to analyze of the observation , test and sheet questionnaires about attitudes of learners during the learning process. Results of reflection will be taken into consideration to determine the next activity

RESULTS AND DISCUSSION

1. Results Cycle 1

implementation of the action research cycle stage 1 which uses the building blocks of the traditional games of Jangka carried out individually or in groups by using a obstacle and without a obstacle. Each cycle there are two meetings with the details of the first meeting learners make the jump to using the building blocks that have been prepared individually, while the second meeting was followed by the jump in groups

in the learning process implemented measurable aspects of skills that include technique's and processing of the jump, to jump measurement technique based on the observation while the results of the process jumping of the results of the student as much as two times the jump

Table 1. The result of Long Jump Test male in Pre Cycle and Cycle 1

Results of the jump	F on Pre Cycle	The Percentage	F on Cycle 1	The Percentage	Qualification
< 300 cm	8	50%	7	43,75%	uncompleted
≥300 cm	8	50%	9	56,25%	completed
amount	16	100%	16	100%	

Table 2. The Result of Long Jump Test female in Pre Cycle and Cycle 1

Results of the jump	F on Pre Cycle	The Percentage	F on Cycle 1	The Percentage	Qualification
< 200 cm	10	55%	5	27,77%	uncompleted
≥200 cm	8	44%	13	72,23%	completed
amount	18	100%	18	100%	

Table 3. The Results of completeness the jump in pre-cycle and cycle 1

Results of the jump	F on Pre Cycle	The Percentage	F on Cycle 1	The Percentage	Qualification
Learner	18	52,94%	12	35,30%	uncompleted
Learner	16	47,06%	22	64,70%	completed
amount	34	100%	34	100%	

Table 4. the results of the long jump techniques Values in Pre Cycle and Cycle 1

Results of the long jump techniques	F on Pre Cycle	The Percentage	F on Cycle 1	The Percentage	Qualification
technique < 73	26	76,47%	15	44,11%	uncompleted
technique > 73	8	23,53%	19	55,89%	completed
amount	34	100%	34	100%	

Reflection of Cycle 1

Based on the data obtained in the process of implementation of cycle 1, it can be concluded as follows :

Aspects of movement skills in the form of mobility long jump found that: 1) The ability of the jump result increased from Pre Cycle learners who have completed amounted to 47.06% (16 learners) and the unfinished of 52.94% (18 learners), then increased for learners who have completed at 64.70% (22 learners) and who have not completed at 35.30% (12 learners), means an increased mastery of 17.64% (6 learners) and decreased by 17.64% unfinished as well (6 learners). 2) Technical ability to long jump squat force increased from Pre cycle has completed at 23.53% (15 learners) to 55.89% (19 learners) in Cycle 1 and who have not completed the technique decreased from 76, 47% (26 students) to 44.11% (15 learners)



Figure 1. Using Individual on The Traditional Game of Jangka

The Results of The Research Cycle 2

Based on the identification result of reflection implementation of Cycle 1, it can be raised planning of Cycle 2 as follows an increase in the ability to jump using the traditional game of Jangka.

Planning in cycle 2 is based on the identification of problems that can be raised as follows: a) The planning can be implemented throughout the activities of solving problems, b) Making the order to getting up of the traditional game, and c) Implement the learning process with a scientific approach d. Make observations and judgments based on assessment instruments that have been prepared in advance, and finally to step d) To reflect the results of the learning process that has been implemented

Learning activities by using the building blocks game of Jangka done individually and the groups, the implementation of which is carried out individually to jump without obstacle or no obstacle. While the game jumps performed in groups to compete based on the agreement about the rules of the game



Figure 2. Using Groups on The Traditional Game of Jangka

Table 5. The result of Long Jump Test in Pre Cycle and Cycle 2

Results of the jump	F	The Percentage	Results of the jump	F	The Percentage	Qualification
< 300 cm	5	31,25%	< 200 cm	2	11,11%	uncompleted
≥300 cm	11	68,75%	≥200 cm	16	88,89%	completed
amount	16	100%	amount	18	100%	

Table 6. The result of Long Jump Test in Pre Cycle and Cycle 2

Results of the jump	F	The Percentage	Results of the jump	F	The Percentage	Qualification
< 300 cm	5	31,25%	< 200 cm	2	11,11%	uncompleted
≥300 cm	11	68,75%	≥200 cm	16	88,89%	completed
amount	16	100%	amount	18	100%	

Table 7. the results of the long jump techniques Values in Cycle 2

Results of the long jump techniques	F	The Percentage	Qualification
technique < 73	7	20,59%	uncompleted
technique > 73	27	79,41%	completed
amount	18	100%	

Reflection of Cycle 2

Based on data obtained during the execution of the learning process in Cycle 2, it can be concluded are 1) The ability of the leap result of Cycle 2 learners who have completed at 79.41% (27 learners) and the uncompleted 20.59% (7 learners), 2) Technical ability to long jump squat style of Cycle 2 which has completed at 79.42% (27 learners) and who have not completed the technique of 20.58% (7 learners)

Based on the description of the study in cycle 1 and cycle 2, it can be discussed in the discussion as follows are

- 1) The results obtained of the jump in the Pre Cycle, learners can to jump above 300 cm for men and 200 cm for girls, by 47.06% and 52.94% which may not exceed the provisions of the jump, when compared with the results of Cycle 1, there are 64, 70% could be, exceeding the limit jumps and bounds under the 35.30% jump, it can be stated in Cycle 1 had increased by 17.65%. From the result of the jump in Cycle 2, learners can skip exceed the limits of the jump at 79.41% and learners who had not of the jump exceed the limit is 20.59 %, compared with the result of a jump in cycle 1, then obtained an increase in the number of learners who can jump exceeding the limit of 14.71%.
- 2) The results of the assessment jump technique derived from the Pre-Cycle, learners who obtain grades above at the minimum completeness criteria amounted to 23.53% and 76.47% scored below the figure of 73, when compared with the acquisition value of learners in Cycle 1 are located above the KKM amounted to 55, 89% and 44.11% are under at the minimum completeness criteria , then there is an increase in learners who received grades above at the minimum completeness criteria 32.35%. The Results of the assessment techniques of the jump in Cycle 2, learners who obtain grades above at the minimum completeness criteria amounted to 79.41% and learners that the acquisition value is less at the minimum completeness criteria 20.59%, when compared with the acquisition of the assessment results in Cycle 1, then there is an increase of learners who obtaining a value above at the minimum completeness criteria amounted to 23.53%.

Learning to jump using the traditional game of Jangka, provide stimulation to the legs to lift up and put pressure on the legs loading using a heavy burden of his body, so that students are expected to raise both legs while hovering in the air.

Thus, the hypothesis can be accepted by the increasing use of the traditional game of Jangka ability squat style, this is consistent with the statement of Katzenbogner and Medler (1996: 56) states that jumping exercises that passes obstacles can be to increase the power of the jump, agility jumps.

CONCLUSION AND SUGGESTION

Based on the results of research and discussion, it can be concluded as follows is Based on the results of research and discussion, we can conclude there is a learning outcome long jump squat style by using the term game for students of class VII SMP Negeri 3 Larangan of Brebes Regency.

Based on these results, it can be recommended as follows are 1) In order to improve the quality of learning can use games are innovative and fun, 2) Sorting games or traditional community that can be used in the learning process as an alternative form of the game that increased the quality of learning held, 3) The traditional game of Jangka can be used as a form of the game in a learning process for all levels of education as a community-based school of character development.

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JOURNAL OF PHYSICAL EDUCATION, SPORT, HEALTH AND RECREATIONS

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Abstract

The purpose of this study is to produce the product entitled Multifunction Human Dummy to increase effectiveness the fundamental training reviewed basketball extracurricular activities. This research is a development research, the procedure of this research is, 1) conduct the needs analysis which will be developed obtaining from literature review, observation and interview, 2) develop draft the initial product, 3) validation expert (basketball training expert), 4) improvement draft initial product, 5) small scale trials (12 extracurricular students), 6) the first product revision, the product revision based on the result of expert evaluation and small scale trials, 7) field trials (47 extracurricular students), 8) the last product revision based on the result of field trials, 9) final product Multifunction Human Dummy to increase effectiveness the fundamental training Reviewed basketball extracurricular activities. From this research obtained basketball training expert evaluation data obtained an average percentage of 88,15% and meet "Both" criteria. While the small scale trials data obtained of 79,7% and field trials of 83,6%, so that meet "Both" criteria. From that data can be concluded that Multifunction Human Dummy can be used as a media for fundamental training towards basketball extracurricular activities.

Keywords: research and development, training media, fundamental basketball training using multifunction human dummy, extracurricular

INTRODUCTION

Basketball is a sport game played by two teams, each of the team consists of five players. The aim of each team is to make score towards the basket of opponent team and to defend opponent team to make their score. The winner of the game is the team that make the most points in the end of the game. The game divided into four period, for each period takes ten minutes (FIBA,2014)

Basketball is a branch of sport that become one of the most favourite one. Basketball in Indonesia is in a good condition where basketball league in Indonesia is complete enough from professional league called Indonesian Basketball League (IBL), league for university students (LIMA, POMDA, POMNAS) as well as for high school students both junior and senior high school through POPDA, POPWIL, POMNAS, DBL, etc. For high school, particularly senior high school, basketball is one of the sport game that often goes for competition in local, region, province and even national level so almost every school has basketball team player as the representative to join the competition. The athletes of school level are able to train their skills through extracurricular facilitated by school to pursue student's potential and interest in the favorite field.

In the school there are three lessons that are extracurricular, cocurricular, and intracurricular. Intracurricular lesson is a lesson held through activities in classes. It covers delivering knowledge from teacher to his students in classes where teacher uses RPP (Lesson Program Plan) as a reference of learning process. From three lessons above, extracurricular is an activity that focus more in training than learning. In school, extracurricular is an non formal educational activity and concealing service to assist in improving students as their needs, potential, talent, and interest through special activity by educator and or a skilled trainer that has authority in a school (Permendikbud Number 62, year of 2016)

Extracurricular activity is a facility for students to optimize their talent and interest. Extracurricular in school is divided into two that are obligatory extracurricular and optional extracurricular provided by school. Through extracurricular sport activity, students are able to start training their skill in sport and even get achievement in sport field.

In sport, there are some aspects needs to be train to gain optimal skill, training that is needed to be involved especially in sport are 1) Physical Training, 2) Tactical Training, 3) Psychological training (Harsono, 1988:100). All the four aspects of training must be done by every athlete to gain the optimal achievement because every aspect give influence during the training process or in the competition. If one of the aspect is not trained by an athlete, it can be an obstacle to receive his achievement.

In the extracurricular of basketball especially in senior high school (SMA), the training mainly focus on physical and technical training while for tactical and psychological training is given to prepare the competition. In basketball, there are three basic technique which are passing, drilling, and shooting. Those movement are special movement in basketball that differentiate with the other sport game.

The form of fundamental training in basketball can be done by many kind of exercises depends on the provided facility. One of them is by using media like an equipment to do the fundamental training. The definition of media based on Syaiful Bahri Djamarah and Azwan Zain (2013:120), media is a source of study, generally it defines like human, subject, object, or incident that allow students to get knowledge and skills. Media can be divided into three that is visual (can be seen), audio (can be heard) and audio visual (Can be seen and heard).

Media is pivotal in sport because most of the sports use body movement. Media can be used as a tool to do training for an athlete in doing exercise. At the moment, the supply of media as tools for sport exercise is still not easy to find, especially for basketball as one of the sport game that is rarely supported by media as a tool for exercise. Whereas in basketball, every athlete needs media to help them improving their individual skill. In the country where basketball is developed, every athlete has a personal trainer to support the fundamental training both technical or physical training. However, in Indonesia, we have limited personal trainer for basketball, moreover for a student athlete where they only do exercise only when they join the extracurricular activity. It is even more limited because of a new policy of curriculum that applied in Indonesia that is curriculum 2013 stated that extracurricular activity should finish at 15.30 pm and the maximum time to finish is 17.30 so the effective time to exercise is only 90 minutes.

From the background elaborated above, the writer is interested to develop media of exercise like a tool for fundamental training of basketball named Multifunction Human Dummy to increase fundamental technique skill of the participants of basketball extracurricular. This tool hopefully can bring a new variation in doing basketball extracurricular so that the participants of extracurricular can do exercise effectively and efficiently both in time management and facility use to do exercise to maximize potential of the participants of basketball extracurricular.

The purpose of building this tool is to develop media of fundamental training of basketball with tools of multifunction human dummy is to optimize the achievement of expected training.

METHOD

The method used for this research is research and development method (R&D) used a model of procedural development that is descriptive, means a procedur that give steps that should be follow in producing a product. The procedure of developing product is

- (1) doing analisis of needs that is going to be developed as a result of literature review, observation and inverview,
- (2) developing the first draft of the initial product,
- (3) validation expert (Expert in basketball exercise),
- (4) improvement of the initial product,
- (5) examine small scale (twelve participants of extracurricular),
- (6) revision of the first product, revision product is based on the result of evaluation of expert and small scale trial,
- (7) field trial (47 participants of extracurricular),
- (8) revision of final product that has been examined in the field,
- (9) final result for media Multifunction *Human Dummy for fundamental training of Multifunction Human Dummy for exercise of fundamental training towards participants of basket ball extracurricular*

Analisis of needs is the beginning in doing this research. This step has the purpose to decide whether the development of *Multifunction Human Dummy is* needed or not. To collects data in this steps, the writer did literature analisis, observation and interview.

The data used is data of quantitative and qualitative. Qualitative data was collected thourgh observation, interview and quistionere for critiques both oral and written as recommendation for product revision. While quantitative data was collected by analisis of physic, skill, physcological and knowledge of extracurricular participants.

In this research, instrument for collecting data such as (1) interview (Used for collecting information of the implementation of extracurricular of basketball in the senior high school in the region of Banyumas Regency in the beginning of the research) (2) Obersvation (to get information of the implementation of extracurricular of basketball in Senior High School in the region of Banyumas Regency in the beginning of the reserach as well as taking data from the aspect of technic, Phycology, physic on the examined participants of extracurricular.) (3) Questionere (Used to collect data from the expert as well as the knowledge of extracurricular participants. This quistionere used has covered some questions with providing alternatif answer.) (4) documentation (Used to collect data directly from the research place in form of pictures and videos of research)

In the data processing , derived a form from Muhammad Ali, (2013:201) that is

$$\% = \frac{n}{N} \times 100$$

Remarks

% : value in percentage that will be finding out

N : the value of all

From the result of percentage then classified to get a result of data. In this table, it will perform percentage classification

Presentag	Clasificati	Remark
0 – 20%	Not good	Not
20,1 – 40,1	Less Good	Revised
40,1 – 70	Good	Used
%	enough	(conditio
70,1 – 90,1	Goo	Used
	Very good	Used

Tabel 1. percentage classification
resource: Muhammad Ali, 2013:206

RESULTS AND DISCUSSION

Data Analisis Needs

Exercise is a process that systematically in training or working, done repeatedly by doing more practice of the training or working day by day. Basketball is a sport with quite much fundamental technic that is needed to be overcome, one fundamental technic in basketball has many kind of training while exercise is not focus mainly on technical training but also should involve physic and tactic.

Basketball extracurricular is one of extracurricular of sport that become favourite. However, with applied curriculum of 2013 in almost High School in Indonesia, extracurricular become less effective because the training duration becoming shorter that needs to be done in 15.30 so the length or period only 90 minutes. The trainer of extracurricular has difficulty in doing the exercise program because of the limited time, while for students' level, fundamental basketball is very important because practicing the technic is used always to improving technic of the participants of extracurricular.

From the background of study, the writer has an idea to improve a product of media development of multifunction human dummy where in this media there are some parts that can be used for fundamental technic training of Basketball. The use of media multifunction human dummy is expected to be an alternatif for trainer of extracurricular in doing exercise and to put more variation in doing basketball extracurricular exercise. A part of that, by using the media of multifunction human dummy it is also expected that it will overcome the problem that happen because the use of this media is expected to increase the effectiveness in doing exercise neither time nor budget to exercise or to improve the effectiveness of exercise can be increase by using media multifunction human dummy

Data result from expert Validation

After doing analisis of needs, the next step is to make an initial draft product which was developed. Before the product was examined, the product was validated by the trainer of basketball by questionere to evaluate that worth of product to be examined. Here is the result from the questionere

Tabel 2. Result of Trainer Evaluation

No	Trainer	Avarage Schore	Presentage
1	Trainer 1	3,81	95,25%
2	Trainer 2	3,12	78%
3	Trainer 3	3,43	85,75%
4	Trainer 4	3,75	93,75%
5	Trainer pro	3,37	84,38%
	Average	3,49	87,42%

Source: research 2016

Based on the result of evaluation of trainers, the average presentage with 87, 42% dan it came to good category. From the result above, it could be concluded that media multifunction human dummy to increase fundamental tecnic skill towards participants of basketball extracurricular can be used in small scale trial.

Data of small scale trial

After the first produced was validated and improved based on suggestion and recommendation of trainers, the next step is that the product is examined in a small scale with 12 male students of extracurricular participants in SMA Negeri Ajibarang. Here is the result of the small scale trial:

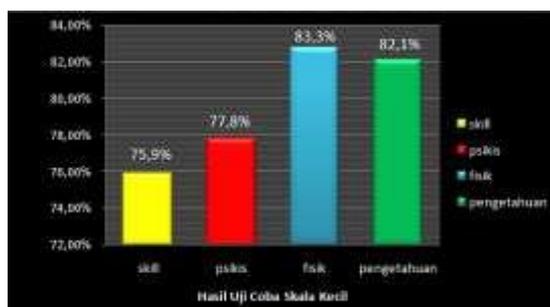
Tabel 3. Small Scale Trial

No	Aspect	Percentage	Category
1	Technic	75,9%	Good
2	Mental	77,8%	Good
3	Physi	83,3%	Good
4	Knowledge	82,1%	Good
	Average	79,8%	Good

Resource: Research 2016

Analisis Result on Small Scale Trial

Here is the result of analisis of small scale trial includes the aspects of skoill/ tecnic, Phycology, physically and knowledge aspect in diagram presentation



Gambar 1. Diagram of the result of analisis small scale trial

Resource: Research 2016

From the date collected, the aspect of skill/ technic is 75,9 %, the aspect of phycology is 77,8 %, the aspect of physic is 83,3 % and the aspect of knowledge is 82,1 % so that it comes to an average of 79,8 %. Based on the criteria that has been determined by multifunction human dummy to increase the fundamental tecnic skill towards participants of basketball extracurricular.

Presentation Data Result of Field Trial

After the produce was trialed in a small scale then it came into revision that the product was examined by field trial with 47 students of extracurricular of basketball in the region of Banyumas Regency (SMA N Ajibarang, SMA N 1Purwokerto, SMA N 3 Purwokerto, SMA N 5 Purwokerto).

Tabel 4. Field Trial

No	Aspect	Presentage	Category
1	Technik	80,3%	Good
2	Phycologyy	82,9%	Good
3	Physic	87%	Good
4	Knowledge	89,6%	Good
	Average	84,95%	Good

Resource: Research 2016

This is the result of analisis includes aspect skill/ technic, Phycology and physically as well as knowledge in the diagram.



Gambar 2. Diagram for Data Result of Field Trial
Sumber: Penelitian 2016

From the data, it was performed that the aspect of skill/ technic is 80,3 %, Phycology aspect is 82,9 %, physical aspect is 87% and knowledge aspect is 89,6 % so it produced the average of 84,95%. Based on the criteria that has been determined, media multifunction human dummy is to increase the fundamental training skill towards participants of basketball extracurricular is valid and can be used by participants of basketball extracurricular.

Prototype Product

Multifunction Human Dummy is a modification tool to increase the fundamental technic basketball training. Multifunction Human Dummy is a visual tool with triangle shape consists of some parts that is removable that can be suitable on what kind of training use. By using the media Multifunction Human Dummy, the fundamental technic training that can be done is passing, shooting, and dribbling. However, above three fundamental technic mentioned above, Multifunction Human Dummy also used to be a tool to support training with another technic in basketball that support triple, treat, cutting with the ball as well as illustrating the position of opponent body when doing defense.

Multifunction Human Dummy has three main parts that are hands, body and foot. These three parts designed to make media of Multifunction Human Dummy like a human so that the fundamental technic training media can visualize media to be an opponent of the participants of training.

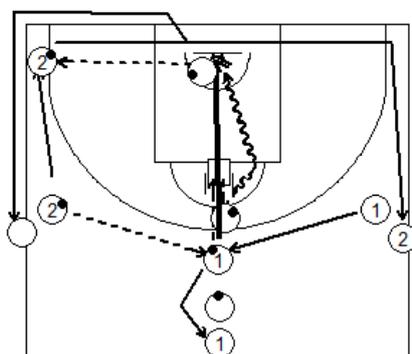
Multifunction Human Dummy media with the design like a himan has main advantage to increase the effectiveness in the traning of fundamental technic in basketball. While particulartly media Multifunction Human Dummy has some advantages that are 1) Help to make the participants

to get use to do the basic position in basketball both offense and defense 2) the proses of training becomes more interesting because the shape of new media compare with the monoton and boring training routine.3) can be used as a partner when doing self training because Multifunction Human Dummy has a fungtion to replace human in doing defense in baskbetball 4) Participants of training may know how much skill they have because Multifunction Human Dummy used to mainly used the right movement when doing movements of fundamental technic training basketball 5) training with Multifunction Human Dummy

Is also expected to be developed into four aspect in one exercise that is aspect of knowledge, Phycology, skill as well as physic in each participant of training using media of Multifunction Human Dummy.

Time efficiency is very important in the use of media Multifunction Human Dummy, thus the training should be in a form as effective as possible. These are some kind training examples by using media Multifunction Human Dummy 1) The shape of formation is like the picture above. 2) every training participant that is standing in front or behind them is holding a ball, so that there are 4 balls in total that is used 3) Player without number is positioned in the middle towards the media holding a ball, player number 1 is in the right position close to the side line holding a ball

4)player without number doing passing to the media then continuing with catching and dribble, passing the media and continuing with lay up. 5) player number 1 run to the media to receive passing from player number two 6) player number 2 do the passing to player number 1 just after the player without number do catching. After passing, player number 2 do cutting to the base line to receive passing from number 1 to do shooting 7) after doing lay up, player without number do rebound and the ball was passing into player number 2 then jogging to the left side of the media 8) After shotting, player number 1 do rebound the ball in passing in the left side then jogging to the middle or in front of media. The player number 2 do rebound of the ball after shooting in passing into the middle then jogging to the right side of the media



Picture 3. Form of Training using Multifunction Human Dummy
Reseource : research documentition

Below is the weakness and strength of the developed product

This weakness of this project such as: from the material to use media Multifunction Human Dummy, the material used is a material from iron so that the project is so severe that needs extra power to install and remove the product. In the process of training, training with media becomes less

effective if it is used by new beginner because some movement need accuracy in doing trained movement.

The strength of media Multifunction

Human Dummy is 1) Media has a lot of function, beside it can be used for fundamental technic training, the media also can be used to other training with the combination of the movements that will be trained 2) it can optimize the process of training time of participants of extracurricular because they can be independent without the help of others 3) to ease the storage of product if project is not used because media Multifunction Human Dummy is removeable so it is easy to put in a storage. It does not need a big storage to put in.

CONCLUSION AND SUGGESTION

Based on the result of analisis of evaluation data by trainers, the result of presentage came to 87,43 %. Based on the criteria that has been determined, this product of media development of Multifunction Human Dummy to increase the fundamental technic training toward basketball extracurricular fill in the criteria of "GOOD" so it can be used by the participants of basketball extracurricular.

Based on the analisis of small scale trial, it came with the number of percentage 79,8 %. While in the field trial, it has reached into 84, 85% on the result of analisis of field trial. Based on the data of small scale trial and field trial, based on the criteria that has been determined , it can be concluded that the product of development media of Multifunction Human Dummy has fill in the criteria of "GOOD" so that it can be used by the participants of basketball

ACKNOWLEDGMENT

The preferred spelling of the word "acknowledgment" in America is without an "e" after the "g." Try to avoid the stilted expression, "One of us (R. B. G.) thanks ..." Instead, try "R.B.G. thanks ...". Put sponsor acknowledgments in the unnumbered footnote on the first page.

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PHYSICAL EDUCATION AS A MENTALLY RETARDED STUDENTS' SELF DEVELOPMENTS

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Abstract

This study aims to (1) Obtain the phenomenon overview of mentally retarded students in everyday life; (2) Figure out the obstacles faced by mentally retarded students on physical education activities; (3) Figure out the activities of physical education for students' self-developments. Subject of this research are mentally retarded students at Special Education School with Multiple Disabilities of Bina Sejahtera Surakarta. This study was using qualitative methods Life story-Case Study. The analysis data in this study was carried out within five stages, namely: (1) data reduction, (2) data display, (3) conclusion drawing, (4) results validity enhancement and (5) narrative analysis results. The results of this research show that physical education can as a mentally retarded students' self development, which includes some aspects of them, such as; physical education is proven to enhance the students' concentrations and focuses, increase their self-confidences and physical activities can help students to interact socially well and improve their self-developments.

Keywords: Physical Education, Mentally Retarded, Self Developments.

INTRODUCTION

Education plays an important role to form the personality, character and self-development in order to achieve the life of the nation. With self-development within every child in a country, the education in the future is expected to be better for the nation and the state. As the subject of the implementation of education, all citizens are given the opportunity to utilize the broadest level, as expected. Education here include education for normal children and the education of children with disabilities. For the normal children are provided with public schools, and for children with disabilities are provided with special schools for children with special needs. Educational institutions that provide educational services for children with special needs is Extraordinary School (SLB).

In fostering and developing education for children with special needs require attention of various parties concerned, for children with special needs, especially mentally retarded children, urgently need real care and guidance to improve their potential and capabilities. SARI & Altıparmak, 2008; Karakaya, (2005) in the International Journal of Science Culture and Sport states that "Mental Retardation (MR) (also called intellectual disabilities or cognitive disabilities) is one of the most common disability types seen in the society" (Gulsen Filazoğlu-ÇOKLUK, et all, 2015: 57). This means that mental retardation is inherited genes that significantly strike intellectual functioning and adaptive behavior. Besides, mental retardation is a particular state of a function that begins from early childhood and is characterized by the reduction of intelligence and adaptive skills which are considered as the most common developmental disorder. The life process of mentally retarded children with their low power limitations of thinking and resistance in their personalities led to a negative impact in their daily lives.

Self-development is one of the important aspects of the person's personality. Self-development is a form of manifestation of self-actualization, which is a process to manifest the best of him/herself, in line with his/her potential and ability. Every individual has the power that comes

from him/her, but many people do not have the ability to feel anything, feeling useless and unable to achieve self-actualization. The development of one's self is the most valuable attribute of a person in social life. Because with the self-development, one is able to actualize all her/his potential. Self-development is required both by the children and parents, individually or in groups.

Physical education for children with intellectual challenges often has obstacles in self-adjustment which can be caused by a weak physical state, easily tired. Therefore, it is very necessary for physical education to maintain and improve their health as well as in the sports element of the game which can create cooperation, thus directly or indirectly, education and sport can be useful as a means of personal development among children with intellectual challenges. Physical education for children with intellectual challenges is a media to assist them in developing themselves, at least they can establish themselves. Physical education for individuals with special needs has the objective to improve the growth and physical development, motor skills and intellectual. The process of education is important to instill the values of positive attitudes towards the limited ability both physically and mentally, so that they can socialize with the environment and have self-confidence and self-esteem.

Situations and circumstances like these that are prompted the authors to examine students interested in a Special School Multiple Disabilities Bina Sejahtera in Surakarta. Along with physical education activities are also considered to help the self-development in children with intellectual challenges, and able to help the children for being concentrated and focus on what will be done in the future.

METHOD

This study will be conducted in Special Schools Multiple Disabilities Bina Sejahtera Surakarta. This school has male and female students who have multiple disabilities which is dominated by students with mental retardation. The sampling technique used was purposive sampling and snowball sampling. Sources of data in this study include students with intellectual challenges, physical education teachers, homeroom, and parents. The method used in this research is descriptive qualitative case study approach. The study takes place over three stages. The first phase is the collection of data that was to collect data on the location of the study by observation, in-depth interview, and documentation. The second stage is data implementation analysis. The early implementation of the initial data analysis, verification, enrichment and deepening of the data and developed in the form of data presentation and followed by formulating the final conclusions. The third stage is the preparation of the study report, in this stage the validity of research reports is tested and discusses the reports that has been compiled with some experts then revise the report, and compiled a final report of the study.

Data collection techniques used include techniques of observation, interviews, literature review, and documentation. The data analyzed qualitatively were derived from data obtained from various sources; they were interviews and field notes. Data analysis phase performed in this study namely: (1) data reduction, (2) data, (3) conclusion, (4) enhancement the validity of the results, and (5) narrative analysis results.

RESULT AND DISCUSSION

1. RESULT

This study used a system of interviews and observations got from the field, the object under study was retarded children who had an average age of 9-15 years. In the early stages of research in November 2016 initial observation on the subject that had been determined, observing mentally retarded children when they were in the classroom, outside the classroom, in sports and when they were playing. By the interviews with the informants, the researcher could analyze the things that come up and expressed by informants with descriptive procedures include written or oral form based on the observed behavior of people or about how a result of analysis of data obtained by in-depth interview, observation and also reading the related research diktat experienced as follows:

a. The phenomenon exhibited by children with intellectual challenges in daily activities

Children with mental retardation have the disturbance in the function of the intellectual and social adaptations that occur during their development. The lack of special assistance and attention in the school-age children resulting in children with mental retardation are not able to develop properly. Usually the children have always failed to do in their daily tasks independently without the assistance. Always make mistakes due to their carelessness when doing something, it because they do not understand whether thing is right or wrong. They are often difficult to maintain concentration of attention during playing or doing activity. While the adaptive behavior of children with intellectual challenges still need special assistance during the move both within the school and the community, because children with intellectual challenges still able to lead and take care of themselves. The Interaction of children with intellectual challenges in the society is still difficult to interact with their peers, they tend to associate with normal children under age. In any school environment, children with intellectual challenges are difficult to adjust, hard to understand the norms, and even they are difficult to control themselves and prone to bullying.

They also do not seem listen to people who speak to them and most likely to forget the everyday activities. There seems to be common perception even though the teachers teach in different classes and dealing with children who have mental retardation and the same behavioral properties. Mentally disabled is a serious disruption in the power of thought and adaptive behavior. This is because children have difficulty in thinking and uncontrolled adaptive behavior, so they easily disrupt their friends.

Based on the findings above it can be concluded that the phenomenon exhibited by children with intellectual challenges in everyday life such as: difficult to control himself, his behavior is out of control, difficult to concentrate, sometimes disturb their peers, silent and introvert, tend not understand what goals they behave, many perform movements that are not controlled, tend to seek out the attention of others, while talking like upside down, need help from others to do the activity, lost in his own world, tend to be shy and lacking in confidence, less focus towards something.

b. The obstacles faced by mentally retarded students on physical education activities

Physical activity is not only good for toning muscles, but also can help to keep a child's attention. To assess adaptive behavior retarded children during exercise and how to give the right treatment, the teacher must first identify the direction of the child's interest in sports. If the child becomes introvert and quiet while in the field, it could be a sign which are showed by the children.

By giving the opportunity to do physical activity makes the child to break away and try something new with a lot of activities to move his/her body. As for retarded children whose behavior is difficult to control, they can be guided to the tasks that can make them doing the better movements and reduce the tendency to be hard to control and also can train their concentration and focus.

Retarded children always show the unique behavior and characteristics. Some of them are still silent and hung themselves; some are difficult to control themselves by showing excessive behavior and children with intellectual challenges are still weak in the power of thinking, so they are difficult to concentrate and focus. To set the adaptive behavior and their concentration power, retarded children should get plenty of exercise. Researchers found that the special proper guidance enables mentally disabled children to control themselves and be more concentrate.

Based on the findings above it can be concluded that the obstacles faced by children with intellectual challenges in conducting physical education activities is the weak cognitive and adaptive behavior that resulted in the grasp of those responses are not well coordinated, takes a long time to accept the teacher's explanations, behavior that is difficult to control, difficult children to concentrate and lack of focus, and pessimism that sometimes arise in children with intellectual challenges.

c. Activities of physical education for personal development in students

Physical activity is not only good for toning muscles, but also can help to keep a child's attention. To assess adaptive behavior retarded children during exercise and how to give the right treatment, the teacher must first identify the direction of the child's interest in sports. If the child becomes introvert and quiet while in the field, it could be a sign which are showed by the children. By giving the opportunity to do physical activity makes the child to break away and try something new with a lot of activities to move his/her body. As for retarded children whose behavior is difficult to control, they can be guided to the tasks that can make them doing the better movements and reduce the tendency to be hard to control and also can train their concentration and focus.

Activities of physical education for mentally retarded children' self-development are as a means of increasing confidence, increase courage in expressing opinions, improve social communication, cultivate an attitude of discipline and care, increasing independence, helping children with intellectual challenges cultivate body and set the pattern of their movements so that they can concentrate well as well as children with intellectual challenges make life becomes more positive.

DISCUSSION

a. Behavior shown by children with mental retardation in their daily life

The perception of children with mental retardation can be seen from their daily life. It is mostly shown when they are playing or doing sport activities in school, class, and home. Based on the research, children with mental retardation show same behavioral patterns. They are cognitive disorders which are marked with lack of attention and concentration and also social adaptive behavior which is inappropriate with their age.

Mental retardation is also known as mental sub-normality. James Payne & Patton (1981: 31) explain that, "A state of incomplete mental development of such a kind and degree that the

individual is incapable of adapting himself to the normal environment of his filow in such a way to maintain existence independently of supervision, control, or external support”.

The statement from Brown, et al. (1991) in Heward (2012) about the characteristics of children with intellectual challenges, namely: (1) Slow in learning new things, have difficulty in learning something especially abstract, and quickly forgot what they learned when not to do exercise on an ongoing basis; (2) Difficulties in generalize things are new; (3) Having the ability to speak very less weight especially for children with intellectual challenges; (4) Have the problems in the development of motion; (5) Lacking the ability to help themselves (self-help); and (6) behavior and interactions are not uncommon.

Adaptive behavior in children with mental retardation make them has not be able to take care of themselves in their daily life. Children with mental retardation often show poorly controlled behavior, annoying body movement, and low concern with the environment around them. They build their own world that makes them hard to be controlled. Their behavior gives a negative impact in teaching and learning activity for them that can low their concentration and focus. They are indeed to do some task given by other people but, due to their weaknesses, they often cannot understand the purpose. Generally, they still cannot cope with themselves. They still need other people help to do their activities.

Based on observation done in school, most of them show poorly controlled behavior, difficulty concentrating, and sometimes they tend to annoy their friends. They incline to seek attention around them, hardly concentrate, annoy their friends inside or outside the class, overactive, don't understand about norm and value, have no purpose in doing something, and have less focus while they are in a communication. There is also child with mental retardation who has out of control behavior like showing excessive emotion which can spur their anger. Children with mental retardation often show poorly controlled behavior, annoying body movement, and low concern with the environment around them. They build their own world that makes them hard to be controlled. Their behavior gives a negative impact in teaching and learning activity for them that can low their concentration and focus. They are indeed to do some task given by other people but, due to their weaknesses, they often cannot understand the purpose. Generally, they still cannot cope with themselves. They still need other people help to do their activities.

b. The obstacles faced by mentally retarded students on physical education activities

The weaknesses that had by children with mental retardation make them have many problems in their daily life. The problems appear in the context of education and social life in family and society. This research found that children with mental retardation have same behavior in their activities. Based on observation done in school, most of them show poorly controlled behavior, difficulty concentrating, and sometimes they tend to annoy their friends. They incline to seek attention around them, hardly concentrate, annoy their friends inside or outside the class, overactive, don't understand about norm and value, have no purpose in doing something, and have less focus while they are in a communication. There is also child with mental retardation who has out of control behavior like showing excessive emotion which can spur their anger.

Motion needs children with intellectual challenges must be enormous given the barriers experienced by them in response to environmental stimuli given to the motion, mimicking the motion and indeed there is even physically impaired that they can not perform movements that are

oriented correctly. This happens because retarded children have sensory problems, motor development, learning, and behavior that could hamper the physical development of the student. As dictated by Hosni, Irham (2003: 31) that: "Children with special needs have problems in sensory, motor, learning, and behavior. All this resulted in the disruption of physical development of children. This is because most of the crew encountered resistance in response to environmental stimuli given to the motion, mimicking the motion and indeed there is even physically impaired that he could not do a movement oriented correctly".

The above statement illustrates the importance of movement in the development of an individual, if a individual have good motor skills, the physical development will be good too. That way the motion has another function for children with intellectual challenges, namely to help the physical development, trained to respond to stimuli from the environment and get used to the movement in order to focus correctly. In other words, the motion for retarded children together with fine and gross motor train them to reduce barriers to the motion.

Although the children with mental retardation are able to perform physical education activities well, there are some obstacles that make them difficult to perform those movement activities. Those obstacles are related to their low power of thought so it makes their comprehension to the response and task given is not well coordinated. It causes some problems in performing motor activity in sports education

Shields and Synnot (2016) in BMC Pediatrics states that "Children with disability growing niche to focus on personal factors, while parents focus on familial, social and policy and program factors". It means that children with disabilities tend to focus on personal factors, while parents focus on family, social and policy and program. Therefore it can be concluded that the problems that make children with mental retardation experience difficulties in implementing activities are on themselves.

The approach given in children with mental retardation in CG SLB Bina Sejahtera Surakarta is usually done through individual approach although sometimes physical education is also done in groups. Disabilities had by children with mental retardation can not be treated the same way for one to another because children with mental retardation have their own uniqueness. Therefore, in carrying out physical education activities, they still need guidance, direction, and even help to make them confident to perform physical education activities like other normal children.

c. Physical education activities for students' personal development

Physical education activities for children with intellectual challenges have many functions. First, as for the general public, to maintain physical health. Precisely maintaining fitness, increase endurance and metabolism. Second, through physical education is also one form of therapy for children with intellectual challenges, including train the motor nerves, stimulates the brain development of creative, sociable training, and so forth. Because children with intellectual challenges are also generally accompanied by a physical limitation, physical education activity also serves as a means of self-development such as self-confidence, social interaction, independence, and self-adjustment. In addition, with their sense of self-confidence in children retarded physical education could also be a means of achievement.

Physical education also become one media to help self-development of children with mental. Many things can be acquired when they perform physical activity. By exercising, they will begin to

understand the meaning of working together with his friend. In addition, while doing physical activity, they can physically feel the joy and excitement that can pump their motivation and enthusiasm in their daily lives. Gülşen Filazoğlu-ÇOKLUK through International Journal of Science Culture and Sport explains:

“Sports enable the individuals with disabilities to improve physically, psychologically and socially and facilitate their integration in the society (Savucu & Biçer, 2009). This positive effect on individuals with MR is emphasized in many researches (Carmeli et al 2004). Physical activities affect many variables positively such as self concept, social adaptation (İlhan2007), attention level (Lois, Baron & Christine Faubert, 2005), hyperactivity and happiness level, motor behaviors and social abilities (Erdem 2005), communication skills (Krebs 2005), happiness levels (Damentko 2005) and perception growth (Çamliyer 1995)” (2015: 8).

Based on the above opinion, it can be concluded that sport activities can give a positive impact for children with mental retardation’s self-development. With a wide range of activities undertaken in physical education, children with mental retardation is expected to be able to recognize their own personality, regulate their behavior patterns and can adjust themselves well in their daily life both at school and in society. Some self-development components that can be integrated into physical education include self-care, help themselves, communicate and socialize, daily living skills, leisure time, self-confidence, self-reliance, and social interaction.

Self-development program is very important for children with intellectual challenges in doing its own development that includes taking care of theyself, take care of theyself, help theyself, communication, socialization, life skills and leisure time environment of family, school and community. Self-development program is aimed to develop the ability of children with intellectual challenges in conducting activities related to life itself so that they do not depend and burden others. In the implementation of the program of self-development needs to be a standard capability in order to achieve the minimum capabilities that describe the skills achieved, this as a basis to determine improvement and meeting the needs of everyday life retarded children.

Personal development among children with intellectual challenges required for children with intellectual challenges have some problems encountered in life. The problems faced by children with intellectual challenges Rochyadi and Alimin (2005: 18) that is a matter of learning, adaptation to environmental problems, problems of speech and language disorders, and personality problems.

Physical education in children with mental retardation certainly not solely be one of the activities that can be used as a means of self-development of children with intellectual challenges. However, through physical education at least the child learns that the motion activity retarded children also need to be developed to support other activities. Through physical education, taught in addition to the motion activity is also tucked components of self-development. Some examples of activities physical education can be a means of personal development among children with intellectual challenges that are associated with motor activity of children include: (1) exercise physical fitness through gymnastics children with intellectual challenges can express themselves, not only that they also look enthusiastic and confident themselves to move their bodies to the rhythm and motion exercises; (2) gymnastics floor, for example by making the front roller movement can help them to improve self-esteem can also be a means to interact positively with others; (3) volley

ball game, not only as a means to train confidence but also train the social sensitivity of children with intellectual challenges such as communicating with others better; and (4) a game of badminton, children with mental retardation given the confidence to make a game of badminton even just rocked shuttlecock can give their confidence especially children with intellectual challenges tend to be shy, but it also can provide a stimulus or stimuli for physical development of children with intellectual challenges.

Gignac (2003) in the International Journal of Physical Education, Sports and Health revealed "if physical activity is substituted for are relatively meaningless activities, then it will be effective in maintaining positive physical activity behaviors and Achieving changes" (Ahmed Shahin and Srividhya S, 2016: 310). It reinforces that if physical activity is replaced for a relatively meaningful activities, it will be effective in maintaining a positive physical activity behaviors and achieve change.

Physical education is also one as a means of personal development among children with intellectual challenges. Many things can be acquired when children with mental retardation perform physical activity. By exercising, they will begin to understand the meaning of working together with his friend. In addition, children with intellectual challenges in doing physical activity can feel pleasure and joy that can pump their motivation and enthusiasm in their daily lives.

With a wide range of activities undertaken in physical education, children with mental retardation expected to be able to recognize their own personality, able to regulate their behavior patterns and can adjust themselves well in their daily lives, both at school and in society. Examples of self-development component that can be integrated into physical education that is taking care of yourself, take care of themselves, helping themselves, communicate and socialize, daily living skills, leisure time, self-confidence, self-reliance, as well as social interaction.

CONCLUSION AND SUGGESTION

1. CONCLUSION

- a. The phenomenon of behavior exhibited by children with intellectual challenges include hard to control themselves, their behavior are out of control, difficult to concentrate, sometimes disturb their peers, silent and introvert, tend not to understand what goals they behave, plenty of uncontrolled movements, tend to seek out the attention of others, produce unclear speaking, need help from others to do the activity, lost in his own world, tend to be shy and less confident, less focus towards something.
- b. The obstacles faced by children with intellectual challenges in conducting physical education activities that weak cognitive and adaptive behavior that resulted in the grasp of those responses are not well coordinated, takes a long time to accept the teacher's explanations, behavior that is difficult to control, difficult children to concentrate and lack of focus, and pessimism that sometimes arise in children with intellectual challenges.
- c. Activities of physical education for self-development in children mental retardation namely as a means of increasing confidence, increase courage in expressing opinions, improve social communication, cultivate an attitude of discipline and care, increasing independence, helping children with intellectual challenges cultivate the body and regulate their movement patterns so as to concentrate well and make the child's life becomes more positive mental retardation. Physical education is one of the means to establish a self-development in children with intellectual challenges. By doing various positive activities in their daily life is very important

for children with intellectual challenges in doing its own development that includes taking care of yourself, take care of yourself, help yourself, communication, socialization, life skills and leisure time environment of family, school and community.

2. SUGGESTION

- a. Limited sports insights regarding physical education teacher or adaptive physical education for children with disabilities special should become prayer one can be footing the Indonesian government, especially the education sector in order to organize special the print institution of teachers in the field of physical education for children with disabilities special.
- b. Schools and agencies the other subscription should become one unit in order to achieve optimal education the education for children in particular mental retardation on self-development for adjusted children with their needs that can be fishing talent, potential and passion for review children's with mental retardation get better achievement.
- c. At least schools handler children with special needs must have lecturer the competent hearts field as lecturer stemming from special or education special education children with disabilities that can be handled with special better.
- d. The handle lecturer of physical education for children with disabilities special also should have knowledge and insight broad subscription children with disabilities special, besides this, also can be the same work with the teacher assistant at the school so that the future teacher needs special sports can be understanding children with disabilities and handle more specific further.
- e. Should schools the handle children with special needs are required to have in order to schedule the permanent physical exercise lightweight before children start learning activity every day. Such activities can be to help children with disabilities to be more specific focus and quiet as well as helping concentration and power thought more kids learning awake when performing activities.
- f. Role of parents for kids self-development very hearts every day, especially children with disabilities. Parents can be being motorized and motivator for children with disabilities to review regulate their lifestyle such as arranging diet, doing activities physical together, provides an example of how to behave and act so that the future child will feel appreciated and welcome hearts environment good hearts family and hearts society.

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ASSESSMENT OF SERVE AND SMASH OF VOLLEYBALL OF JUNIOR ATHLETES OF YOGYAKARTA SPECIAL REGION

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Abstract

The research intends to 1) describe the implementation of current serve and smash assessment of volleyball in clubs, 2) develop the serve and smash assessment of volleyball encompassing the development plan, procedure of implementation, validity, reliability and effectiveness in clubs, 3) describe the characteristics of serve and smash assessment of volleyball in clubs. The research was development research modifying Borg and Gall research. The development of the serve and smash assessment of volleyball used three step procedures; the development step, the validity step, and the dissemination step. The development step covered the initial study, literature review, indicator and indicator description, FGD of the coaches, FGD of the volleyball experts, and the measurement of the composed prototype serve and smash assessment of volleyball. The competency determination as the junior athletes was based on the minimum criteria that had been determined and agreed by the club coaches with ≥ 76 value. smash assessment in the clubs based on the judgments of the coaches does not use the assessment for performance assessment process yet, 2) the instrument of volleyball serve and smash assessment in the clubs based on volleyball expert validity can be considered as good, the instrument of volleyball serve and smash assessment with content validity Aiken's V serve value is 0.93 categorized as very good, Aiken's V smash is 0.95, both are categorized as very good, the instrument reliability of volleyball serve and smash assessment with 6 raters of Genova coefficient interrater value is 0.84, coefficient of Genova smash is 0.83, and the coefficient of Kappa serve is 0.85, coefficient of Kappa smash is 0.86, where the technique and serve and smash is qualified for Linn reliability that is 0.70, and the effectiveness of volleyball serve and smash assessment based on experts' judgment can be used as the assessment of junior athletes in the training process. 3) The characteristics of volleyball serve and smash assessment in the clubs can be used to determine the profile of junior athletes, the research results show that 30 athletes or 41.6 % are considered as very competent, 27 athletes or 37.5% are considered as competent, 13 athletes or 18.1% are considered as less competent, and 2 athletes or 2.8% are considered as incompetent. For the smash, there are 17 athletes or 23.6% are considered as competent, 39 athletes or 51.2% are considered as competent, 11 athletes or 15.3% are considered as less competent, and 5 athletes or 6.9% are considered as incompetent.

Keywords: Assessment, serve, smash, volleyball

INTRODUCTION

The sport that takes priority and also can be developed in Indonesia according to the achievements in Asia is volleyball (Astama in Cholik Mutohir, 2002: 55). Volleyball is a sport that is very popular. Reeser & Bahr (2003: 1) states that more than 500 million people worldwide play volleyball. The Indonesia Constitution No. 3 in 2005 about National Sport System, (2005: 9), on Chapter 20 paragraph 3 states that sport performance is carried out through the process of coaching and development in a planned manner, in stages, and sustained with the support of sports science and technology. The coaching management is targeted to be developed in the body of PBVSI (Indonesian Volleyball Association) with the explanations at the national, regional, its branches and associations or clubs levels (PBVSI 1b, 1995: 60).

Volleyball includes in the category of game sport and team sport which the techniques are not easy to master, it is because the athletes were separated in a different field in the game. Volleyball as a net game certainly cannot be separated from the concept of attack and defence. The concept of attack and defence in volleyball needs mastery of technique or skill techniques to be applied in game situations or matches. The concept of attack uses the serve technique, smash technique, and defence technique using forearm pass, block technique.

Assessment of volleyball in the volleyball sport port skills tests do not reflect or is not based on performance assessment or performance on the process / observations when athletes perform technique simulation in the training process. Subjective assessment will eliminate the reliability and fairness in the assessment (Zainul, 2005: 5). To avoid this, it is necessary to develop alternative assessment methods one of which is the assessment of performance.

Performance assessment is a performance that is shown as a result of a comprehensive training process. Performance assessment is designed to engage athletes in important tasks that represent all experiences in the pre-match (pre-game). Performance assessment allows trainers to see skills being measured which are oriented on aspects of process performance in performing good and right movement techniques. Based on the above background, it is essential to compose serve assessment and smash assessment of volleyball (ASSOB) based on performance assessment. The formulation of the problem proposed in this study is how the implementation of serve and smash assessment of volleyball (ASSOB) in clubs nowadays, and the validity and reliability of serve and smash assessment techniques on volleyball (ASSOB) in clubs of Yogyakarta Special Region.

Performance sports with long-term development patterns follow the model of the "pyramid" where the model is still very relevant to the condition of Indonesia. Bumpa (1999: 12) says "a potential national sports system, Recreation, Basics of performance athletics, athletics Good performance, high performance athletics". Achievement of athletes that are the results of long-term development can make proud of their nation and country in international level. Volleyball classification by its type of the game is categorized on net game (Hopper, 1998: 15). Yuyun & Totok (2010: 34) basic skills of playing volleyball consist of bouncing the ball, hitting the ball skills, and blocking the ball skills.

The concept of a volleyball game is basically bouncing, passing, hitting and blocking the ball, sometimes known volly-ing the ball rally. Rally point system requires athletes and coaches to focus on attention, to avoid mistakes that will give points to the opponent easily (Yiannis Laios, 2004: 4). In PBVSI (2002: 7) it is stated that the game of volleyball is passing the ball over the net in order to fall touching the opposite field floor and to prevent the same effort from the opponent.

Volleyball sport is oriented on performance that involves motor skills (skills movement) (Kenny & Gregory, 2006: 2). The position of the player's body can be divided into three positions, namely high body position, medium body position, low body position (Viera & Fergusson, 2004: 11). High body position is used when the player serves, passes (setting), blocking, and spike (jumping in the air), with standing stretch both legs at mid distance and divide weight balanced on both feet (Sally, 2004: 84). The low body position (low posture) is used when reaching the ball, when defensive position on individuals such as rolling, stretching his/ her legs and when guarding behind the spiker.

Performance sport skills can be analysed into three stages, namely: the preparation phase, execution phase, and the final stage (follow-through phase) (Kenny & Gregory, 2006: 3). The goal of

each stage can be used as an evaluation of the overall effectiveness of the performance shown. Technical performance that will be assessed is on serve technique and smash technique of volleyball.

METHOD

Model of Development

This research is the development and the modification of Borg and Gall. Assessment development of serve and smash of volleyball used two-stage procedure, namely, the stage of development and validation phase. Assessment phase of development serves and smash of volleyball is to conduct a preliminary study with a survey or observation, library research or literature, and Focus Group Discussion with experts. Based on the results of preliminary studies and analysis, the needs of the coaches in volleyball clubs would serve as an initial prototype draft model. Assessment of serve and smash of volleyball (ASSOB).

The validation phase was by conducting three trials, the initial field trial phase, main field trials and operational field testing. Three trials aimed at obtaining final prototype that is qualified good prototype ASSOB, then ASSOB (Assessment of Serve and Smash of Volleyball) can be used for operational field trials.

Product Trial

Research development of serve and smash assessment of volleyball (ASSOB) was conducted in three field trials, namely; 1) The initial field trials, 2) main field trials, and 3) operational field trials. The trial subject population used in the test instrument was serve and smash assessment of volleyball (ASSOB) is the entire male junior athletes. The trial subject population was athletes who were members of volleyball clubs or associations/ Pengda PBVSI Yogyakarta. The trial sample subjects were consisted of two elements, namely: (1) the athletes, (2) raters of volleyball coaches and sampling subjects of DIY volleyball clubs by random sampling.

Data Analysis Technique

Assessment of Serves and Smash of volleyball (ASSOB) consists of two (2) indicators: 1) serve technique, and 2) smash technique. Indicators on ASSOB has six (6) instrument points, namely: 1) introduction point or opening, 2) warm up point, 3) movement preparation point, 4) execution movement point, 5) final movement point, and 6) closing point. ASSOB as guidelines for the observation of pre-match performance process is as a good instrument, it is necessary to validate the experts or specialists of volleyball.

Saifuddin Azwar (2014: 42) states that the content validity that is the validity estimated through examination of the appropriateness or relevance of the test content through rational analysis by competent panel or through expert judgment. The proof of the validity of the test based on the contents or instrument made by a panel of experts in the areas measured and expert in the fields of measurement (Djemari Mardapi, 2008: 19). Validation of the model contents item instrument based on expert judgment ASSOB experts and specialists of volleyball. The validity of the contents was analyzed by Aiken's V, to obtain the amount of validity. The results of the analysis of Aiken's V are compared with the minimum criteria that allowed ie, 0.80 by the number of 6 (six) raters or appraisers.

Analysis to determine the reliability coefficient ASSOB was by using analysis of inter-rater reliability. The coefficient of reliability assessment instrument of serve and smash in volleyball (ASSOB) was by using SPSS Genova (generalizability of Variance) program and Cohen Kappa Program. The Genova Program and Cohen Kappa Program aim to determine the stability and assessors' understanding. Results of Genova and Cohen Kappa were compared with the minimum criteria that allowed for 0.70 (Grolund and Linn, 1990: 130).

RESULTS AND DISCUSSION

1. RESULT

Analysis Results of the Needs

In analyzing the needs on the field, the researcher conducted interviews to 11 coaches. The coaches were interviewed consisted of four volleyball board (PBVSI) districts and 1 Board PBVSI of city of Yogyakarta. The results of interviews with coaches can be concluded that the coaches never assessed the of the performance process on serve and smash assessment of volleyball from the introductory phase, the warming up, preparation movement, execution movement, the final movement, and the closing in training.

Result of Development through FGD Phase 1

The development results of ASSOB conducted on the FGD 1 activities, it was obtained information about the sport volleyball club which trained training process aims to achieve. Information obtained consisting of (1) the definition and construct sport volleyball at the club, (2) indicators of volleyball at the clubs, (3) description of the indicators in volleyball at the clubs. The first focus group results discussion (FGD 1) as the basis for product design of assessment instrument of serve and smash in volleyball at the clubs. The design products included the preparation of the assessment instrument of serve and smash of volleyball, grilles, task performance athletes, observation guidelines, rubrics, assessment implementation procedures, and reporting). Prototype of ASSOB (assessment of serve and smash in volleyball) at the clubs arranged.

Result of Validity through FGD Phase II

FGD 2 aims to provide feedback, input and validation of the assessment serve and smash of volleyball clubs which includes: (1) Definitions and constructs, (2) Grating, (3) the task performance of the athletes, (4) the guidelines observations, (5) Rubric, and (6) the execution procedures. The results of the Focus Group Discussion two (FGD 2) in the form of assessment instrument product of serve and smash of volleyball at the clubs who are able and ready further trial at this stage of research in the field. Readability of ASSOB (assessment of serve and and smash of volleyball) at the clubs done with the coaches being raters of 6 coaches before initial field trials.

Result of Validity and Reliability

ASSOB content validity of instruments (assessment of serve and smash of volleyball) developed judged by experts / specialists (expert judgment) and analyzed by Aiken's V. Aiken's V analysis results in Table 1.

Table 1. A'iken Test Result on Volleyball Skill Point

Serve		Smash	
Point	Result	Point	Result
1	0.925	7	0.925
2	0.916	8	0.916
3	0.927	9	0.937
4	0.895	10	0.968
5	0.968	11	0.979
6	0.966	12	0.966
Mean	0.932		0.948

Table 1 shows that the results of the analysis of the content validity by using the Aiken's content validation earned average on serve technical skills by 0932, amounting to 0948 smash technique. Based on the test results Aiken's validity, then validity of assessment instrument of serve and smash of volleyball can be said good yet it is more than 0.80.

Reliability in this study using 6 raters, then value of reliability coefficient will be tested with two analyses that are genova test and cohen's kappa test. The results of the analysis of D study for the assessment of the athlete in the sport volleyball demonstrating serve techniques can be presented in Table 2.

Table. 2. Estimate of Generalizability Coefficient and Shift Level of Skill Assessment on Volleyball Serve Technique

Design of D Study	Sample Size			Generalizability	
	P	T	I	Coef.	Phi.
01 – 01	72	6	1	0.82087	0.81611
01 – 02	72	6	2	0.83478	0.82987
01 – 03	72	6	3	0.83952	0.83455
01 – 04	72	6	4	0.84191	0.83692
01 – 05	72	6	5	0.84335	0.83834
01 – 06	72	6	6	0.84431	0.83929
Mean				0.83746	0.83251

Table 2 gives an overview of the generalizability coefficient changes for P (person / athlete), various sample size compositions, T (rater / assessor), and I (items). Component assessment serve sports volleyball at the club's male athlete, if the composition is used all indicators, where D study design mean with P = 72, T = 6, and I = 1, then the coefficient of understanding and agreement reliability the coefficient G of 0837 (0.84). The results of the analysis of D study to assess the skills of athletes in smash of volleyball demonstrating the techniques can be presented in Table 3.

Table 3. Estimate of Generalizability Coefficient and Shift Level of Skill Assessment on Volleyball Smash Technique

Design of D Study	Sample Size			Generalizability	
	P	T	I	Coef.	Phi.
01 – 01	72	6	1	0.81191	0.80453
01 – 02	72	6	2	0.82872	0.82103
01 – 03	72	6	3	0.83448	0.82668
01 – 04	72	6	4	0.83739	0.82954
01 – 05	72	6	5	0.83914	0.83126
01 – 06	72	6	6	0.84032	0.83242
Mean				0.83199	0.82424

Table 3 provides an overview of the generalizability coefficient changes for different size composition of samples P (person / athlete), T (rater / assessor), and I (items). Component assessment of smash in volleyball at the male athlete clubs, if the composition is used all indicators, where D study design with P = 72, T = 6, and I = 1, then the coefficient of understanding and agreement reliability the coefficient G of 0.832 (0.83).

Analysis Result of Inter-rater Coefficient reliability on Volleyball Serve Assessment. Summary of Consistency Counting Result and Agreement of six raters on volleyball serve technique shown in Table 4.

Table 4. Result of Kappa Coefficient among Raters on Serve Technique Skill Assessment of Volleyball in Clubs

Points	Raters															Min
	1. 2	1. 3	1. 4	1. 5	1. 6	2. 3	2. 4	2. 5	2. 6	3. 4	3. 5	3. 6	4. 5	4. 6	5. 6	
1	.8	.9	.7	.8	.8	.8	.7	.8	.8	.8	.8	.7	.9	.8	.9	0.84
2	.9	.8	.8	.7	.7	.8	.8	.7	.8	.9	.9	.8	.9	.9	.9	0.85
3	.8	.8	.7	.7	.8	.8	.7	.7	.8	.8	.9	.8	.8	.8	.8	0.82
4	.8	.9	.8	.8	.9	.8	.8	.8	.8	.8	.8	.8	.9	.9	.9	0.87
5	.9	.8	.7	.8	.8	.8	.8	.8	.8	.7	.8	.7	.8	.9	.9	0.83
6	.8	.9	.7	.8	.8	.8	.8	.7	.8	.8	.8	.8	.8	.9	.8	0.83
Min	.8	.8	.7	.8	.8	.8	.8	.7	.8	.8	.8	.8	.8	.9	.8	0.84
	9	8	9	2	2	6	3	8	3	4	8	2	7	0	9	7
Overall Mean: <i>Kappa Coefficient</i>																0.85

The level of consistency and overall rater agreement in assessing the serve technique at the volleyball clubs can be determined by taking the average of six rater of kappa coefficient of 0.85. The value 0.85 suggests that all six assessors (raters) have the perception and understanding of the construct by 85% votes. The value of coefficient K (Kappa) is greater than the minimum criteria that is used by 0.80, so the instrument is eligible coefficient of reliability.

Coefficient Analysis Results of Inter-rater reliability assessments of Smash in volleyball. Summary of results of the consistency calculation and six rater agreement on volleyball smash technique is as presented in Table 5.

Table 5. Coefficient of ^K (Kappa) Result among Raters on Volleyball Smash Assessment in Clubs

Point	Rater															Min
	1. 2	1. 3	1. 4	1.5 6	1. 6	2. 3	2. 4	2. 5	2. 6	3. 4	3. 5	3. 6	4. 5	4. 6	5. 6	
1	.89	.92	.79	.82	.81	.87	.79	.80	.81	.82	.83	.74	.92	.87	.95	0.847
2	.92	.87	.82	.77	.77	.85	.85	.77	.80	.90	.90	.85	.90	.90	.90	0.853
3	.86	.87	.87	.86	.94	.85	.90	.88	.88	.88	.90	.88	.88	.88	.88	0.872
4	.88	.85	.84	.87	.91	.85	.88	.88	.90	.88	.88	.88	.88	.88	.91	0.874
5	.88	.88	.91	.82	.91	.88	.88	.88	.90	.88	.88	.88	.88	.88	.88	0.865
6	.88	.95	.76	.84	.81	.84	.83	.77	.88	.88	.88	.88	.88	.90	.88	0.838
Min	.89	.89	.83	.83	.86	.84	.84	.82	.86	.86	.87	.84	.86	.88	.89	0.858
Overall Result of Kappa Coefficient															0.86	

The level of consistency and overall rater agreement in assessing the smash skill technique in volleyball at the clubs can be determined by taking the average of the six rater kappa coefficient of 0.86. The value of 0.86 suggests that all six assessors (raters) have the perception and understanding of the construct ratings of 86%. The value of K (Kappa) coefficient is greater than the minimum criteria that are used by 0.80, so the instrument is eligible coefficient of reliability.

Genova reliability analysis result of data D Study and Cohen Kappa reliability to determine the level of significance and of understanding / consistency of the use of instruments in serve assessment and smash volleyball of trials in the field using 72 sample athletes can be summarized in Table 6. The G study coefficient and Kappa coefficient of performance components in demonstrating the assessment of serve and smash of volleyball indicates where the overall development of the assessment instrument of serve and smash in volleyball is acceptable.

Table 6. Result Summary of Genova Coefficient and Kappa Coefficient for Assessment Performance of Serve and Smash of Volleyball

No	Components	Facet Test Target	Total Item	Genova Coef	Kappa Coef	(Linn _≥ 70)
1	Serve Technique Process	Male	6	0.840	0.850	> requirement
2	Smash Technique Process	Male	6	0.830	0.860	> requirement
3	Serve and Smash Technique	Male	12	0.835	0.855	> requirement

*) qualified according to the criteria of minimum standard 0.70 (Linn, 1995:106)

The assessment instrument of serve and smash of volleyball can be used for the assessment of broader or larger facets, in other words, it has met for facets of measurement associated with the object measuring the performance of athletes in the process of training or practices shown by

Genova coefficient index by 0835. The result of the analysis of rater agreement and understanding between the indicators and instruments in the assessment component point of serve and smash of volleyball of junior athletes was taken coefficient 0855. Coefficient of assessment of serve and smash of volleyball was taken coefficient values obtained of Genova and Kappa is greater than the criteria which had been set at 0.70. Inter-rater reliability obtained above can be said already qualified for high reliability.

Result of Data Interpretation of Serve Assessment Performance of Volleyball

Test result data of athlete performance in demonstrating volleyball serve on six (6) instrument point. The frequency distribution of sports volleyball assessment serve is shown in Table 7.

Table 7. Distribution of Assessment Score of Bolavoli Serve

Criteria for Assessment of Score of Serve Technique	Frequency	Percentage	Meaning/Category
86.0	30	41.60 %	Very Good
76.0 ≥ 85.9	27	37.50 %	Good
66.0 ≥ 75,9	13	18.10 %	Less Good
≤ 65,9	2	2.80 %	Not good
Total	72	100 %	

Table 7 shows that juniors athletes were 72 who took the performance test of serve in volleyball for 30 athletes or amounted to 41.60% categorized as very good, 27 athletes or 37.50% categorized as good, 13 athletes 18.10% are less good, and 2 athletes or 2.80% are in not good category. The frequency distribution of the assessment can be concluded that the juniors volleyball athletes in Yogyakarta Special Region can be said they do not meet very good category of more than 85%, hence it needs for sustainable development in the coaching techniques on serve training in their respective clubs.

Result of Data Interpretation of Smash Assessment Performance of Volleyball

Data of test performance of athletes in conducting the assessment demonstrating smash on volleyball on six (6) instrument points. The frequency distribution of assessment of smash in volleyball is shown in Table 8.

Table 8. Distribution of Assessment Score of Smash on Volleyball

Criteria for Assessment of Score of Smash Technique	Frequency	Percentage	Meaning/Category
86.0	17	23.60 %	Very Good
76.0 ≥ 85.9	39	51.20 %	Good
66.0 ≥ 75,9	11	15.30 %	Less Good
≤ 65,9	5	6.90 %	Not good
Total	72	100 %	

Table 8 shows that juniors athletes were 72 who took the test the performance assessment of smash on volleyball of 17 athletes, amounted to 23.60% are categorized as very good, 39 athletes or amounted to 51.20%, are in good category, 11 athletes or 15.30% are categorized as less good, and 5 athletes or 6.90% are in not good category. The frequency distribution of smash assessment on

volleyball can be concluded that the junior athletes in Yogyakarta Special Region can be said they do not meet the category of very good by 85%, hence the needs for the sustainable development in smash technique training in every club.

2. DISCUSSION

Assessment of serve and smash of volleyball done by coaches based on the interview results has never conducted performance assessment in the training process. Coaches in athlete assessors on technical skills, performed with their own observations in the absence of certain guidelines. Observations made between coaches do not have the same concept, so the need for volleyball assessment is necessary with the same concept.

Assessment of serve and smash of volleyball (ASSOB) in the clubs is a set of assessment tools that aims to obtain information about the competence, and the athlete's performance in the training process. Devices assessment volleyball serve and smash sport developed in the form of guidelines for observation consisting of indicators, description, section, task performance athletes, and implementation procedures. The validity of the assessment instrument of serve and smash of volleyball used content validity. Validation of the contents by experts or expert (expert judgment) volleyball sports in item assessment instrument servicing performance and smash sport volleyball. Results of the assessment by experts or experts analyzed using Aiken's V. Results of the analysis of Aiken's V at 6 grains instrument servicing techniques by 0932, and 6 eggs smash engineering instruments for 0948, both meet the validity criteria.

Assessment of serve and smash of volleyball (ASSOB) in the clubs in determining reliability used Genova and Cohen's Kappa test programs. Genova reliability test results with the coefficient D Study, the coefficient on engineering serves amounted to 0.84, the coefficient on the smash technique amounted to 0.83. The reliability of test results with Cohen's Kappa coefficient on engineering serves amounted to 0.85, the coefficient on the smash technique amounted to 0.86. The coefficient of Genova (D study) and Cohen's Kappa of both serve and smash technique on volleyball has qualified excellent (very good) reliability. This is when seen from the level of inter-rater consistency or regularity in a rating on the performance of athletes in assessing serve and smash sport volleyball.

The procedure of serve and smash of volleyball (ASSOB) in the clubs consists of 1) the criteria of raters or appraisers, 2) assessment of instruments used; a) guidelines observations include indicators and a description of the performance, b) assignment of performance demonstrates two techniques of sports volleyball of the opening, heating, techniques (movement preparation, movement execution, final movement), and the closing at the end of the demonstration, c) the rubric as a scoring tool that there is a set of criteria and their weights judgment and 1-5 scoring scale used to observe the results of the performance of the athletes on observation or observation guidelines, and 3) interpretation of data results of the performance of the athletes on the validity and reliability of the assessment of serve and smash volleyball (ASSOB) at the clubs.

Profile of Serve Assessment of Volleyball

The performance assessment of serve in volleyball can be analyzed by looking at the level of achievement of athletes. Achievements in the assessment of serve of volleyball, demonstrated by athletes to prepare since the opening or introduction, warming up, preparation movement,

execution movement, the final movement, and final movement. Profile of assessment results serve of volleyball in Figure 1.

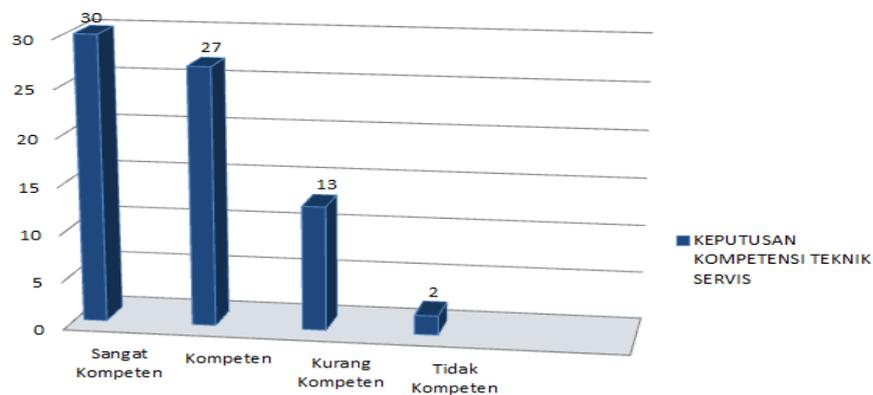


Figure 1. Profile of Serve Assessment of Volleyball

Figure 1 shows that the achievement of the 72 athletes in the assessment serve on volleyball, where 30 athletes earn a score of > 86.0 included in the decision of very competent, 27 athletes obtained score of 76.0 - 85.9 included in the decision of competent, 13 athletes obtained a score of 66.0 - 75.9 included in decisions of less competent, and 2 athletes earn score < 65.9 included in the decision of incompetent. Based on the achievement, it can be analyzed that the athletes do not achieve the maximum, it is necessary to train seriously on every athlete, so as to achieve the feat in the assessment serve sports volleyball at the decision of very competent with percentage 85% - 95% (61-70 athletes), then there are 30-40 athletes who need to improve their performance.

Profile of Smash Assessment of Volleyball

The performance assessment of smash in volleyball can be analyzed by looking at the level of achievement of athletes. In the achievement smash performance of volleyball, shown by the athletes to prepare since the opening or introduction, warming up, preparation movement, execution movement, the final movement, and closing. Data profile is the result of the assessment of smash in volleyball in Figure 2.

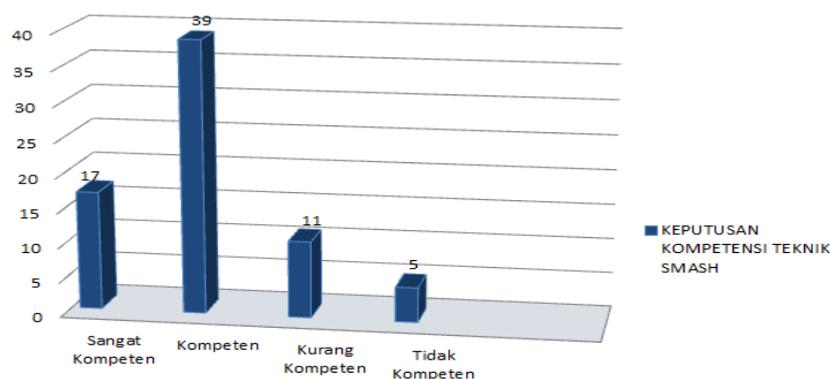


Figure 2. Profile of Smash Assessment of Volleyball Skill

Figure 2 shows that the achievement of the 72 athletes in the assessment smash sport volleyball, where 17 athletes earn a score of > 86.0 included in the decision of very competent, and 39 athletes earn score 76.0 - 85.9 included in the decision of competent, 11 athletes obtained score 66.0 - 75.9 categorized in the decision of less competent, and 5 athletes obtain score <65.9 included in the decision of incompetent. Based on the achievement, it can be analyzed that the athletes do not achieve a maximum in smash technique, it is necessary to train seriously serious on every athlete, so as to achieve the performance in the smash assessment of volleyball in the decision of very competent with percentage 85% - 95% (61-70 athletes), then there are 44-53 athletes who need to improve their performance.

CONCLUSION AND SUGGESTION

1. CONCLUSION

Based on the data result analysis, the assessment of serve and smash of volleyball at clubs may be proposed some conclusions as follows:

1. The implementation of volleyball skill assessment volleyball in clubs is based on opinions of the coaches who have not used the process performance on the training.
2. The results of the content validity of serve technique with Aiken's value are 0.93, the smash technique with Aiken'sV value is 0.95, both techniques have a very good validity.
3. The results of the 6 rater reliability (6 coaches), on the serve technique with Genova interrater coefficient value is 0.84, the serve technique with Kappa K interrater coefficient value is 0.85, and the smash technique with Genova interrater coefficient value is 0.83, with the serve technique with Kappa K interrater coefficient value is 0.86, where both are qualified for Lin reliability 0.70.
4. Characteristics of serve assessment of volleyball (ASSOB) for 30 Yogyakarta Special Region junior athlete profile is found highly competent, 27 athletes are competent, 13 athletes are less competent, and 2 athletes are incompetent. Profile of smash assessment of volleyball of Yogyakarta Special Region junior athletes; 17 athletes are very competent, 39 athletes are competent, 11 athletes are less competent, and 5 athletes are incompetent.

2. SUGGESTION

Based on the results of the result, it can be suggested as follows:

1. The implementation of serve and smash assessment of volleyball at the clubs can be used as process performance on practice or before competing (pre-game).
2. The development of serve and smash assessment of volleyball at the clubs can be developed on the product performance on when competing (Game play).
3. The development of volleyball instruments can be developed in the aspect of knowledge, affective aspect (behaviour), and aspects of physical conditions in every age level of athletes.
4. The development of the serve and smash assessment instrument of volleyball on forearm pass technique, overhead pass and block (bock) will make it easier for coaches to get competent athlete profiles.

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**THE INFLUENCE OF EXERCISE TO TOUCH THE TARGET WITH THE INTERVAL METHOD TO
DEVELOPMENT OF SPEED REACTION TIME AND ACCURACY LUNGE IN FLORET
(STUDY ON FENCING CLUB ATHLETES ATTACK SURABAYA)**

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Abstract

Fencing is a kind of self-defense sport that still needs to keep on to be developed. There are three kinds of weapon used in the Fencing items, namely: 1) Foil, 2) Epee, and 3) Sabre. More of the most important factor in carrying out a technique to play a fencing is a speed reaction time and accuracy lunge to result a point is competition. Remembering the important of a speed reaction time and accuracy lunge in a sport fencing, it is necessary to look for methods of training can roommates an increase of speed reaction time and accuracy lunge. One of effort to an increase of speed reaction time and accuracy lunge is applying or giving method touch with the target interval. The aim of this research is to know the influence of exercise to touch the target with the interval method to Increase on reaction speed and accuracy lunge in florets. The object of this research is an athlete of attack fencing club Surabaya and the amount of the samples taken 20 athletes divided into two groups, namely experimental group and control one roommates consist of 10 athletes for each groups. The methods of this analyze quantitative descriptive uses statistical and comparative methods, meanwhile the process of taking the data is done by pre-test and post-test. The result of descriptive analyze counting can be known that: 1) In the experiment group, the average value of speed reaction time before touch exercise to the target with the interval method (pre-test) is 0.317 and a result after touch exercise to the target with the interval method (post-test) is 0.252. It means that the applying of touch with the target interval exercise method to truly Gives a development of speed reaction time of 0.065 or 65%, 2) In the control group, the average value of speed reaction time before exercise to touch the target with the interval method (pre- test) is 0,296 and a result after exercise to touch the target with the interval method (post-test) is 0.289. It means that the applying of touch exercises with interval method truly Gives a development of speed reaction time of 0.007 or 7%, 3) In the experiment group, the average value of accuracy of lunge before touch exercise to the target with the interval method (pre-test) is 22 and a result after exercise to touch the target with the interval method (post-test) is 28. It means that the applying of touch with the target interval exercise method to truly Gives a development of accuracy of lunge 6 or 6%., 4) in the control group, the average value of accuracy of lunge before touch with interval exercise method (pre-test) is 22 and a result after touch with interval exercise method (post-test) is 25. It means that the applying of touch with exercise interval method truly gives a development of accuracy of lunge 3 or 3%. The analyzing result of paired sample t-test is Obtained: 1) in the experiment group, the value of t-counting 7.64, and the value of P = 0.000. In the other word, that there is a significant influence from a touch to the target with the interval exercise method into a development of speed reaction time., 2) in the group, the value of t-counting -8.508 value of P = 0.000. In the other word, that there is a significant effluence from exercise to touch the target with the interval exercise method of lunge in accuracy into florets. Conclusion: 1) There is a significant influence of exercise to touch the target with the interval method into development of speed reaction time, 2) There is a significant influence of exercise to touch the target with the interval method into development of accuracy of lunge in florets.

Keywords: Influence Touch exercise to the target, interval method, speed reaction time, accuracy of lunge, Floret.

INTRODUCTION

One of the characteristics of fencing sport is using weapon which is touching into the target appropriately followed by the speed of time attack reaction, in order to earn points / value. According to Sandra, L. Bauchmoyer & Lefevers Victoria (2007), the measure of success in fencing influenced by the reaction speed and accuracy the fencing athletes's attack at the *touche*. So, the accuracy of *touche* on the attack when reacting is badly needed in fencing.

It is required a special training with the aim is to improve the physical conditions in particular movement with specific skills, which can increase the speed of reaction time and offensive accuracy, especially numbers of florets. According to Paul (2003), that the training provided by observing the intensity, duration of exercise, frequency and rest will thoroughly repair organ regeneration and this training method is called interval training method. Training is a process of practice that is sistematically done repeatedly with the increasing of training load (Harsono, 1996). So, in principle, training is providing physical pressure on a regular basis, systematic, sustainable manner that will enhance the ability of physical activity that is required in muscle recovery with the time between 2 and 5 minutes (Fox et al, 1993).

Same with a research that states that the training is carried out during 6-8 weeks there will be an increase in muscle response when facing the fatigue, it is because the oxygen transport system in the blood leading will get better function (Allister, 1991). Then, the exercise program should be guided by the principles of exercise. Because the training program is a training concept drafted objectively applied to athletes to the goals, objectives, and time are set. According to Freeman (1989), stated that the training program can be planned using periodization. Periodization is a division of the athletes training program into several time levels, where each level has a time of training objectives specifically. There is a division in the periodization program is composed of units of the largest to the smallest unit i.e.: the macro cycle, period, phase, micro cycle, and training sessions. To see the relationships in the planning of training program in a structured, dynamic and systematic.

Interval training method is a form or repetitive training method or series that has interlude time or period of rest (Fox, 1993). The resting period is specifically divided into two: active and passive recovery, depending on the purpose of the exercise is to be achieved. According Rushall (1992), argued that interval training can develop both aerobic and anaerobic energy systems at the level of which varies according to the needs of each sport and athlete. Interval method uses a lot of variation among others: workout distance, duration or length of training, number of replicates, number of series, steps and duration of the interval. The principle of making high intensity interval training and high volume which may at the same time (Nossek, 1995).

In fencing, interval touched training is a form of repetitive training or series interluded by rest time or period, which is used to improve the touch accuracy and speed of time reaction athlete in fencing (Binpres IKASI Sea Games 1993, 1997 and 2007). The purpose of the interval touched training is to enhance the hand muscles, smooth muscle at the pupil of the eye, and nerve that will affect the speed of time reaction and the hand muscle strength related to accuracy strikes, by using a fencing tool (saber fencing) which is touched into the target in interval and repetitive in the fencing ready position and attack with regard to the intensity, frequency and duration of exercise. The purpose of this exercise is expected to lead to the effects of exercise, namely by increasing the speed of time reaction and accuracy attack (Binpres PB IKASI 1993, 1997, and 2007). Speed is one

component of many physical conditions that affect the performance of athletes. Speed is needed in many sports, and the fencing is attacking speed. Speed is the ability to use the muscle contraction during a particular action or position, either the minimum or maximum hitch, and the speed will be used gradually and continuously (Silva de Hendry, 1997). According Bompa (1990), the reaction time is the quality that allows through a kinetic response as soon as possible after receiving stimuli. While the meaning of the other reaction time is involved unification (integration) of the central nervous system side on which the perception of the stimulus and the beginning of a proper motion. The reaction time is the time between the individual is given a stimulus to the muscle reaction or the first movement by the individual (Johnson and Nelson, 1984; Philips and Honark, 1979; Ganong, 1991). The accuracy is the ability to direct a motion to the target in accordance with the goal. According to Dervish and Bases (1992), for the development and improvement of accuracy are: 1) the frequency of movements in repeated as much as possible so that it becomes automatic, 2) distance to the target from close to getting away, 3) movement from slow to fast, 4) each there must be a movement accuracy or thoroughness, and 5) are often held games. According Chervis (2005), the attack is a maneuver movement that aims to make forward movement were quick to touch opponents. According to Silva (1997), the attack is a basic technique of a movement, which is a way of moving the position of the body at a certain distance. So it can be said that the attack is an initiative to get points. According Soeratman, (2004), the attacks are offensive action initiatives undertaken to straighten the arm and continuously threatening the opponent's target area being waged by attacking or Fleche.

Design and study design

This research is using experiment. This study has three variables, that are (X) touched to target training with the interval method as the independent variable, while the dependent variable is (Y₁) Speed of reaction time, (Y₂) the touch accuracy. The design of the study are as follows:

Randomized control group pretest - posttest design (Creswell, 2003).

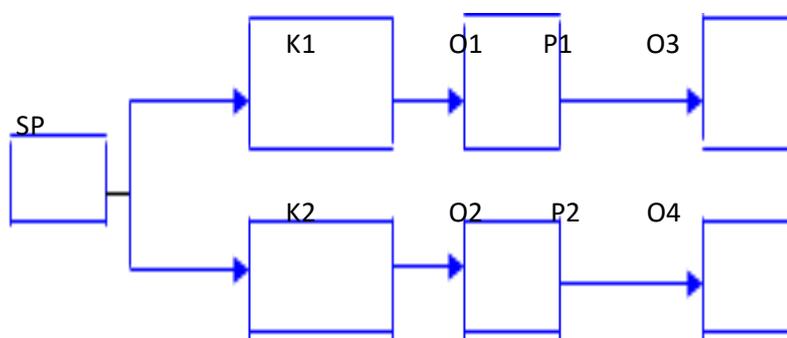


Figure 3.1. Chart of the *pretest - posttest control group design*.

Information:

SP	: Research Subjects (sample)
K1	: Treatment Group
K2	: The control group
O1	: Pretest group I
O2	: Pretest group II
P1	: The treatment of treatment group touching to target
P2	: The treatment of the control group without a target touching
O3	: Posttest group I after 6 weeks
O4	: Posttest group II after 6 weeks

Population and Sample

Population subjects in this study were male fencer of Junior *Attack Fencing Club* Surabaya. The amount sample in this study is 20 people who are grouped into two by random, and therefore in the overall take.

Speed Reaction Time Test.

Speed reaction time that is expected when an athlete receives stimuli and responds quickly. Speed reaction time is taken three times that pre-test and post-test. Tool that is used is Whole Body Reaction Type II.

Accuracy Attacks Test.

After conducting a speed test of reaction time and then test the accuracy attacks that use "*Kuhadja Fencing Skill Test*" is a test that uses a circular target area with the highest 10 and lowest 1. The diameter of the center circle is 5.08 cm, the next circle outward plus 5,08 cm. This test is done by people trying to stand with the ready position of fencing on the line that has been determined in accordance with the lines being used. Then do a touch. Taken on average three times of touch as much. (Bosco & Gustafson, 1983).

Data Analysis Technique

The collected data were tabulated and analyzed using SPSS for Windows version 13.0 with the significant level of 0.05.

To test the hypothesis, in order to determine whether there is the effect of the treatment given to the reaction time and accuracy attacks on each group of data obtained from the results of tests and measurements in the analysis using ANOVA F test. With the details of the test data is as follows:

1. Descriptive statistics

Used to describe and analyze a given treatment group (Sudjana, 1996).

2. Distribution normality test

To determine whether the obtained data were normally distributed, the normality test. This test needs to be done to meet the requirements of advanced test by using analysis kolmogrov-Smirnov > 0.05 .

3. Homogeneity test

To determine whether the condition before the treatment the same for the whole group (Budayasa K, 2002).

4. MANOVA Test

To test the effect of a given treatment in the experimental group and the control group.

RESEARCH RESULT

The first analysis used is descriptive analysis. Descriptive analysis will present the data in the form of average and standard deviation.

Description Data

Description of data to be presented in the form of research data obtained in the field.'

a) Reaction Time Speed Value of Floret Number Treatment Group

Table 4.1 Based on the average speed of the reaction at the largest pre-test group that is 0.317 compared to group post-test is 0.252. Overall average in the observation group average pre-test is the highest, while the average post-test group is the lowest.

Table 4.1 Description of the reaction time speed value of the Floret number Treatment Group

No.	pre-test				Post-test			
	observation result			mean	observation result			mean
	1	2	3		1	2	3	
1	0406	0336	0347	0363	0334	0275	0280	0296
2	0307	0331	0312	0317	0187	0242	0252	0227
3	0290	0275	0272	0279	0274	0257	0272	0268
4	0342	0333	0336	0337	0253	0268	0275	0265
5	0408	0268	0352	0343	0255	0235	0225	0238
6	0361	0313	0312	0329	0282	0277	0288	0282
7	0278	0259	0253	0263	0199	0210	0241	0217
8	0361	0234	0229	0275	0204	0223	0210	0212
9	0413	0281	0286	0327	0248	0218	0253	0240
10	0365	0353	0310	0343	0288	0262	0285	0278
μ	0353	0298	0301	0317	0252	0247	0258	0252

b) Reaction Time Speed Value of Floret Number Control Group

Based on Table 4.2 the average speed of the highest reaction at pre-test group is 0,296 compared with post-test group that is 0.289. Overall the average on pre - test group observations is the highest average speed reaction, while the average of post-test group is the lowest.

Table 4.2 Description of the reaction time speed value of the Floret number Control Group

No.	pre-test				Post-test			
	observation result			mean	observation result			mean
	1	2	3		1	2	3	
1	0294	0258	0229	0260	0295	0320	0224	0280
2	0310	0293	0244	0282	0276	0272	0238	0262
3	0285	0274	0244	0268	0264	0275	0261	0267
4	0291	0311	0289	0297	0290	0277	0287	0285
5	0350	0297	0288	0312	0296	0275	0278	0283
6	0327	0283	0279	0296	0272	0316	0282	0290
7	0297	0281	0262	0280	0255	0321	0277	0284
8	0272	0263	0257	0264	0249	0325	0291	0288
9	0350	0312	0323	0328	0290	0312	0293	0298
10	0410	0367	0344	0374	0332	0381	0351	0355
μ	0319	0294	0276	0296	0282	0307	0278	0289

c) **Accuracy Attack Value of Floret Number Treatment Group**

Based on Table 4.3, the average accuracy attack post-test group is higher of 28 compared to pre-test group is 22. Overall average at the post-test group observation is the highest average accuracy attack, and the pre-test group observation is the lowest.

Table 4.3 Description of the accuracy attack value of the Floret number Treatment Group

No.	pre-test				Post-test			
	observation result			mean	observation result			mean
	1	2	3		1	2	3	
1	5	7	10	22	9	9	10	28
2	3	7	5	15	9	8	10	27
3	6	7	7	20	10	9	10	29
4	9	8	8	25	10	9	10	29
5	7	6	7	20	9	10	9	28
6	7	6	9	22	10	10	10	30
7	7	4	8	19	10	10	10	30
8	7	8	8	23	9	10	10	29
9	0	7	9	16	9	10	10	29
10	7	9	8	24	9	10	10	29
μ	5	7	10	22	9	9	10	28

a) **Accuracy Attack Value of Floret Number Control Group**

Based on the Table 4.4, the average accuracy attack post-test group is higher at 25 compared to pre-test group is 22. Overall average at the post-test group observation is the highest accuracy, and on the pre-test group observations is the lowest.

Table 4.4 Description of the accuracy attack value of the Floret number Control Group

No.	pre-test				Post-test			
	day observation			mean	day observation			mean
	1	2	3		1	2	3	
1	6	7	9	22	8	8	9	25
2	6	6	7	19	6	8	8	22
3	5	6	6	17	7	7	8	22
4	8	9	9	26	9	9	10	28
5	7	7	6	20	7	7	9	23
6	7	8	8	23	8	9	9	26
7	7	7	7	21	7	8	10	25
8	7	8	7	22	8	8	9	25
9	4	7	9	20	6	7	10	23
10	5	9	8	22	6	8	10	24
μ	6	7	9	22	8	8	9	25

Normality Test Data

Before testing the hypothesis, the first step that must be done is to make sure that the distribution of data is normal. This is done because the data collected is a ratio scale data. If the data is a ratio scale, then to prove the hypothesis of whether there is influence or the difference between groups was performed with parametric statistical tests that require normal distribution of data.

The normal distribution is the distribution of data that form a pattern bell shape. In the calculation of normality can be tested using the Kolmogorov-Smirnov test. The data criteria whether the data is normal distribution or not is as follows:

1. If Kolmogorov Smirnov significance greater than 0.05 ($p > 0.05$), the data is the normal distribution.
2. If the significance of the Kolmogorov-Smirnov less than 0.05 ($p > 0.05$) then the data are not normally distributed

The complete calculation value can be seen in the following table:

In Table 4.5 shows that all data is in normal distribution, so it can be processed for statistical parametric test.

Table 4. 5 Normality test

Group	Kolmogorov Smirnov	Sig.	Information
pre-test reaction speed treatment group	0658	0779	Normal
post-test reaction speed treatment group	0537	0935	Normal
pre-test reaction speed control group	0601	0863	Normal
post-test reaction speed control group	0907	0383	Normal
pre-test accuracy attack treatment group	0524	0947	Normal
post-test accuracy attack treatment group	0905	0386	Normal
pre-test accuracy attack control group	0542	0930	Normal
post-test accuracy attack control group	0492	0969	Normal

Hypothesis testing

Testing the hypothesis in this study using some test which is paired t test to test the difference before and after treatment. Besides, it also test two t free samples to test for differences between treatment groups (with target) and control (without target). To test the difference in the speed of reaction time and accuracy attack is done with ANOVA test.

a.) Speed differences Reaction Time Floret Number on Target Touching Group and without Target with interval training method

Here is the average speed of reaction time Floret number of the pre-test and post group, and the treatment group and the control.

Table 4.6 shows that the average of post-test speed of reaction time on touching treatment with target is lower, i.e. 0.25230 ± 0.029299 compared to pre-test is 0.31760 ± 0.033718 . the average of post-test speed of reaction time on touchig without target is lower at 0.28920 ± 0.025407 compared to pre-test is 0.29610 ± 0.034834 .

Table 4. 6 Comparison speed time reaction to the pre-test and post-test

Treatment	Group	mean	Std. deviation	N
touching the target	pre-test	0.31760	0.033718	10
	Post-test	0.25230	0.029299	10
Touching without target	pre-test	0.29610	0.034834	10
	Post-test	0.28920	0.025407	10

To ensure that the two groups have significant difference, then, testing the hypothesis by paired t test.

Here are the full results:

In Table 4.7 paired t-test calculation results obtained significance level of 0.000, which means there is a speed difference of reaction time before and after the training is done by touching with target. While in the touching without target, the result is there is no significant difference. With this result, there is influence of interval training method by touching the target at a speed of reaction time in the Floret number.

Table 4. 7 The result of the speed reaction time calculation by using paired t test

Touching the target			Touching without target		
t	Sig.	Information	t	Sig.	Information
7764	0000	There is a significant difference	1,157	0277	No significant differences

To ensure that the use of touching with the target is better than the touching without the target at a speed of reaction time were also conducted with two different free sample test. The data used is the data difference after treatment and before the treatment. Here are the results of t test between two different free samples:

Table 4.8 shows that the training group with the target is being able to make speed reduction reaction time better than the group training without target. Results of testing the homogeneity of variance results obtained both homogeneous group that used the t test results are *assumed equal variances (pooled)*. T test results obtained t value of -5.677 with a significance level of 0.000. So training with the target is making the speed of reaction time proved to be better than training without targets.

Table 4. 8 The result of the t test calculation of speeds reaction time by using two different free samples

Touching training	Mean	homogeneity	t	Sig
with a target	-.0650	Homogeneous	-5.677	0,000
Targetless	-.0070			

b) Differences in Accuracy attack Floret Number on the Target touching Group and without Target with interval training method

Here is the average accuracy attack Floret number at the pre-test and post group and the treatment group (touch target) and control group (touch without target).

Table 4.9 shows that the average post-test accuracy attacks on targets touching treatment is higher at 20.6000 ± 3.27278 compared to the pre-test, 28.8000 ± 0.91894 . The average accuracy attacks on post-test touching treatment without target is higher at 24.3000 ± 1.88856 compared to pre-test at 21.2000 ± 2.44040 .

Table 4. 9 Comparison of the accuracy attack on the pre-test and post-test

Treatment	Group	mean	Std. deviation	N
touching the target	pre-test	20.6000	3.27278	10
	Post-test	28.8000	0.91894	10
Touching without target	pre-test	21.2000	2.44040	10
	Post-test	24.3000	1.88856	10

To ensure that between these two groups there is a significant difference, then testing the hypothesis by paired t test.

Here is more results, the result of paired t test calculations in Table 4.10 showed a significance level of 0.000, which means there are differences in accuracy attacks before and after the training is done by touching the target. In touching training without target may also showed the result that there is a significant difference.

Table 4. 10 The result of the accuracy attack calculation with paired t test.

Touching the target			Touching without target		
T	Sig.	Information	t	Sig.	Information
-8508	0000	There is a significant difference	-11 196	.000	No significant differences

With this result, there is influence of interval training method by touching the target and without target in accurate attacks of Floret number.

To make sure that the touching training with the target is better than the touching without a target in targeting accuracy is also performed with two free samples different test. The data used is the data difference after treatment and before the treatment. Here are the more results of t test two different free samples:

Table 4.11 shows that the training group with the target is being able to make an increase in accurate attack compared to the group training without targets. Results of testing the homogeneity of variance both groups are not homogenous, so that the results of the t test used was *equal variances not assumed (separated)*. T test results obtained t value of -5.086 with a significance level of 0.000. So, training with the target is proved better than training without targets.

Table 4. 11 The result of the accuracy attack calculation using t test with two different free samples

Touching training	mean	homogeneity	t	Sig
with a target	8.2000	Inhomogeneous	5.086	0,000
Targetless	3.1000			

c) Difference Reaction Time Speed and Accuracy Attack Floret Number on Target Touching Group and Without Target with Interval Training Methods

The MANOVA test is used for testing the difference with two dependent variablesthat are the speed of the reaction time and the accuracy of the attack. Here are the complete test results:

Table1 4.12 shows in all parameters of both Pillai's Trace, Wilks' lambda, Hotelling's Trace and Roy's Largest Root acquired a significance level of 0.000. Which means that there are differences in speed and reaction time accuracy attacks on targets and without target touched training by using interval training method.

Table 4. 12 The result of the speed and reaction time accuracy attacks calculation using Manova

Parameter	Value	F	Sig.
Pillai's Trace	0756	26 345	0 .000
Wilks' Lambda	0244	26 345	0 .000
Hotelling's Trace	3099	26 345	0 .000
Roy's Largest Root	3099	26 345	0 .000

CONCLUSION

Based on the data that has been collected, processed and analyzed, problems in this study have been answered. Similarly, the hypothesis which is the direction of research activity has been tested, it can be concluded as follows:

1. There is an increase in the speed of reaction time after the touching to target training with interval training method.
2. There is an increase in the accuracy of the attack after the touching to target training with interval training method.
3. Generally that there is an increasing influence and the difference after the delivery of touched training to target and without target with interval training method to speed reaction time and accuracy attack of the Floret number on athletes fencing club AFC in 2010.

SUGGESTIONS

Suggestions put forward in this study are:

1. Because science is dynamic, it is necessary to further research involving other possible variables have a role in making the speed of reaction time and accuracy Fencing attack in floret number, so that similar research will be steadier and more in the scientific review.
2. In this study is expected to be a guide to the trainers and observers of the sport of fencing in order to increase the speed of reaction time and accuracy / accuracy of an attack on a floret number.

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THE EFFECT OF BASEBALL SPORT TOWARDS THE SOCIAL BEHAVIORS OF NEGLECTED CHILDREN AND STREET CHILDREN IN VIO BASEBALL CLUB SURABAYA

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Abstract

Poverty and child negligence are some of the social problems which are yet to be resolved. Because the government and the society failed to understand the importance and urgency of solving the social problem, a considerable number of this future generations ironically chose to live on the streets and became street children or beggars. Alas, the society label them as some kind of incurable "disease" in society. The goal of this research is to find the effect of baseball sport towards the social behavior of street children and underprivileged children. The researcher aimed to find out if baseball sport play a role in restoring the positive sociological functions and fulfilling the neglected rights of underprivileged and street children, and ultimately if it can be a new alternative model of social behavior rehabilitation for underprivileged and marginal children. Baseball sport is chosen because it embodies certain constructive behavioral properties. The purpose of this research are : 1) To introduce and popularise the baseball sport, 2) To find out if baseball sport give positive effect in social behaviors of underprivileged and street children in Vio Baseball Club, 3) To build a reference for baseball sport as the new alternative model for social behavior rehabilitation. The method applied in this research is experiment research with qualitative approach. This research was in 3 month period, from September to November 2016. The subjects in this research are 30 underprivileged and street child from Vio Baseball Club Surabaya, which were all boys in 5th until 7th grade. The data analysis technique used was T-Test. The result of the research are described as follows : According to the analysis of the percentage of data in each indicator, an increase of post test data compared to pre test data can be seen in the following indicator : empathy, confidence, teamwork, responsibility, independence, discipline, ego level, persistence, bravery, and sportivity. The average in pre test data was categorized in poor or very poor, while the average in post test data is categorized in good or very good. It can also be drawn from the data that there is a significant effect in the application of baseball sport towards the social behaviors of the underprivileged and street children in Vio Baseball Club Surabaya with 98,11% significance level. From the data, the researcher can conclude the following points : 1) This research can be utilized to popularise the baseball sport, in particular among the underprivileged and street children, 2) There is a significant effect of baseball sport towards the social behaviors of underprivileged and street children, 3) Baseball sport can be used as the new alternative model of social behavior rehabilitation for underprivileged and street children.

Keywords: Baseball Sport, Underprivileged Children, Social Behaviors, Social Rehabilitation.

INTRODUCTION

To this day, social issues are still an unsolved complicated issue. One of the social problems that still can not be resolved until today is the problem of the poor and neglected children. Although the taking care of the street and neglected children are included in the duties and responsibilities of the state as written in the Constitution of 1945 section 34, the state along with the various elements of the society are still not able to solve the case, as evidenced by the high number of the marginalized.

This problem is further complicated by the involvement of children, the successor to the nation, which are still living below the poverty line, and whose rights have not been fulfilled. The prospective stakeholders of ironically nation prefer to become street children and beggars because of the lack of attention of the government and people who are less aware of the urgency of overcoming problems of street children, so that instead of providing social rehabilitation, the state stamps them as the disease in society. The government has also tried to provide a solution by providing social houses for marginalized children so that they can get a better life and to fulfill their right. Even so, this government effort until now has not produced results.

Baseball is a sport played by two teams. A pitcher on one team tries to throw the ball called baseball, while batters on the other team that is the offensive team try to hit the ball using a bat. The defending team tries to catch a ball hit by the offensive team. Offensive team got a score by running counter-clockwise to return to home plate after stepping on a baseball field markers on the surface called the base. In the United States, baseball is the national pastime because most Americans spend a lot of time to play and watch a baseball game. The number of spectators who come to the stadium to watch the American Baseball League outnumber other types of sports. The most important part of the game of baseball is a battle between pitchers against the hitter. Pitcher throws ball as precisely as possible in order to get into the strike zone. The ball must be thrown as close as possible with the batter, but at the same time the ball must be thrown as fast as possible and as hard as possible in order not to be beaten. Batter should swing his bat carefully in order to be able to hit the ball. If the batter can hit the ball, there is a possibility of his team members can obtain a score (run). Catcher (catcher) is the name for the team members who crouched behind batter with the task of catching a ball thrown by the pitcher but was not hit by the batter. Catcher also gives instruction and strategies to throw the ball to the pitcher. Catcher and pitcher communicate with sign language and secret signs. If the pitcher does not agree with the catcher, pitcher would shake his head. Instead, the pitcher would nod if he approves.

According to the Indonesian Parents magazine website, Baseball provides the following benefits: a) physical strength, b) eye-hand coordination, c) balance, d) togetherness, e) discipline, f) cooperation, and g) leadership. The game of baseball is also known as a good form of cardio exercise. Here are the benefits of cardio exercise for humans:

- a. Control of body fat content
- b. The ability to recover more quickly after an intense body work
- c. Increase stamina and endurance to fatigue (fatigue)
- d. Reduce tension and help you sleep better
- e. Psychological benefits because the practice reduces depression and anxiety

Social rehabilitation is a social service by the Directorate of Child Social Services. These activities are carried to organize a business sponsorship, care, protection, adoption, and eradication of neglected children, The main purpose of the programs implemented in the social services child care is to return them to the family. Social rehabilitation is a part of the rehabilitation process of people with disabilities which tries to eliminate or at least reduce as much as possible the negative effects, so that patients can be an active citizen.

Social rehabilitation is intended to help individuals in need of special services in the social sector, by improving social skills. The purposes of social rehabilitation are:

1. Restoring a sense of self-esteem, confidence, awareness, and responsibility towards future self, family and society, or the social environment.
2. Restoring the willingness and ability to be able to perform their social function properly.

To achieve these objectives, the steps that can be done are as follows prevention, rehabilitation, resocialization and follow up coaching

The purpose of this study are 1) to introduce and promote sports Baseball to street and marginalized children, 2) to determine whether Baseball Sports can have positive effects on social behavior of street and marginalized children in Vio Baseball Club Surabaya, 3) to be the reference for an alternative model of social behavior rehabilitation of street and marginalized children through Baseball sport.

Marginal Street Children

The term street children was first introduced in the United States or Brazil that is used for a group of children living on the street who do not have any contact with their family in (Erna, dkk. in Pandji Putranto, 1995). Street children are people under 18 years old who spend most or all of their time on the streets by doing activities to earn money or to sustain life (Saladin, 2000). Street children are children who live and grow up in the streets without any monitoring and grow independently (Irwanto, 2003). This lifestyle may have positive impact for some street children, for example they become more resistant and hardworking because they have been responsible to earn their own money without the help of their parents. (Sarwoto, 2002). One of the programs of social and cultural development is a health program with the main goal to empower neglected children, including street children. Such programs aimed at improving the health status of the female reproductive system in the fertile age in children and homeless youth (Rev. 1999). Street children can be categorized by their relationship with the family (Tata Sudrajat in Salahuddin 2004) can be divided into 3 groups :

a. Children on the street

Are children who have economic activities in the street but still have some kind of relationship with the family.

1. Children of the street

Are children who spend all or most of his time on the streets but do not have or even have severed ties with their parents or family.

b. Children in the street or children from families of the street

Are children who spend all their time on the streets because they come from families who live on the streets.

Street children's age plays a role in the formation of a person's behavior, because it affects the application of parenting to the street children. Gender affects the behavior of street children in the family and will affect the parenting style. Boys are more common than girls. This was evident in Semarang where the number of female street children is only around 20-30% of the total population of street children in the city of Semarang (Equivalent Foundation, 2011). The learning ability of human being is a very basic ability. Of course, the level of education can lead to a change in the attitude or behavior. For the most part, the education of street children is low (elementary and junior high school). Street children every day is busy earning a living or in the streets so they do not perceive education as something important. In Semarang, as many as 50% of street children are school dropouts. (Wahyu, 2000).

Types of works are diverse street children. Some street children earn money in gender unrelated fields such as singing, newspaper hawkers, or even sexual services. Street children do not rely on one type of work or activity to earn money or food in order to survive or to protect themselves from various threats. In line with the activity of these street children, they have high mobility. On the other hand, the working hours varies in street children from 6-8 hours per day, 9-12 hours to 13 hours (Bagong, 2000). As many as 16% of street children has no association with their parents, 41% street children associated irregularly with their parents, and street children who associated regularly with the parents are as much as 43%.

The characteristics of the physical and psychic street children (Muis, 2010) include:

- a. Physical characteristics
- b. Dull skin color
- c. Reddish hair
- d. Mostly underweight
- e. Ragged clothes neglected
- f. Physical Feature
- g. high mobility
- h. Indifferent
- i. High alert
- j. very sensitive
- k. rampart
- l. Creative
- m. The spirit of the high life
- n. Dare to risk
- o. Independent

Sociology of Sports

Sport has become an integral part of community and life. Although the sport is still regarded as body building and physical coaches, it doesn't only consist of physical aspects. Sports also include various other aspects of a person's life, such as political aspects, financial aspects, psychological, and social aspects. Sociology is a branch of social science that uses methods of empirical studies and critical analysis to develop knowledge of the social strata, social disorder, and social challenges. Social Issues discussed ranges from the micro level, ie individual and social interaction, and the macro level, the system and social structure.

The object of traditional sociology is a society, viewed from the standpoint of human relations and the process of human relationships in society. However, nowadays the object of sociology has shifted. The object modern sociology, among others, are media, internet, art, health, education, and militias. In connection with the above description, then sociology can then be projected into the sports science. Donald Chu stated that the sociology of sport is a melting pot of sociology and sports. Therefore, in sports sociology, sports science and sociology became an integrative and applied science, in which both science disciplines are received and combined in tune with the problems of these two disciplines.

Eldon Snyder and Elmer Spreitzer in his book Social Aspect of Sport suggest that exercise can be discussed in two dimensions, ie the dimensions of intrinsic, ie aspects of aspects relating to

behavior in the sport itself, and the dimensions of extrinsic, ie aspects of aspects that are outside of sports as spectator sport or the mass media. Based on these descriptions, the sport can be seen as a miniature society, because of the social aspects of society is also contained in the sport. Therefore, like sociology, sport can also be studied in micro and macro. On the micro level, the sport studied as a sports activity itself, which in sociology is seen as social relations within small social system. While the macro, sport is seen as a tool or a part of a community which is a collection of small social systems.

METHOD

Research methods used in this study is an experimental research with a qualitative approach. Experimental research is research that is done to determine the causal relationship between the variables that exist. One of the main characteristics of experimental research is the treatment given to the subject. Research experiments have four characteristics, namely the treatment, control mechanisms, randomization, and measures of success. The design used was experimental design, research directed to compare the distribution of data pre-test and post-test of a sample group only. The variables in this study are baseball sports as independent variable and social behavior as dependent variable.

The subjects that used in the study was 30 street and marginalized children in Baseball clubs Surabaya Vio. Male, with grade that range from 5th grade of elementary to 1st grade in junior high school. Research was held in the period of 3 months, from September to November 2016 and was conducted in the Laboratory and Field of Baseball in Unesa, also in Baseball-Softball Marines field Gunungsari.

In this study used the assessment of social behavior of street and marginalized children instrument covering social care (indicator 1 / i1), confidence (i2), responsibility (i3), cooperation (i4), independence (i5), discipline (i6), the level of ego (i7), persistence (i8), courage (i9), and sportsmanship (i10).

RESULTS AND DISCUSSION

In this study, the data the influence of baseball on social behavior in children assisted marginal Baseball club Vio Surabaya processed using manual calculations and using the program statistical package for social science (SPSS) for windows evaluation 20. Results of the assessment of 18 children contains 10 indicators of social behavior are as follows:

A. RESULT

The results of the percentage of data per indicators can be explained in the following table:

1. Concern

Table 1. Percentage Category Level of Concern

Category	Pretest	posttest
Less	33%	-
Enough	61%	-
Good	5.6%	44%
Very well	-	56%
Total	100%	100%

(Source: Appendix)

Based on table 1 above can be described that for the data pretest level of awareness with enough categories by 61% and the rest is less and the good category, while for the data posttest level of awareness with excellent category by 56% and the rest was either category.

2. Trust

Table 2. Percentage Category Confidence

Category	Pretest	posttest
Less	39%	-
Enough	61%	-
Good	-	67%
Very well	-	33%
Total	100%	100%

(Source: Appendix)

Based on table 2 above can be described that for the data pretest level of trust with enough categories by 61% and the remainder is less category, while for the data posttest level of trust with both categories by 67% and the rest is a good category yet.

3. Responsible

Table 3. Percentage Category Level of Responsibility

Category	pretest	posttest
Less	28%	-
Enough	67%	-
Good	5.6%	50%
Very well	-	50%
Total	100%	100%

(Source: Appendix)

Based on table 3 above can be described that for the data pretest levels of responsibility with enough categories by 67% and the rest is less and the good category, while for the data posttest level of responsibility with good and excellent categories by 50%.

4. Cooperation

Table 4. Percentage Category Level of Cooperation

Category	pretest	posttest
Less	22%	-
Enough	67%	-
Good	11%	50%
Very well	-	50%
Total	100%	100%

(Source: Appendix)

Based on table 4 above can be described that for the data pretest level of cooperation with enough categories by 67% and the rest is less and the good category, while for the data posttest level of cooperation with good and excellent categories by 50%.

5. Autonomy

Table 5. Percentage Category Level of Independence

Category	pretest	posttest
Less	50%	-
Enough	50%	5.6%
Good	-	67%
Very well	-	28%
Total	100%	100%

(Source: Appendix)

Based on table 5 above can be described that for the data pretest level of independence with less category and fairly by 50%, while for the data posttest level of independence with good category by 67% and the rest is pretty and excellent categories.

6. Discipline

Table 6. Percentage Category Level Discipline

Category	pretest	posttest
Less	17%	-
Enough	56%	-
Good	28%	39%
Very well	-	61%
Total	100%	100%

(Source: Appendix)

Based on table 6 above can be described that for the data pretest level of discipline with enough categories by 56% and the rest is less and the good category, while for the data posttest level of discipline with excellent category by 61% and the rest was either category.

7. The level of ego

Table 7. Percentage Category Level Ego

Category	pretest	posttest
Less	5.6%	-
Enough	67%	-
Good	33%	39%
Very well	-	61%
Total	100%	100%

(Source: Appendix)

Based on table 7 above can be described that for the data pretest levels of ego with enough categories by 67% and the rest is categorized as good and less, while for the data posttest level of ego with excellent category by 61% and the rest was either category.

8. Persistence

Table 8. Percentage Category Level of Persistence

Category	pretest	posttest
Less	56%	-
Enough	44%	-
Good	-	39%
Very well	-	61%
Total	100%	100%

(Source: Appendix)

Based on table 8 above can be described that for the data pretest level of persistence with less category by 56% and the rest is enough categories, while for the data posttest level of persistence with a good category by 61% and the rest was either category.

9. Bravery

Table 9. Percentage Category Level of Courage

Category	pretest	posttest
Less	33%	-
Enough	56%	-
Good	11%	22%
Very well	-	78%
Total	100%	100%

(Source: Appendix)

Based on table 9 above can be described that for the data pretest level of courage with enough categories by 56% and the rest is less and the good category, while for the data posttest level of courage with a good category at 78% and the rest was either category.

10. Sportsmanship

Table 10. Percentage Category Level Sportsmanship

Category	pretest	posttest
Less	39%	-
Enough	56%	-
Good	5.6%	50%
Very well	-	50%
Total	100%	100%

(Source: Appendix)

Table 10 According to the table above can be described that for the data pretest level of courage with enough categories by 56% and the rest is less and the good category, while for the data posttest level of courage with excellent and good categories is 50%.

So based on the description of data per indicators mentioned above can be seen an increase in each indicator between data pretest and posttest, which to the average of data pretest per indicator enter the category fairly and less, while the data posttest entered in both categories and very well.

Description Data Overall

Table 11. Overall Data Description

Description	Pre-Test	Post-Test
Average	17.78	35.22
Standard deviation	1.166	1.166
variants	1,359	1,359
The lowest value	16	33
The highest score	20	37

(Source: Appendix)

Based on the analysis of Table 11. above it can be seen that the results of pre-test of the 18 participants had an average of 17.78 with a standard deviation value of 1.166 and 1.359 variants as

well as the highest value and lowest 20 16. As for the results of post-test her, the average is found 35.22, standard 1,166 deviation, variance 1.359 and the lowest value and the highest 33 37. From the calculations in table 4.11. it is known that there is increased before and after the treatment effect of baseball on social behavior in children assisted marginal Baseball club Vio Surabaya with the difference in the average value of 17.444.

Normality test

Normality test is done to test whether the data were analyzed normal distribution or not. Then it can be tested using the Kolmogorov-Smirnov. Based on the calculation of SPSS Statistics 21 with the provisions of the test if the significant value of the calculated value $P_{value} < \alpha$ (5%) or 0.05 then H_0 accepted and H_0 is rejected. Here are the results of testing for normality using the Kolmogorov-Smirnov:

Table 12. Kolmogorov-Smirnov Normality Test

	Kolmogorov-Smirnov	Asymp.Sig	Sig	Category
Pre-test	0.792	557	0.05	Normal
Post-Test	0.792	557	0.05	Normal

(Source: Appendix)

Table 12 According to the table above can be explained that the significant value (P value) Pre-test $> \alpha$ (5%) or 0.05 in other words sig $> \alpha$ (0.557 $>$ 0.05) and a significant value (P_{value} Post-test) is greater than the value α (5%) or 0.05 in other words sig $> \alpha$ (0.557 $>$ 0.05), it can be concluded that the data pre-test and post-test normal distribution.

Test

Based on calculations using SPSS then we got the t test results as follows:

Table 13. The t-test calculation

	Pre-test	Post-test
t count	57.216	
t table	1,740	
Information	No effect	

(Source: Appendix)

According to the table 13, T count equal to 57.216, while t table of 1.740. Because thitung greater than t table then H_0 is acceptable and it can be concluded that there is significant influence in the implementation of the baseball on social behavior in children assisted marginal Baseball club Vio Surabaya.

Percentage Effect

Table 14. Percentage Effect

MD	Mpre	percentage
-17.444	17.78	98.11

(Source: Appendix)

Table 14 According to the table, it can be concluded that the percentage of influence amounted to 98.11%.

DISCUSSION

From the description of the above data, it will be explained in the discussion about the influence of baseball on social behavior in children assisted marginal Baseball club Vio Surabaya. Influence in general can be seen by looking at the pre-test and post-test. This shows a significant change in the results given subjects before treatment and after treatment is given. All data is divided to determine the final hypothesis. From these data we can conclude that the data pre-test and post-test normal. The test results obtained from the data using the t test $t = 57.216$ and t table $1,740$. Thus, it can be concluded that there is significant influence implementation of the baseball on social behavior in children assisted marginal Baseball club Vio Surabaya.

Other findings obtained in the study was the change from the start indicator 1 (social care) initially less there are concerns with each other and within the team. So, at the beginning of each individual as the subject is less responsive to the problems that occurred in the team. After a few times given treatment, seen an increase in the indicators of social concern, for example, if there is one sick children hit by the ball, the other will also anxious and worried and tried to help.

Another example is the indicator 3 is a responsibility that initially children do not want to be responsible to the needs of the group, the longer the children could be responsible for clean up exercise equipment without prompting. Let's also say that the confidence indicator 2 children originally came only with a shy, but once treated them even eagerly volunteered when asked to give an example of movement in front of the group.

In the fourth indicator that the cooperation also increased, for example, if prior to the treatment given the children do not know each other and care, after being given the treatment they did not hesitate to help each other in a given task. Indicators 6 improvement can be seen from the level of children's participation in an exercise that is always full. Most important is the indicator 10 is sportsmanship where children after being given treatment dare to admit mistakes they do not even acknowledge the advantages of friends.

So of the 10 indicators in the assessment of attitudes, the overall indicators show significant changes, especially in terms of discipline, responsibility, self-confidence, social awareness and sportsmanship. This is indicated by an increase in the effect of treatment equal to 98.11%. So through the sport of baseball can train social behavior in children assisted marginal Vio Club Surabaya, where through this sport a lot instilled the values of fundamental behaviors through game is done in groups (teams) as well as the existing regulations on the sport of baseball.

CONCLUSION AND SUGGESTION

CONCLUSION

Based on the formulation of the problem and research objectives, as well as the results of the study it can be concluded that:

1. Through this research can be used to promote sports Baseball, especially on street children and marginalized target Vio Baseball Clubs Surabaya.
2. There is positive influence to application of the baseball on social behavior and street children assisted marginal Baseball Clubs Vio Surabaya with the influence of 98.11%,
3. Baseball sport can be used as a reference alternative model of rehabilitation of the child's social behavior marginal.

SUGGESTION

Based on the analysis that has been discussed in this study, it was given some suggestions for improvement of future research, so as to increase the benefits of this research. As for suggestions that may be filed as a general recommendation to all parties, especially on the part of social rehabilitation services for the city of Surabaya and further research are:

1. For the next researcher can be met more number of subjects with different age ranges, namely the younger ones so that the character formation can be started at the earliest possible age.
2. The head of social services city of Surabaya to be more attentive to the children of marginal and can use more effective methods of rehabilitation for children not only developed his character, but also the talent and potential through the branches of the sport of choice.

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**THE RELATIONSHIP BETWEEN MENTAL AND EMOTIONAL DISORDERS WITH LEARNING
INDEPENDENCE STUDENTS OF PKO FKIP UTP
(Correlation Study of Student Participants PKO PPL University of Tunas Pembangunan
Surakarta TA. 2015/2016)**

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[Calibri 11, centered]

Abstract

The purpose of this study are: (1) to determine whether there is a relationship of mental and emotional disorders (GAD) to the independence of student learning PKO (2) describe how the relationship between the mental and emotional disorders (GAD) with PKO student learning independence. To achieve the objectives that have been set, the research was conducted by correlation with the design calculation formula product moment correlation. The sample in this study are students who take the PKO FKIP UTP PPL course of the school year 2015/2016 as many as 40 students. The results showed that the symptoms of GAD (Generalized Anxiety Disorder) in the mental and emotional disorders) data showed minimal indicator score of 0 and a maximum score of 20. Criteria for the respondents, 0.1 or 10% or 4 respondents experienced mild symptoms. Respondents who did not have GAD (Generalized Anxiety Disorder) 0.9 or as much as 90% or 36. Learning self-reliance and description can we get the data: 1 has a moderate learning independence (0,025 or 2.5%) and 39 had a high learning independence (0.975 or 97.5%). The result of the calculation formula product moment correlation was obtained $r_{hitung} = 0.526$, r_{table} with $N = 40$ and 0.05 earned $r_{tabel} = 0.312$, for $r_{hitung} > r_{tabel}$ or $0,526 > 0,312$, it can be concluded that there is a significant relationship between mental and emotional disorders (GAD) with PKO student learning independence.

Keywords: Mental & emotional disorder (GAD), independent learning

INTRODUCTION

The Government Constitution No.20 at 2003 about National Education System as follows: "Education is a conscious and deliberate effort to create an atmosphere of learning and the learning process so that learners are actively developing the potential for him to have the spiritual power of religion, self-control, personality, intelligence, character noble, as well as the skills needed him, society, nation and country".

Events causality is the origin of mental and emotional disorders. It is important to distinguish between the causes and contributing causes. The cause is an event that, by itself, produce abnormal symptoms, are not the cause of another. Learning independence is actually an individual activity and continuity. Teaching and learning processes that are running currently not seen as a self-learning process. This is demonstrated by the inability of students to express ideas and find an idea or issue for mereviuw perkuliahan materials, the ability to practice the theory in the field through PPL and began writing material idea of writing a thesis or other writings. This may be due to the process of learning on campus until the final level is too much emphasis on the aspect of doing but less emphasis on aspects of thinking / reasoning. Aspects of doing and thinking / reasoning should run along and in line.

We know that the behavior is an attitude independent deliberately formed and not something that comes naturally, that independence can be formed, the task of the lecturer is to direct, motivate, facilitate and evaluate self-learning process of students. Independent learning is defined as a person's personality in learning activities that last more driven by their own volition, his own choices and own responsibility of learning.

From the background of the above issues we are trying to find relationships in research titled the relationship between mental and emotional disorders (GAD) with independent learning PKO student (Student Participants Correlation Study PKO PPL Development Tunas University Surakarta TA. 2015/2016) as a topic worthy of study

From the background of the problems above the research problems can be formulated as follows: Is there a relationship of mental and emotional disorders (GAD) with PKO student learning independence ?. In accordance with the formulation of the problem, the purpose of this study to determine: Is there a relationship of mental and emotional disorders (GAD) with PKO student learning independence. Benefits Research: 1) Contributing to knowledge in recognizing the mental and emotional disorders in the implementation of PPL, 2) Students are able to recognize themselves about the psychological distress when faced with a new atmosphere like activity PPL, 3) Lecturers are able to identify the preparation of students in following the activities PPL, and 4) Being able to follow up on research related to mental and emotional disorders.

Assessment Theory

1. Definition of mental and emotional disorders

Understanding Mental disorders and Emotional, namely: (1) of Mental Disorders, or Mental Disorders (Mental Disorders), namely: is the syndrome or pattern of behavior, or psychological someone who is clinically quite significant, and is typically associated with a symptom distress or disruption in one or more important functions of humans. In addition, it concluded that the dysfunction is dysfunction in terms of behavioral, psychological or biological agents, and the disorder is not solely lie in the relationship between the community. (Rusdi Maslim, 1998, in <http://perawatpskiatri.blogspot.com/2009/03/gangguan-jiwa-atau-mental-disorder.html>).

According Sutarjo (2009: 38) mental disorders (mental disorders) is a pattern of abnormal behavior that covers a wide range, from mild to severe, mental disorders often used and disorders associated with brain pathology, but today the term is rarely used so often used in any disturbances and abnormalities. (2) Emotional Disorders (Emotional Disorders), we first quotation understanding of emotions by David Matsumoto (2008: 42) that the emotions studied as an internal mechanism that maintains homostatis conditions and regulate behavior. According Sutarjo (2009: 38) of emotional disorders (emotional disturbance) is the integration of the personality inadequate (qualify) and personal pressure. From here we conclude emotional disorders (emotional disorders) as a disorder that occurs in a person reviewing internal mechanism to maintain and regulate themselves homostatis conditions. 3 categories namely environmental causes emotional disorders, affective and cognitive (Hauck, 1967 in Alex Sobur: 407)

Assessing Mental disorders and emotional. Rate itself as the information is based on mental and emotional disorders .. While the accuracy is the most important in the assessment, the counselor must be careful to not just take the word of a client. Clients sometimes significantly overestimate or underestimate the nature and duration of their symptoms for reasons of conscious and unconscious.

Mental and emotional disorders specifically, the following presentation focuses on three mental and emotional disorders are different: Generalized Anxiety Disorder (GAD), Dysthymic Disorder, and Dependent Personality Disorder. These disorders were selected in the study only mild interference.

Generalized anxiety disorder is a type of anxiety disorder that share one or two common characteristics: "a clinically significant anxiety and, to some avoidance behavior" (Reid & Wise, 1995, p 179.) in Hajar, Siti (2012: 5- 6) Symptom or symptoms. Here are some of the symptoms typical of generalized anxiety disorder. Muscle tension (Muscle tension). People may experience the thrill of the hands and feet, general agitation, fatigability, nervousness, shaking or muscle tension. Autonomic hyperactivity (Autonomic hyperactivity). These symptoms including increased perspiration, palpitations, sweaty hands; indigestion, difficulty swallowing, frequent urination, diarrhea; headache; shortness of breath, hyperventilation, exaggerated startle response; weakness at the knees, ringing in the ears, inability to relax or sleep; and muscle tension in the neck, shoulders and back. Kekhawatir of hope (Apprehensive expectation). Clients felt that he would go mad, die, do something that will cause humiliation, into or locked up in a mental hospital. Clients also may fear that similar events might happen to your loved ones. Cognitive impairment (Cognitive disruption). Clients feel confused and able to face reality, tend to be obsessed with anxious thoughts; difficulty remembering the experience; have a little fantasy appalling life, contemplation; have difficulty making decisions; and reviews faults, real or imagined. When finally allowed to sleep, nightmares happen

2. Definition of Independence Learning

Moeliono in Rina Febriana and Sarbiran (2001: 57) says that independence is a state can stand on its own without relying on others. In the development of independence emerged as a result of the learning process that is influenced by various factors, including the environment, family, social and school environment. Cole (1994: 403) confirms that the independent learning students can control the personal consciousness, are free to set the motivation and competencies, and skills that will be achieved. To get it, the students themselves need their intellectual skills and knowledge that allows him to select cognitive tasks as well as affective and efficient. Students can learn, master and practice competence in PPL activities without assistance or with limited assistance from the others.

Agus Sholeh (in Rina Febriana and sarbiran, 2001: 54) gives some indicators of learning independence. Dikemukakannya indicator is used in this study. The complete indicators are:

- 1) Adequate own needs.
- 2) Able to do routine tasks independently
- 3) Take responsibility for his actions.
- 4) Have the ability of initiative.
- 5) Ability to solve problems.
- 6) Confident.
- 7) to take decisions in selecting the form.

Independent learning can stimulate students to always do what is best for him. This is because freedom of learning are encouraged, while the pressure to learn in accordance with what is desired lecturer minimized. When students have difficulty, students can consult with faculty to get the solution of the existing problems. Lecturers who develop independent learning, required to expand its scientific outlook on an ongoing basis. For faculty to develop models of independent

learning is very effective as a means to improve skills. As for the students, independent learning also no less effective to sharpen the analysis and thinking ability.

METHOD

1. Place and Time Research

This research was conducted at the University of Tunas Pembangunan JL. Walanda Maramis no. 31 Surakarta. The timing of this study began in September 2015 to February 2016. The timing of the research was conducted through three stages:

- a. The preparation stage include the title submission, proposal, preparation of research instruments and licensing.
- b. The implementation phase of the research conducted on the test instrument research, implementation research and data analysis and conclusion.
- c. The concluding phase includes the preparation of the final report of the study.

2. Research Methodology

The research method is a method used by researchers in collecting data. Nana Syaodih Sukmadinata (2007: 72) states that "Descriptive research is a form of primary research, this is indicated to describe or depict phenomena that exist, both phenomena that are natural or human engineering". Judging from this type of research, the study classified a correlational study because this study is aimed at determining the direction and magnitude of the relationship between the variables studied.

Opinions Gay (1982), quoted from the book Research Methods of Education states that "research is a correlational research study that involves collecting the data in order to Determine Whether and to what degree a relationship exists between two or more quantifiables". That is a correlation study is a study involving the collection in order to determine whether there is a relationship and degree of relationship between two or more variables. Characteristics of the study the correlation in this study are:

- a. This study did not control the manipulation and variable.
- b. Variables measured in intensive setting (environment) evident in the University of Surakarta Tunas Pembngunan
- c. Research to obtain the degree of relationship.

The degree of relationship as the correlation coefficient by the mathematical symbol (r). Relationships r variable is declared in the price of which has a value of -1 to $+1$. The price $r = -1$ or $+1$ indicates a perfect correlation between variables, while the price of $r = 0$ means that the relationship between the variables do not have a relationship with one another.

3. Population and Sample Research

Population is the research element of life and living together and teorities become the target of research results. The population may be described as the whole subject of research (Suharsimi Arikunto, 2006: 130). Hadi Sutrisno (2000: 222) explains that "sampling techniques (sampling) is a method or technique that is used to take samples". Samples are partly or representative of the population studied. In this study researchers used the students of Sports Coaching Education Department.

4. Data Collection Techniques

The tools used for data collection in this study was a questionnaire. Questionnaire is a list of questions written detailed and comprehensive that should be answered by the respondents about their personal or things known (Masidjo, 2007: 70). Nana Syaodih Sukmadinata, (2006: 219) explains that the questionnaire or questionnaire is a technique or way of collecting data indirectly (researchers did not ask and answer directly to the respondents).

5. Data Analysis Techniques

Hypothesis testing using a simple correlation. Test simple correlation with the formula:

$$r_{yi} = \frac{n(\sum X_i Y) - (\sum X_1)(\sum Y)}{\sqrt{[n(\sum X_i^2) - (\sum X_1)^2][n(\sum Y_2) - (\sum Y)^2]}}$$

Boediono (2004: 272)

Testing criteria:

$r_{yi} > r_{tabel}$ it means that the X and Y there is a significant relationship.

Test significance of X and Y by the formula:

$$t = \frac{r_{xy} \sqrt{n-2}}{\sqrt{1-r_{xy}^2}} \sim t(n-2)$$

Boediono (2004: 272)

RESULTS AND DISCUSSION

1. Description of Data Research

a) Instruments GAD (Generalized Anxiety Disorder) in MENTAL AND EMOTIONAL disorders by Tim S3 UPI BK (2015)

Description of research data about generalized anxiety disorder GAD (Generalized Anxiety Disorder) in the mental and emotional disorders were obtained from survey respondents. The results were analyzed based on the scoring criteria in Table 1, below:

Table 1. Criteria Instrument GAD (Generalized Anxiety Disorder)

Score	Description
0 – 12	No experience, is able to overcome by themselves
13 – 25	Lightweight, assisted by counselors and coaches
26 – 38	Medium, assisted counselors and coaches in cooperation with psychiatrists for clinical intervention
39 – 50	Weight, assisted by counselors and coaches in cooperation with psychiatrists for clinical intervention

Score Description:

0-12 No experience, is able to overcome by themselves

13-25 Lightweight, assisted by counselors and coaches

26-38 Average, assisted by counselors and coaches in cooperation with psychiatrists for clinical intervention

39-50 Weight, assisted by counselors and coaches in cooperation with psychiatrists for clinical intervention

The level of symptoms of generalized anxiety disorder GAD (Generalized Anxiety Disorder) in the mental and emotional disorders arising from the survey respondents (students PPL) is (Table 2)

Table 2. Symptoms of GAD (Generalized Anxiety Disorder) and Remarks

No	Skor	Ket	No	Skor	Ket
resp_01	7	No	resp_21	3	No
resp_02	9	No	resp_22	20	mild
resp_03	19	mild	resp_23	11	No
resp_04	6	No	resp_24	10	No
resp_05	3	No	resp_25	4	No
resp_06	6	No	resp_26	9	No
resp_07	10	No	resp_27	2	No
resp_08	1	No	resp_28	2	No
resp_09	9	No	resp_29	3	No
resp_10	3	No	resp_30	2	No
resp_11	5	No	resp_31	2	No
resp_12	3	No	resp_32	3	No
resp_13	3	No	resp_33	1	No
resp_14	8	No	resp_34	2	No
resp_15	13	No	resp_35	0	No
resp_16	2	No	resp_36	5	No
resp_17	4	No	resp_37	9	No
resp_18	8	No	resp_38	4	No
resp_19	19	mild	resp_39	7	No
resp_20	9	No	resp_40	9	No

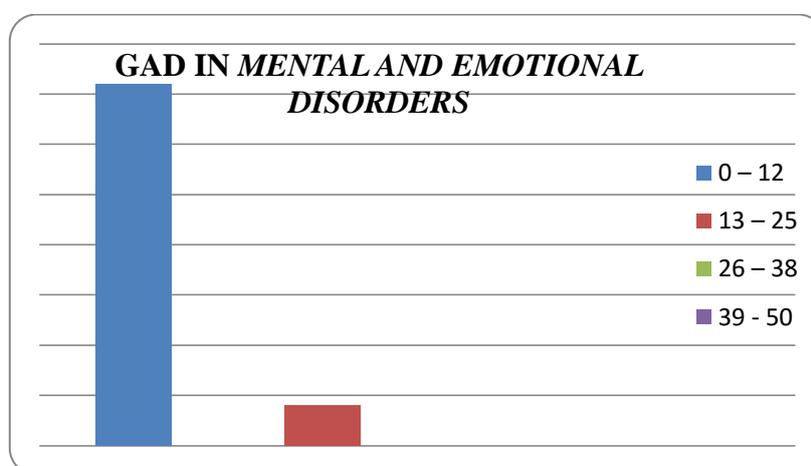


Figure 1. Graph Symptoms of GAD (Generalized Anxiety Disorder) and Remarks

From Table 2: Symptoms of GAD (Generalized Anxiety Disorder) in the mental and emotional disorders) and Specification can we get the data: indicators of GAD (Generalized Anxiety Disorder) which indicated respondents were in the range of low, that score indicators that appear most low 0 and 20. Criteria highest score of the respondents, 0.1 or 10% or 4 respondents experience mild symptoms that can be helped counselors and coaches. Respondents who did not have GAD (Generalized Anxiety Disorder) 0.9 or as much as 90% or 36 respondents.

b) Instruments Learning Independence

Independent learning students who take part in PKO PPL. From the description of the research data we can know the independence of student learning are as follows:

Table 3. Independence of learning and Description

No	Skor	Ket	No	Skor	Ket
resp_01	166	medium	resp_21	175	high
resp_02	204	high	resp_22	208	high
resp_03	177	high	resp_23	189	high
resp_04	187	high	resp_24	192	high
resp_05	179	high	resp_25	187	high
resp_06	203	high	resp_26	176	high
resp_07	175	high	resp_27	202	high
resp_08	191	high	resp_28	204	high
resp_09	182	high	resp_29	196	high
resp_10	181	high	resp_30	213	high
resp_11	181	high	resp_31	183	high
resp_12	202	high	resp_32	192	high
resp_13	179	high	resp_33	196	high
resp_14	219	high	resp_34	196	high
resp_15	186	high	resp_35	208	high
resp_16	187	high	resp_36	195	high
resp_17	185	high	resp_37	196	high
resp_18	179	high	resp_38	199	high
resp_19	188	high	resp_39	197	high
resp_20	228	high	resp_40	198	high

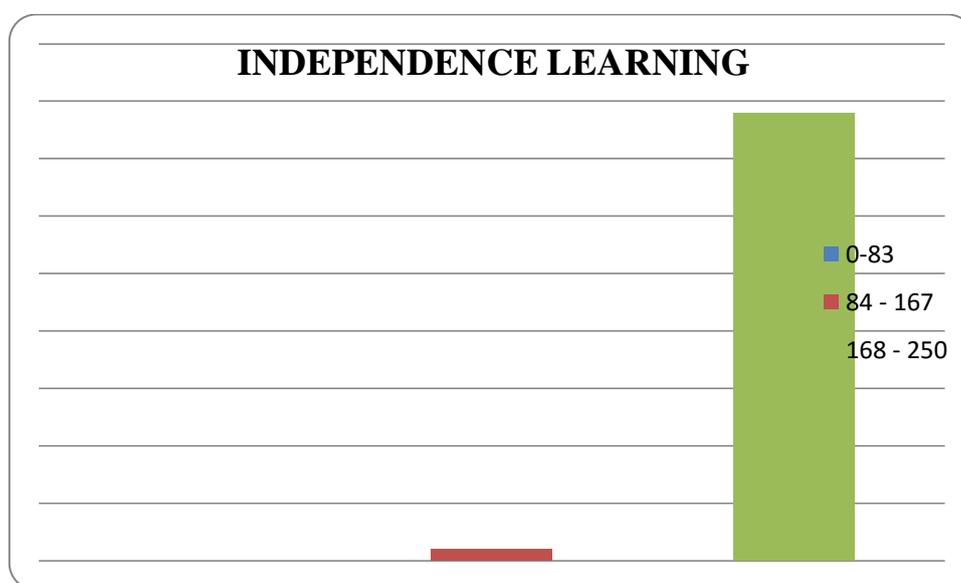


Figure 2. Graph Independence Learning

From Table 3: Independence Learning and description can we get the data: 1 respondents have moderate learning independence (0,025 or 2.5%) and 39 respondents have a high learning independence (0.975 or 97.5%).

c) Data Analysis

Table 4: Symptoms of GAD (Generalized Anxiety Disorder) and Independence Learning

No	GAD	KM	No	GAD	KM
resp_01	No	medium	resp_21	no	tinggi
resp_02	No	high	resp_22	no	tinggi
resp_03	mild	high	resp_23	no	tinggi
resp_04	no	high	resp_24	no	tinggi
resp_05	no	high	resp_25	no	tinggi
resp_06	no	high	resp_26	no	tinggi
resp_07	no	high	resp_27	no	tinggi
resp_08	no	high	resp_28	no	tinggi
resp_09	no	high	resp_29	no	tinggi
resp_10	no	high	resp_30	no	tinggi
resp_11	no	high	resp_31	no	tinggi
resp_12	no	high	resp_32	no	tinggi
resp_13	no	high	resp_33	no	tinggi
resp_14	no	high	resp_34	no	tinggi
resp_15	mild	high	resp_35	no	tinggi
resp_16	no	high	resp_36	no	tinggi
resp_17	no	high	resp_37	no	tinggi
resp_18	no	high	resp_38	no	tinggi
resp_19	mild	high	resp_39	no	tinggi
resp_20	no	high	resp_40	no	tinggi

The hypothesis there is a positive and significant relationship between mental and emotional disorders (GAD) with independent learning by students PKO correlation analysis technique. Based on calculations by the formula product moment correlation was obtained $r_{hitung} = 0,526$. Hasil these calculations were consulted with r table with $N = 40$ and a significance level of 0.05 was obtained $r_{tabel} = 0.312$, for $r_{hitung} > r_{tabel}$ or $0,526 > 0,312$. The conclusion that the correlation coefficient obtained is no relationship between $r_{hitung} = 0.526$ greater than r table = 0.312 or $0.526 > 0.312$. From the results of hypothesis testing above it can be concluded that the hypothesis there is a positive and significant relationship between mental and emotional disorders (GAD) with PKO student learning independence proved to be true.

CONCLUSION AND SUGGESTION

Based on the research that has been said above, we can conclude hypothesis testing as follows: there is a positive and significant correlation between mental and emotional disorders (GAD) to the independence of student learning PKO based on correlation analysis technique, in which the correlation coefficient obtained is no relationship between $r_{hitung} = 0.526$ greater than r table = 0.312 or $0.526 > 0.312$.

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SWIMMING LEARNING MODEL USING ROPE AS AID FOR BEGINNERS

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Abstract

Swimming is a sport much favored by many and one needs to have courage to be able to swim. In swimming lessons in schools, there are still many students who are afraid to swim for fear of drowning and other reasons. The key to be able to swim is being able to float. When one can float, he or she can easily make any swimming movements. Based on observations, a lot of kids want to try to swim, but are hampered by several obstacles, such as fear of drowning and so forth. This makes a child unwilling to swim. This also happens to students who attend classes on swimming pools. Out of the total 82 students in this class, 23 students could not swim and are afraid to carry out activities such as gliding, dipping heads and diving in shallow areas. Based on this background, the research problems are: Is the form of learning to swim using rope as aid can improve a beginner's ability to swim? The purpose of this research is to improve the learning ability to swim through a learning model using rope as aid. Based on the results of research and discussion, we can conclude that there is an improvement in the swimming learning process with the help of a rope. Improvement in the learning through the method of swimming with rope as aid in the students of State University of Sriwijaya, Palembang can be seen from their improved learning process and participation. There is a significant improvement in the outcomes in the three learning cycles that have been prepared, namely cycle one, by which the students apply the learning method of floating with rope as aid; cycle two, by the method in which they swim using rope as aid, and cycle three, the method in which they make swimming motions freely without any aid. Change occurs in the application of the swimming method of using rope as aid in which students who initially could not swim can eventually swim.

Keywords: Swimming Learning, Help Rope

ANALYSIS THE DEVELOPMENT OF ARCHERY ACHIEVEMENT ON PERPANI (ARCHERY ASSOCIATION OF INDONESIA) KLATEN DISTRICT

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Abstract

This research aims to know the achievement development of archery sport in Perpani Klaten. Up to now, Klaten is known as a storehouse of talented archer who dominate archery branch in the national championship and started competing in international championships such as the Sea Games and OPEN. From some of the achievements of Archery athletes, Klaten is not as bright as supporting factors the training of the athletes. There are still weaknesses that have not been considered by the local government in Perpani Klaten in coaching achievement. This research is qualitative and descriptive research using a qualitative approach, observation, analysis of document and interview. Data sources in this research are the board of KONI, board of Perpani, coaches, and athletes in archery Klaten regency. The result of this research is associated with the development of perpani Klaten achievement that includes organizational structure, funding, coaching accomplishments, and infrastructure. Method which has been used in the execution of achievement Perpani Klaten has been very good but there are still weaknesses that need to be repaired and enhanced in getting achievement. Based on this research, research concluded that: the development of archery achievement in Perpani klaten is been very good. It can be seen from the organizational structure, funding, coaching achievements, as well as the infrastructure that has been investigated

Keywords: Achievement Development, Archery Sport, PERPANI Klaten district

INTRODUCTION

Since ancient times, sport is one of the ways to maintain the existence of human civilization. As we know that at the time of imperial rule in China, sports such as archery, swimming, running and horse riding is highly recommended because it can increase the durability of the physical and psychological capabilities so soldiers can always win every bout ordered by the emperor. By sharing the victory obtained to expand the territory it creates a powerful civilization of the era. The above example is one example of the sport's involvement in building the physical and the human psyche in order to improve the combat capability of soldiers, but at the present time the sport has the function to build the whole man. The intention to build the whole man is when people exercise regularly not only the physical aspects of the evolving aspects of psychological, physiological, and social.

Archery is an activity using a bow and arrow. History shows that the archery there since 5000 years ago. The first time it was used for hunting and growing as a weapon in the battle, and until recently a precision sport. Broadly speaking, no one can be sure since when humans in Indonesia using a bow and arrow in his life. But pay attention to the story puppet prototype, it is clear that the history of bows and arrows in Indonesia is quite long, for example, figures such as Arjuna, Sumantri, Ekalaya, Dipati karno, Heroine, and Dornaas archery coaches were famous in the story of the Mahabharata.

If PON I as the national sport renaissance era restriction, then archery took part in the archery national sports renaissance era. Archery is a sport that has always competed in the history of PON. Officially Archery Association of Indonesia (Persatuan Panahan Indonesia-Perpani) was formed July 12, 1953 at the initiative of Yogyakarta Sri Paku Alam VIII. The first new national archery championship held in 1959 in Surabaya. Sri Paku Alam VIII become as chairman of Perpani. It was almost 24 years from 1953 to 1977. With the formation of the central organization of Perpani, then the first step is to become a member of FITA (Federation Internationale de Tir A L'arc).

FITA organization is established since 1931, Indonesia was accepted as a member of FITA 1959 in Oslo Norway. Since then archery in Indonesia thrive. At that time, Indonesia was known as type of traditional archery with the characteristics of archery style seating and instinctively, and also kind of round recurve which is kind of an international round with the characteristics using a tool from abroad a more modern style archery stand. In Indonesia it self, in addition to having athletes silver medalist 1988 Seoul known trio heroine, we also have known the name of nation that M. Furqon. H had been a member of the international archery referee in 1990-2002 periods. Archery is a traditional sport that has long been known to the public, but rapid development is not like other sports badminton, football, basketball, and so on. This is due to many factors, among others, lack of marketing or dissemination of the branch, limited infrastructure, and expensive equipment archery.

Up to now, Klaten is known as a storehouse of talented archer who dominate archery branch in Provincial Sports Week (Porprov) Central Java and able to compete in the event the National Sports. Klaten archery athletes who excel level of SEA Games in Malaysia in 2001 were Iko and Esti in the Sea Games and World Archery Thailand. There are many more levels of Porprov, POMNAS, Championship, PON and others that klaten archery athletes excelled in the championship. From some of the achievements of athletes Archery Klaten is not as bright as the factors supporting the training of the athletes. There are still shortcomings that have not been considered by the local government to Perpani Klaten to take care of the clubs of archery, archery athletes in fostering achievement. On the other hand the existence of Perpani also not so known to the people of Klaten, so it is mainly generations who want to excel through sport lines. In other words, it is minimal of government oversight, but a maximum of achievement. Thus the authors sought to examine the development of achievement Perpani Klaten. For that I am interested in doing research with the title "Development of Performance Analysis Archery In Perpani Klaten".

MATERIAL & METHOD

This research is qualitative and descriptive research. The underlying reason is because in this research took the management application situation problem in Perpani athletes in archery of Klaten, presented descriptively, not a statement of the number and not in the form of numbers. "Qualitative research is research that produces scientific work using descriptive data in the form of words written or spoken with people or behaviors that can be observed in the group of people or human status, an object, and a cultural group" (Lexy J. Moleong 1991: 3). In the qualitative study, the researchers stressed the record that describes the actual situation to support the presentation of data. So in seeking understanding, researchers attempted to analyze the data in the form of words and images that have more value than number.

Descriptive method can be defined as problem-solving procedures examined, the object of research by describing the situation at the present time based on the facts as they emerge. The

descriptive method focuses on the discovery of the facts (Fact finding) actual state without artificial. As said by Koentjaraningrat (1983) ", that descriptive research brings the picture as carefully as possible about the individual, the fact, or the symptoms of a particular group, and sometimes not." Oftentimes, the direction of its research also is helped by the result of previous studies. The purpose of the research was to confirm the hypotheses, so that eventually can help in the formation of new theories or strengthen old theory.

Qualitative research is descriptive research by taking the problems by centralizing the meaning and quality of data that exist in the present by describing the object that becomes the subject matter by collecting, compiling, classifying, analyzing and interpreting.

a. The data used in this study include

1. Population

One objective of the researches is to explain the nature of the population. Population is a collection of subjects, variables, concepts or phenomena (Morissan M.A, 2012: 109). We can examine every member of the population to determine the nature of the relevant population. The population in this study is the athletes, coaches, and administrators of Perpani Klaten regency.

2. Sample

The sample is part of a population that represents the entire members of the population that is representative (Morissan M.A, 2012: 109).

3. Respondents

Respondents came from the word "response" or responders, ie those who responded. In the study, respondents were people who provide information about facts or opinions (Suharsimi Arikunto, 2002: 122). Respondents were defined in this study include athletes, coaches and administrators of the organization. The statement was delivered orally, ie: when answering interview.

4. Sport facilities

The sport facilities are all of the sport infrastructures that include all of fields and sport buildings and equipment to implement the program of sports activities. In this case the facilities already include facilities and infrastructure in the form of a field to practice archery, equipment and tools that support the implementation of development activities archery.

5. Documents

The document means that the goods in writing, in the form of archives or images that are related to aspects of coaching in archery achievement Perpani Klaten regency.

RESULT

1. The Leadership and Management of Perpani Klaten District

Organizational structure of Perpani Klaten refers to the area of central Perpani to region. Mean while for its management is chaired by former athletes and former observers archery / archery enthusiasts. In the selection of good stewardship of the area until the area is based on consensus areas. In the past when PPLP Archery still on Klaten in Central Java, it is more advantageous of Perpani Klaten in taking care of archery, for staying abreast PPLP management Archery Java so it helps Klaten have a seed athletes in archery achievement.

2. Funding Perpani Klaten District

For an organization, where a fund is needed especially sport organization in coaching achievement. In Klaten it self, Sport fund will gigen by the government to the KONI. In 2016 ± 1 billion from the budget for all sports, which is far from the submission of the KONI plan to meet the needs of all sports. As for distribution to a sports according to the filing plan development activities and achievements of the game that will be followed. The size of the funds obtained depends on the activeness (interview, January 15th, 2017 Mrs. Eka / Management of KONI Klaten).

Perpani Klaten in meeting the funding requirements have not been fully fulfilled, first in the Central Java PPLP Archery has a foster parent where they venture funds in order to achieve a feat not hampered. Board Perpani Klaten also has a background portion businessman, who helped to lack of funds in sufficient archery achievement. To ideally a sports organization should collaborate with entrepreneurs besides government budget to make ends meet. In the era of the leadership of Mr. Ardhana begin to experiment with an open management system, which is to obtain additional funding comes from the bonus pieces athletes who excel.

3. Development of Achievement in Perpani Klaten District

Coaching with the exact way will develop athlete's potential to the fullest. To develop the necessary coaching archery achievement of integrated, effective, and sustainable and starting at an early age or younger age. While coaching at Perpani klatenis in accordance with good coaching athletes, and assume the role of the coach is very influential in promoting the achievements of the athletes, so the coaching is done not only on board but also from the coach. There was a coaching change after the emigration PPLP athletes Archery Central Java.

- a) Coaching of PPLP athlete of central java is more complete, so Perpani klaten tried to imitate the coaching.
- b) Perpani Klaten builds the School of Archery are adopting from emigration PPLP of Archery-central Java.
- c) Coach of Archery who formerly coached the athletes of Archery PPLP of central Java, can now focus on training athletes in archery Klaten.
- d) Perpani Klaten makes new penetration in choosing young coaches to assist coaching achievements.

a. Role of Perpani Klaten district in coaching achievement of archery in Klaten District:

- 1) Maintain the number of coaches and athletes.
- 2) Establishing trainers to licensed high.
- 3) Establish an archeryschool.
- 4) To finance all the needs when athletes follow the matches outside the city.

b. Roles of Perpani Klaten District before and after joining the match for athletes:

- 1) Conductingthe events and scoring together for athletes.
- 2) Selecting athletes with multiple stages.
- 3) Holding a character building for mental training of athletes.
- 4) Giving awards to athletes who excel through KONI.

4. Infrastructures of Perpani Klaten District

Within the sport, infrastructure is crucial in fostering achievement, which will move his training program. Means are tools and equipment required athletes, while infrastructure is a support that can consist of a building or non-construction. All the sports facilities and infrastructure certainly require ideal or standard in supporting the process of sports achievements.

Klaten archery athletes average which already have their own tools as required, although the archery tools including expensive items are from hundreds of thousands to tens of millions. While Perpani Klaten also provided infrastructure for supporting the athletes. Facilities and infrastructure owned Perpani Klaten such as:

- a) Field archery out door grassy (all distances).
- b) Field archery in door (construction).
- c) Target arrow.
- d) Bearing the target.
- e) Arc.
- f) The arrow.
- g) The protective sleeve.

DISCUSSION

From the data collected, and then arranged by type, so it was done the discussion. Here is the result of the discussion on Perpani Klaten, as follows:

1. The Leadership and Management of Perpani Klaten District

Archery sport branch in Indonesia is under the auspices of the Perpani organization (Persatuan Panahan Indonesia) from the central to local level. Organizationally, Perpani Klaten has both the elements of the organization. The elements of the organization have the task of each according to his office. As for management, especially data collection track record of athletes is not maximized, because researchers when retrieving the data of Perpani Klaten athletes at the office is not yet complete. So the researchers conducted manually collecting data in the field of athletes. Incomplete data held Perpani Klaten because at the time, its managers are also listed in PPLP of archer in central Java, so the data track record in PPLP Archery athlete of Central Java. The elements of the organization in Klaten Perpani own management, sources of funding, coaching accomplishments, and infrastructure.

2. Funding of Perpani Klaten District

In Klaten it self, fund of sport in which the government of klaten gives funding to the KONI in 2016 from local budget \pm 1 billion from the budget for all sports, which is far from the submission of the KONI plan to meet the needs of all sports. As for distribution to a sports according to the filing plan development activities and achievements of the game that will be followed. The size of the funds obtained depends on the activeness. Perpani Klaten in meeting the funding requirements has not been fully met. Board Perpani Klaten also has a background portion businessman, who helped to lack of funds in sufficient archery achievement. To ideally a sports organization should collaborate with entrepreneurs besides government budget to make ends meet. In the era of the leadership of Mr. Ardhana begin to experiment with an open management system, which is to obtain additional funding comes from the bonus pieces athletes who excel. So for Perpani Klaten funding system has been very good, because trying to be independent and seek a way out on issues of lack of funds.

Development of Achievement of Perpani Klaten

Coaching achievement Perpani Klaten have implemented very well, which can be seen from the steps that have been implemented. From archery achievements obtained, aged 13-18 years old is the age of the athlete that many medals in national championships. Age is the age where athletes in a period of coaching accomplishments. The success coaching in archery achievement klaten reliable also for their coach, one of which Mr. Sigit HS, S.Pd former archery coach Sea Games. Another breakthrough is set up with management schools such as archery Archery PPLP Java and recruiting young coaches who also still an archery athlete Klaten. Perpani Klaten are still fostering the traditional round and commercialize traditional round was held back in the championship PON which traditional round archery athletes warehouse in Klaten. Championship held in procurement has been good as always held sports archery in POPDA and scoring activities every 3 weeks to determine the ability of athletes in Klaten. Perpani Klaten will also appreciate the athletes when scoring by giving awards for the best value.

3. Infrastructures Perpani Klaten District

Perpani Klaten already has a very good infrastructure, such as views of the infrastructure that is field archery is really special for field archery. In other areas there is still the archery field is still used in various sports, so as to put on the field should be the turn of the time. Fields Perpani Klaten have all distances to practice, even worthy to wear the national and international championships. In addition to the field out door that grassy field, Perpani Klaten is in the process of building more courts are courts in door, so it will have a complete field.

Klaten archery athletes average already have their own tools as required, although the archery tools including expensive items are from hundreds of thousands to tens of millions. While Perpani Klaten also provided tools for supporting the athletes and beginners. Such facilities such as: target arrows, bearing targets, bows, arrows, protective sleeve.

CONCLUSION

Based on the results of research on the Development of Achievement Perpani Klaten, overall it can be concluded as follows.

1. Perpani Klaten District organization is good in which it has elements, such as: management and organizational management, basic regulation, fund budget, and working plan. From all of the elements, they have been implemented, where as the management of Perpani Klaten District is good enough, where they make serious efforts to facilitate athletes to excel.
2. Funding held Perpani Klaten District is very good. It can be seen in the implementation of activities in the championship of archery. Athletes can follow all of the events without experiencing funding problems, which management Perpani Klaten District always trying to overcome them.
3. Development of the achievement held by Perpani Klaten District is very good, because it can be seen from the implementation of the stages of development that are implemented getting problem, nurseries, as well as the selection of excellent athlete. The role of the coach that is needed to improve the technical skills and increased scores of athletes is also very good. Judging from the achievement is also very good at the national level where the highlight accomplishments are in the age of coaching achievement of athletes.
4. Facilities and infrastructures owned Perpani Klaten District is very good, because it has had national standard field and also in the processing of building an indoor archery field is still rare in

Indonesia. Athletes also averaged have own personal archery equipment and Perpani Klaten District also provides facilities or equipment that can be utilized as much as possible.

IMPLICATION

Through this research, it can be used as materials and resources on the analysis of achievement archery in Perpani Klaten District so that it can be used as a written document that can be useful for anyone who needs and add to their scientific work. On the other side, it can be used as a guide and a comparative material and inputs to the other regions. And It can also be used as correction material to other areas to improve the management and development of existing ones.

Indirectly, this research also gives knowledge about archery sport. Especially, sport that is related to Perpani Klaten District, namely: History, Management, financing, coaching achievement, and infrastructure. As for the presence of factor Perpani Klaten District obstacles encountered in this research, it can be prioritized proposal to the parties concerned to pay more attention to archery in Klaten District.

SUGGESTIONS

Based on the result of research of Perpani Klaten District, so it can be raised some helpful suggestions. The suggestions are as follows.

1. For boards of Perpani Klaten District, expected an increase of governance more structured management, especially in the development of the athlete's performance record which had been running well in management of PPLP of Archery in central java.
2. To finance Perpani Klaten District, expected to continue to seek the private sector to work together to meet the needs of the implementation of the action plan in Perpani Klaten District achievement which funds from the Regional Government are still far from the proposed budget.
3. For the achievement coaching of Perpani Klaten District, it is expected to be much higher, especially maintaining the availability of archery athletes who excel where other areas have been balanced enough strength in archery achievement.
4. For facilities and infrastructure of Perpani Klaten District, it is expected to be upgraded to international standard so that the athlete's performance archery of Perpani Klaten District can compete in international level events.

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THE DIFFERENCE OF LEARNING APPROACH INFLUENCES TOWARDS SHOOTING THREE POINT OF BASKETBALL JUDGING FROM THE BASIC MOTION SKILLS

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Abstract

This study aims to find out, (1) the difference influence between approaching methods of repetitive and progressive learning towards the shooting three-point in Basketball. (2) The difference of basketball shooting three points at students who have low and high of basic movement skill. (3) The possibility interaction exists on the methods of learning approaches and basic movement skill against basketball shooting three points. Study methods used in this study is an experimentation method using 2 x 2 factorial designs. The technique of data analysis used in this study is a technique of variants analysis (ANOVA) design factorial 2 x 2 at $\alpha = 0.05$. The results showed that, (1) $F_{analysis} = 1.30 < F_{table} = 4.15$ with level of significance of 5%. Thus the result of the zero hypotheses (H_0) is received. (2) $F_{analysis} = 36.90 > F_{table} = 4.15$. Thus the result of the zero hypotheses (H_0) is denied. (3) $F_{analysis} = 7.06 > F_{table} = 4.15$. Thus the result of the zero hypotheses (H_0) is denied. (1) There is no significant difference between the approaches of repetitive and progressive learning against the results of three point shooting skills at the basketball game. (2) There is a significant difference in the skill of learning results of three-point between the students who have high and low basic movement skill. (3) There is a significant influence of interaction between the difference of learning and level of movement skill toward learning the result of three points shooting on the basketball game.

Keywords: Repetitive learning approach, a progressive learning approach, shooting three points.

INTRODUCTION

The basketball game is a game that needs a velocity, a player is required always moving while they do basic techniques, try to enter the ball to the rival's ring as many as possible without getting interference from the rival and try to keep their ring from rival's attack. Enter the ball into the ring can be done with shooting. According to Prusak (2007:61) "there is some kind of shooting such as lay-up, free throw, three points shot and jump shot."

The basic technique in basketball which has major contribution to support victory in the game is shot three points or shooting three points. Shooting three points (shooting three points) is the most widely-shot produce points compared to another shot such as the free throw and layup in the basketball game. However from the tactics point of view, shooting three points is expected attack that can deliver score or points from a distance without going closer to the rival's defences. "Shooting is the most popular basic skills for players of all ages and levels" (Donovan, 2010:37). Payne (2013) argues that "shooting the basketball is one of the skills in the basketball sport and it can be increased during doing the exercise". While according to Kosasih (2008:46) says that "the technique of shooting (the shot) was started from the position of the legs are ready (triple threat position), the target is the ring and should focus our gaze to the ring, hold on the ball with steady and widening the fingers comfortably, supporting hand is used only to maintain the balance holding the ball before the

ball is thrown towards the basketball hoop". In doing the shooting three point according to Krause, et al (1936:74) "there are some terms related to shooting techniques in basketball that need to be introduced to the players from early, like B E E F (Balance, Eyes, Elbow, the Follow Through)".

The fact that occurs today, the teachers are faced with time limitations as well as the inadequacy of the equipment that inappropriate to the number of students who will be trained while there are a lot of the material will be trained to the students. This problem is certainly one of those due to the limitations of the skill and quality of the basketball teacher or coach in managing and modifying the approach to learning. The learning approach is one way to improve sports achievements. The selection of the learning approach should also consider the timing of the skill of facilities and equipment needed. The necessity for an efficient learning approach in shooting three-point exercise was troubled by some of the reasons: "first, the efficiency to save the time, energy, or cost. Second, the efficient methods will allow the players to master a higher skill level "(Lutan, 1988:26).

Learning approach is an approach way to the presentation of learning material that is systematically done to encourage the achievement of the teaching objectives in a process to make people learn. According to Hidayatullah (2009:161) "in order to the learning can be fun for the learners, then the teacher should be good and creative in a package the material so that learners interested in learning, one of the way that can be done by the teacher is doing various learning approach. Nadisah (1992:96) said that "learning an approach will appropriate when it can increase the effectiveness and efficiency". Learning the process, besides starting with a good plan, supported with learning environment with excellent communication is also have to be supported by the strategy development that able to make the students learn. According to Majid (2008:111) "management of learning is a process of organising interactions with educators, learners and learning resources in an environment of learning, good learning should be able to deliver successful experiences to participants". According to Hidayatullah (2009:85), successful experience in question is "the existence of a feeling of fun and boast about learners as a result has been successfully completed or solves the problems".

Learning approach is one of basic learning strategy in teaching and learning process, it is used to achieve the goal. "The successful of goal accomplishment that is specified by the skills of the teacher in providing guidance and the observation of the movement through the stages of perception, preparedness, social interactions, habitual movement, complex movement, and the adjustment to the movement pattern and creativity". (Winkel, 1999:44). Learning/exercise in basketball games aims to make students can master the shooting three point skills; this movement skill could be interpreted as the skill to perform the duties of a particular movement with good and right. The better mastery of movement skills, then the implementation will be more efficient. Movement skills are one of movement categories that require coordination and control of the body as a whole or part of the body. Movement skills are a movement that meets certain criteria. Superman (2000:56) States that there are three skilled movement indicator that is, "1) is effective, means that appropriate with the desired product, 2) efficient means in accordance with the process that is supposed to do, 3) Adaptive, means that accordance with the situation and environmental conditions where movement is done".

The right learning approach in the learning process of playing basketball is should be able to engender a sense of pleased at students also provide opportunities for the teachers in utilizing

existing facilities to the maximum so that there is no reason for teachers to say that there is the delay in learning process is due to the less of facility and equipment sport available in school. The type of learning approach that also used to shooting three point learning process in basketball, among others is a repetitive and progressive method. This study will discuss skill learning using repetitive and progressive method more detail. "Repetitive method is a learning method which students learning some section until they mastered then combine it with another new section and they learned and practice it together until they mastered it. This procedure is followed by each remaining section until all section can be practice as a whole"(Christina & Corcos, 1988:77). Repetitive learning approach learns every new movement part, directly coupled to the element movement that has been owned before, only through explanation or example without mastery of movement first. In this method, students are given a new element of the technique of shooting three points in basketball, then directly coupled to the element movement that has been owned and taught before. According to Rooijackers (1990:19) that is "the repetition of information would strengthen the skill of the student to remember it".

Progressive learning approach is the way that is done to minimalize the problem of learning activities that are not transferred to the whole. Ma'mun (2000:91) says that "in the progressive method, the complex skills are presented separately, but these activities are integrated into the larger part and whole." According to Magill (2001:34) that "in the progressive method students is practising the first section as an independent unit and then studied the second section separately and then the first and second section together, so that each part of an independent progressively joined in larger part." According to Christina & Corcos (1988:76) that "the progressive method is a method used in learning where students learn one section until mastered then learn another section until further mastering, practised together until it's mastered, then the third section are taught individually after the part was conquered. The third section combined and practised together until it's mastered".

The purpose of this study is, to know the difference in effect between methods repetitive and progressively to shooting three point basketball, to know the difference shooting three point basketball between students who have the ability to move the base low and high, to know is there any interaction effect between methods of learning and motor skills base the three-point shooting basketball.

The benefits of the research study is, it can give and add insight and knowledge of sports to researchers about the effect of learning approaches (methods repetitive and progressive) of the three-point shooting basketball. Can increase the three-point shooting basketball. Contributing knowledge as consideration to the teachers of physical education. Regarding the importance of applying appropriate learning approach in an effort to increase the three-point shooting basketball. Contributing to knowledge skills as consideration to the teachers, coaches and trainers about the importance of considering the capability of basic motion to increase three-point basketball shooting skills.

METHOD

Study methods used in this study is an experimentation method using 2 x 2 factorial designs. The sample used in this study is as much as 36 boy's participants from basketball extracurricular of SMA Negeri 4 Surakarta. That participant then divided into two groups, group one is consist of 18

person with high basic movement and 18 people from the low basic movement group. The next group of basic high and low movement given instructional approach with progressive treatment (9 people high basic movement and 9 people low basic movement) and repetitive learning approach (9 people high basic movement and 9 people low basic movement). To know the success of the process of learning approaches to increase shooting three points the studyer give pre-test, treatment and post-test to the participant. Data collection techniques used were a test of mobility by using the barrow of motor ability test of Johnson Nelson and test three point basketball.

The technique of data analysis used in this study is variants analysis technique (ANAVA) factorial design 2 x 2 at $\alpha = 0.05$. If the value of F is obtained (F_o) then the significant analysis is continued with the range test hewman-keuls. To meet the assumptions of the ANOVA technique, the normality test (Test Lilliefors) and homogeneity of variance test (to test Bartlett).

RESULTS AND DISCUSSION

Description of the data analysis of learning outcomes basketball three-point shooting is done in accordance with the groups being compared are presented as follows.

Table 1. Description Data Results Pre-test and Post-test Learning Shooting Three Point Basketball Based Learning Approach

Perlakuan	Tingkat Kemampuan	Statistik	Hasil Pre-test	Hasil Post-test	Peningkatan
Pendekatan pembelajaran progresif	Tinggi	Jumlah	102	141	39
		Rata-rata	11,33	15,67	4,34
		SD	2,00	2,50	0,50
	Rendah	Jumlah	69	114	45
		Rata-rata	7,67	12,67	5,00
		SD	2,18	2,50	0,32
Pendekatan pembelajaran repetitif	Tinggi	Jumlah	105	171	66
		Rata-rata	11,67	19,00	7,33
		SD	2,35	2,50	0,15
	Rendah	Jumlah	66	102	36
		Rata-rata	7,33	11,33	4,00
		SD	1,58	2,50	0,92

Progressive learning approach and repetitive learning approach gives different effect on the three-point shooting skills enhancement at the basketball game. If the group of students who study with a progressive approach and repetitive approach compared, it can be seen that the treatment group had a repetitive approach of learning by increasing skills in the game of basketball shooting higher than in the study group with a progressive approach.

The group of students who have high and low motor skills also have an increased three-point shooting skills on different basketball game. If the group of students who have high and low motor skills are compared, it can be seen that the group of students who have a high motor skills have an increased three-point shooting skills in the game of basketball is higher than in the group of students who have the ability to move lower.

Table 2. The result from two line ANOVA the using learning approach and basic movement skill in basketball Shooting Three Point.

Variants Source	dk	JK	RJK	F _o	F _{table 5%}
A (learning approach)	1	9	9	1,30	
B (basic movement skill)	1	256	256	36,90	4,15
AB (interaction)	1	49	49	7,06	
Dalam group (D) Residue	32	222	6,9375	-	-
Total	36	536	-	-	-

1. The difference in the influence of Progressive and Repetitive Learning Approach toward Basketball Shooting Three Point Skills Learning Outcomes.

The test result showed that the value of $F_{\text{analysis}} = 1.30 < F_{\text{table}} = 4.15$ to a significance level of 5%. Thus the result of the zero hypotheses (H_0) is received. It means that there is no significant difference between learning by using repetitive and progressive approach.

Based on first hypothesis testing it turns out there is no significant difference between the Groups of students who get a progressive learning approach and a group of students who get repetitive learning approach, to increase their skill to do shooting three points in a basketball game. The difference in the approach used during the learning is affected to enthusiasm, motivation, the creativity of different students, so as to obtain results in the mastery of movement skills shooting three points. The Group provided the treatment learning shooting three points with progressive and repetitive approaches have a different influence on the three point shooting skills improvement in a basketball game. The group who got the treatment of repetitive learning approach turns out to have a shooting skill enhancement is slightly better than the group that received the treatment of learning with the progressive approach.

2. The difference result of learning skill shooting three points on a basketball game between the student who has high movement skill and low movement skill.

The results of the study showed that the value of $F_{\text{analysis}} = 36.90 > F_{\text{tabel}} = 4.15$. Thus the result of the zero hypotheses (H_0) is denied. It means that students who have high movement have three point shooting skills improvement on the game were different with students who have low movement capabilities.

Based on the second hypothesis test there is real different influence between a group of student with high movement skill and low movement skill toward the skill improvement of shooting three points in a basketball game. It turns out that there is a real difference influence between a group of students with a high-movement skill and the low movement skill towards the results of three point shooting skills on the basketball game. A group of students with high-movement capabilities have increased three-point shooting skills on the basketball game higher than groups of students with low movement capabilities. The students with high movement skill have a higher potential than students with low movement capabilities. The movement skill is a basic to create student's skill. A good movement skill will support the readiness of the student to do skill learning. A high movement skill can accelerate the process of mastering the skill of movement which is studied.

3. The influence of the interaction between the Learning Approach with the movement skill towards the skill learning results of Shooting Three Point on the basketball game.

The results of the study showed that the value of $F_{\text{analysis}} = 7.06 > F_{\text{tabel}} = 4.15$. Thus the result of the zero hypotheses (H_0) is denied. It means there is significant influence interaction between the types of learning approach to shooting three point game on a basketball game and the level of movement skill.

Based on the results of the study, students who have high-movement skill will have a great improvement on shooting three-point skills if they are given repetitive approach learning, whereas students who have the low movement skill will be effective when given with a progressive learning approach. The effectiveness use of learning approach to shooting three points on the game was influenced by the skill level of movement which belonged to students.

CONCLUSION AND SUGGESTION

a. CONCLUSION

Based on the results of the study and the results of data analysis that has been done, the following conclusions can be obtained.

1. There is no significant difference between the approaches of repetitive and progressive learning against the results of shooting three point skills learned on the basketball game. The application of learning with repetitive approach apparently would give influence on the three point shooting skills are better than the progressive approach to learning.
2. There is a significant difference in the results of three-point shooting skill learning between the students who have high and low movement capabilities. The improvement skill of Shooting Three-point on the basketball game on the students who have the skill of high movement better than low-movement has the skill.
3. There was a significant interaction between the influence the approach of learning and skill level of movement towards the results of shooting three point skills learned on the basketball game.
 - a) Students who have the high movement skill are more appropriate with repetitive approach learning.
 - b) Students with low movement skill more appropriate with a progressive approach to learning.

b. SUGGESTION

Based on the result of this study, then for the teacher or sports coach especially basketball is given such of these suggestions.

1. In an effort to improve skills, particularly the shooting three point skills is a must use the right learning approach in accordance with the development of the students.
2. Learning with the repetitive parts of the approach have a better influence in improving the skills of shooting three points in a basketball game so that teachers and coaches prefer learning with the repetitive parts of the approach in an attempt to improve the results of three point shooting basketball for their students.
3. It is recommended that Teachers develop repetitive parts of the learning approaches in order to improve learning outcomes skills of basketball shooting three points.
4. The application of the use of a learning approach to improve the skills of shooting three points in basketball game need to pay attention to the movement skill factor.

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MENTAL SKILLS PROFILE OF WOMAN WATER POLO ATHLETES OF INDONESIA IN 2016

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Abstract

This study aims to find out about the mental skills profile of woman water polo athletes of Indonesia. The research uses descriptive method with survey techniques. The research sample using total sampling technique which amounted to 113 woman athletes. The research instrument used Loehr's mental skills questionnaire. Data analysis technique used is descriptive statistical techniques. Results of the study showed that the majority women water polo athletes of Indonesia have the moderate of mental skills level (70.80%). While for each aspect of the data obtained as follows: the majority women water polo athletes of Indonesia have a moderate level in self-confidence (55.75%), the majority women water polo athletes of Indonesia have a moderate level in negative energy control (50.44%), the majority women water polo athletes of Indonesia have a moderate level in concentration (47.79%), the majority women water polo athletes of Indonesia have a moderate level in visualization and imagery ability (60.17%), the majority women water polo athletes of Indonesia have a moderate level in motivation (60.18%), the majority women water polo athletes of Indonesia have a moderate level in positive energy (69.03%), and the majority women water polo athletes of Indonesia have a moderate level in control behavior (61.95%).

Keywords: mental skills, woman waterpolo athletes

Background

In competitive sports, there are some aspects of the exercise. These aspects must be considered and very important role in improving and determine the achievement of the athletes. Aspects of the exercise must be implemented properly so that athletes achieve success in every competition she joined. In achieving maximal performance, athletes are often faced with various challenges, both the challenge a practice situation or in competition situation. Therefore, athletes should know their own body and physical condition. They must also have the technical ability, tactical, and mental well.

As describe below, the aspects of training are physical, techniques, tactics and mental. Of all these aspects, the physical aspect is an aspect that is often taken as a data test of athletes in each sport. Yet another important aspect that also needs to be taken is the mental ability test. For how complete physical, technical and tactical athletes, if mental aspect not developed, then a high performance is not impossible to achieve. Mental aspects has functioning as driving or steering the athlete performances, the examples such as fighting sense, tactics, motivation, determination or that inhibits such as anxiety, tension and insecurity.

Mental skills are important in the achievement of team sports such as Water Polo, because in this sport includes vigorous exercise and body contact, as well as the sport is very demanding and challenging mental. So if there is one athlete does not have mental strongly then it will affect the game so it can be detrimental to the team.

Water polo is a water sport that can be considered as a combination of swimming, rugby,

football, and basketball. Each team consists of 13 athletes are 6 players and one goalkeeper on the field matches, as well as six other players are reserve (5 players and 1 goalkeeper). Regulation of water polo game resembling football is to score as many goals and one goal counts as one point (Pete Synder, 2008).

In water polo as in other sports that implement four aspects of the exercise. But it is very unfortunate for the latter aspect is the mental aspect, not maximum owned and less well developed. So the look of some of the results of matches followed by woman water polo athletes of Indonesia, less achieve the targeted previously. One example is the result of SEA Games in Singapore at last June 2015, woman water polo slipped to third place where previously targeted to receive the gold. Indonesian women's water polo team had to accept defeat from the team of Thailand and Singapore. In fact, if viewed from the condition of Indonesian athletes almost equivalent anthropometry high and great athlete herself with Singapore and Thailand. This is the question how exactly the mental skills of the Indonesian women's water polo athletes.

Profile is often associated with the data. The data will be described can clarify the person's perception of something that will be explained. Profile has a function and purpose is to provide information and clarify the perception of something. Profile called a brief overview of a person, organization, entity institution, or region and others, depending on what side view it. In this study is a profile is a description of the state of the woman water polo athletes of Indonesia in terms of mental skills.

According to James Drever in Djumidar, et all (2012), the mental is the overall structure and process - organized mental processes, both conscious and unconscious. Thus it is clear that each element of soul will determine the strength and mental state of athletes. Mental skills or mental ability is the readiness of one's mind to meet the psychological demands of a sport. In general, this ability is based on motivation, concentration, self-confidence and emotional control.

Mental readiness before the competition will determine the success of athletes facing critical situations in the game. Without good mental preparation, athletes are easily impaired mental stability, so that the performance of being chaotic and not well controlled. Athletes are low intellect ability, in the face wits match will be easy to beat the opponent, although a variety of ways in accordance with the capabilities that have been cultivated.

Athlete's mental skills possessed definitely different each other. In a coaching, mental should have been prepared at the time of exercise, not only do the immediately before championship or competition. Mental of athletes should be well prepared in order to be ready to face stimuli - emotional arousal, ready to bear the heavy task, or be ready to face a variety of mental load.

Mental coaching in the sport of water polo means to build, maintain and strengthen the relationship between the sources of mental skills of the athletes. These mental skills determine to the athlete's performance in addition of physical abilities and skills and are also influenced by psychological factors which particularly mental athletes concerned. Because water polo is a sport that body contact which tend to be hard and rough, so each athlete must have a strong mentality, especially when facing an opponent who is on top level.

According to James E. Loehr (1986), in his book entitled *Mental Toughness Training For Sports*, in psychology there is the term 'mental skills' or mental ability which includes seven aspects: self-confidence, control negative energy, attention control, visualization and imagery ability, motivation, positive thinking, and behavior control. James E. Loehr has compiled a questionnaire

containing seven mental skills of the mental aspect of his book. And James have set values or scale for mental skills category is as follows: 26-30 for category of excellent skills (high), 20-25 for category of room for Improvement (moderate), and 6-19 for category of need special attention (low).

Self-confidence is the main capital of an athlete to move forward because of high performance and a record breaker itself must begin by believing that she could and could exceed the performance ever achieved (Komarudin, 2013). Without having the full confidence of athletes will not be able to achieve a high performance, because between achievement motivation and confidence are closely related. The athletes were able to go through the process the game well but not over-confidence.

Athletes should think positively about what she should do that day. In the sport of water polo, positive energy is very helpful mental athletes, for athletes to easily receive direction and feedback from the coach about the strategy of the game. Positive thinking help athletes to become more concentrated with what the have to do and can make motivation from within the player, so that all the goals can be achieved as expected.

Athletes also have to motivate herself and has the capability of visualization and imagery. If they have those better, that is to say that the athlete is able to make his thoughts calmly to face the game, intended that the athlete does not experience tension when going for the game (Irvatt Sir and Arifudin Usman, 2007) . The better the mental abilities possessed the woman water polo athletes of Indonesia, the higher performance that would be achieved.

According to the Indonesian ictionary, athletes are players who enter the race or game in collided agility, speed, skill and strength (Poerwadaminta,1992). An athlete must have the desire or achievement motive. Water polo athletes ican be described as one who focuses on team numbers, where these athletes have their respective positions in the game of water polo. The athletes in sports such as water polo team should have a strong mentality because this sport including a tough sport and body contact.

In water polo, the rules of the game resembling soccer is to score as many goals and one goal counts as one point. The game is played in the pool length between the goal 20-30 metres and 10-20 metres wide. Water polo is played four innings with eight minutes long each half net time, in other words in case of violation, the ball out of the park, there is something that makes the game quit the game time and the time of the attack stopped.

Historically, water polo originated from the United Kingdom. Water polo game has been around since the 1800. At that time water polo was played in a river or a lake in rural areas, not like in the pool which has been laid out neatly like now. Regulation of water polo that time did not use official regulations. The water polo players that rural children who love to swim in the river or lake (Pete Synder, 2008).

In Indonesia, the sport of water polo start about 1908 and flourished in the era of 1950 until 1960. In this era, the development of Indonesia water polo run well so that is taken into account in Asia and even the world. Indonesia's water polo team has been contested from PON (Pekan Olahraga Nasional) to international standards game such as the SEA Games, Asian Games and World Championship.

Woman water polo athletes of Indonesia's own newly formed in 2005, in which PRSI (Persatuan Renang Seluruh Indonesia) in Region of Jakarta sparked the formation of women's water polo team in Indonesia, followed by other regions such as West Sumatera, South Sumatera, West

Java, Jambi, North Sumatera and East Java. Woman water polo competition has begun competed in the National Championships Water Polo Women of 2008, Betawi Cup International Championship, Water Polo League, SEA Games, World Championships, and PON in 2012. Tools that used in the sport of water polo is a water polo ball, water polo shirts, hats water polo, and for woman in water polo hat wearing swim cap, and the last is a water polo goalkeeper.

METHOD

The method used in this research is descriptive method with survey techniques by using measurements of the condition of mental skills which is based on the book by James E. Loehr, entitled Mental Toughness Training For Sports. Samples were taken using total sampling technique that is all woman water polo athletes in of Indonesia totaling 113 athletes of the total population of 113 people.

Research Result

Here is presented the categories used for every aspect of Mental Skills and data entirety according James E.Loehr in Juriana, et all. (2015).

Table 1: Value / Scale Used to Category Mental Skills

Score	Category
26-30	High (Excellent skills)
20-25	Moderate (Room for improvement)
6-19	Low (Need special attention)

Table 2: Frequency Data All Mental Aspects of Woman Water Polo Athletes of Indonesia

No	Category	Frequency	Percentage
1	High	9	7.96%
2	Moderate	80	70.80%
3	Low	24	21.24%
	Total	113	100%

All of mental skill aspects can be seen that as much as 7.96% or 9 athletes have mental skills is high, then there is 70,80% or 80 athletes who have a moderate level of mental skills, and there are 21.24% or 24 athletes who have a low level of mental skills.

Table 3: Frequency Data For Self-Confidence Aspects of Woman Water Polo Athletes of Indonesia

No	Category	Frequency	Percentage
1	High	18	15.93%
2	Moderate	63	55.75%
3	Low	32	28.32%
	Total	113	100%

From the above data it can be seen that as many as 15.93% or 18 athletes have a high level of self-confidence. Then there are 55.75% or 63 athletes have a moderate level of self-confidence being. And there are 28.32% or 32 athletes have a low level of self-confidence.

Table 4: Frequency Data for Control Negative Energy Aspects of Woman Water Polo Athletes of Indonesia

No	Category	Frequency	Percentage
1	High	11	9.73%
2	Moderate	57	50.44%
3	Low	45	39.82%
Total		113	100%

From the above data it can be seen that as much as 9.73% or 11 athletes have a high level of control negative energy. Then there are 50.44% or 57 athletes have a moderate level of control negative energy being. And there are 39.82% or 45 athletes have a low level of control energy negative .

Table 5: Frequency Data For Concentration Aspects of Woman Water Polo Athletes of Indonesia

No	Category	Frequency	Percentage
1	High	9	7.96%
2	Moderate	54	47.79%
3	Low	50	44.25%
Total		113	100%

From the above data it can be seen that as many as 6.2% or 7 athletes have a high level of concentration. Then there are 60.17% or 68 athletes have a moderate level of concentration being. And there are 33.63% or 38 athletes have high levels of concentration are low.

Table 6: Frequency Data For Visualization Imagery Aspects of Woman Water Polo Athletes of Indonesia

No	Category	Frequency	Percentage
1	High	7	6.20%
2	Moderate	68	60.17%
3	Low	38	33.63%
Total		113	100%

From the above data it can be seen that as many as 6.20% or 7 athletes have a high level of visualization and imagery ability. Then there are 60.17% or 68 athletes have a moderate level of visualization and imagery ability being. And there are 33.63% or 38 athletes have high levels of visualization and imagery ability are low.

Table 7: Frequency Data For Motivational Aspects of Woman Water Polo Athletes of Indonesia

No	Category	Frequency	Percentage
1	High	30	26.55%
2	Moderate	68	60.18%
3	Low	15	13.27%
Total		113	100%

From the above data it can be seen that as many as 26.55% or 30 athletes have a high level of motivation. Then there are 60.18% or 68 athletes had a moderate level of motivation. And there are 13.27% or 15 athletes have a low motivation level.

Table 8: Frequency Data For Positive Energy Aspects of Woman Water Polo Athletes of Indonesia

No	Category	Frequency	Percentage
1	High	26	23.01%
2	Moderate	78	69.03%
3	Low	9	7.96%
Total		113	100%

From the above data it can be seen that as many as 23.01% or 26 athletes have a high level of positive energy. Then there are 69.03% or 78 athletes have a moderate level of positive energy being. And there is 7.96% or 9 athletes have a low level of positive energy.

Table 9: Frequency Data For Control Behavioral Aspects of Woman Water Polo Athletes of Indonesia

No	Category	Frequency	Percentage
1	High	28	24.78%
2	Moderate	70	61.95%
3	Low	15	13.27%
Total		113	100%

From the above data it can be seen that as many as 24.78% or 28 athletes have a high level of control behavior. Then there are 61.95% or 70 athletes have a moderate level of behavioral control being. And there are 13.27% or 15 athletes have a low level of behavioral control.

CONCLUSION

Based on the research results, it can be concluded the results of the mental skills profile of woman water polo athletes of Indonesia in 2016 are as follows: from all aspects of mental skills shows that most of woman water polo athletes of Indonesia have a moderat level of mental skills that are. Also note the outcome of each of the aspects of mental skills are as follows:

- a). Most of woman polo athletes of Indonesia have a moderate level of self-confidence (55.75%).
- b). Most of woman water polo athletes of Indonesia have a moderate level of control negative energy (50.44%).
- c). Most of woman water polo athletes of Indonesia have a moderate level of concentration (47.79%).
- d). Most of woman water polo athletes of Indonesia have a moderate level of visualization and imagery ability (60.17%).
- e). Most of woman water polo athletes of Indonesia have a moderate level of motivation (60.17%).
- f). Most of woman water polo athletes of Indonesia have a moderate level of positive energy (69.03%).
- g). Most of woman water polo athletes of Indonesia have a moderate level of behavioral control (61.95%).

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ATHLETES' SELF-CONFIDENCE IMPROVEMENT

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Abstract

Self-confidence was very important in the athlete performance establishment. The lack of confidence would affect the athletes' confidence and fighting spirit. Athletes who had optimal self-confidence believed that they would be able to provide the sports performance as expected. The purpose of this research was to increase the athletes' self-confidence through the imagery training program. The study was designed in action research, by providing intervention in the form of imagery training program to improve the self-confidence. The respondents were 16 wushu athletes from Central Java. The study was conducted during 4 months. The research instrument was conducted through a series test of self-confidence. The results showed that the positive impact within the optimal confidence achievement amongst athletes. The dependent athletes and who were still under coaching program needed an extra guidance, whilst the mature athletes enabled to improvise their own practices.

Keywords: Imagery training, self-confidence

INTRODUCTION

One part of the psychological aspects played an important role in the formation of athlete performance which was called by self-confidence. Self-confidence was closely related to the philosophy of self-fulfillment and self-esteem. According to Cox (2007) an athlete who had a good self-confidence, believed that he or she would be able to show in the sport performance as expected. Self-confidence was greatly influenced by the presence of positive and negative expectations on doing something. Positive expectations would have either positive or negative impact on performance (Butler, 1999). The positive and negative expectation of one's self-confidence was also influenced by people's belief that he or she would be able to complete the task well (Bandura, 1986). Weinberg and Gould (2007) explained that self-confidence proved a positive impact on emotions, concentration, objectives, efforts, strategy and momentum. Lack of confidence would affect his or her belief and fighting spirit amongst athletes (Monty p. Satiadarma: 2000).

One form of psychological exercise that might improve self-esteem was by doing the imagery training (Weinberg & Gould: 2007). Imagery was a technique commonly used to assist someone who mentally visualized or practiced relating to the activities to be carried out (Cox: 2007). Imagery can be part of the training processes given routinely and regularly as well (Williams: 2010).

Based on the condition above, this study is specifically concerned with a particular assessment on the psychological aspect of athletes' self-confidence, especially in the wushu sport. Realizing the characteristics of the wushu sport, this sport is immeasurable, and there are some variables beyond the technical competitions which will also determine the success of athletes in achieving performance. The problem of the study is mainly concerned with the increase of self-confidence amongst athletes through the Imagery Training scheme conducted in Central Java. Hence, the purpose of this study is to determine the increase of athletes' self-confidence through the Imagery Training scheme in Central Java, Indonesia.

METHOD

The study was designed in action research, by providing intervention in the form of imagery training program to improve the self-confidence. The respondents were 16 wushu athletes from Central Java. The study was conducted during 4 months. The research instrument was conducted through a series test of self-confidence. The study was conducted by applying cyclical processes. Cycles were carried out in accordance with the expected changes referring to the purpose of the study. The steps were set up at each cycle performed by the planning, action, observation, and reflection stages (Kemmis & Mc. Taggart: 1982, mc. Taggart: 1991).

RESULTS AND DISCUSSION

Finding on Cycle 1

The first cycle showed that there were 9 athletes performed their self-confidence, 5 athletes tended to be less confident and 2 athletes gave incomplete responses. From the results achieved there could be identified that indicator 1: the awareness ability among 9 athletes showed **good** result; 1 athlete showed a redundant response accordingly, 3 athletes tended to be inferior, and 2 athletes were unidentified. Indicator 2 reflected athletes' realistic performance to determine the targets that were willing to achieve. There were 9 athletes performing quite realistic, 5 athletes were less realistic, and 2 athletes were unidentified. Meanwhile, indicator 3 revealed about the performance of composing the action plan as part of achieving the target determined, where there were 11 athletes performing **good** achievement, 3 athletes physically performed inappropriate, and 2 athletes were unidentified. However, from the cycle 1 finding, it could be reflected that 16 athletes still showed unsatisfactory performances. For this reason, thus, cycle 2 would be continued to strengthen the indicators achieved.

Finding on Cycle 2

In cycle 2, it showed that 16 athletes had already shown their confidence greatly. From these results, there could be identified that one of the indicators was individually overall athletes' ability awareness showed **good** achievement. Indicator 2 showed that athletes' ability towards the realistic goals was achieved by 14 athletes. They seemed to be quite realistic, but 2 athletes were less realistic. Meanwhile, indicator 3 proved that athletes' ability to develop a plan of action in order to achieve the specified goals was obtained by 14 athletes. They achieved with **good** results, but 2 athletes still remained to be moderate in their achievement. Based on the results, there could be reflected that during the implementing cycle 1 and 2, 16 athletes had shown the optimal self-confidence. Nevertheless, there were 4 athletes in their respective indicators showed that their results became their unexpected performances, but, by doing the regular exercises they were definitely expected to be able to rectify their shortcomings.

Self-confidence was part of the subconscious thinking and was not affected by rational argument. It was about the matter of emotional influence and feeling. So, in building self-confidence, it required emotions, feelings, and imagination. Emotions, feelings, and imagination would either positively increase or negatively decrease self-confidence. From someone's birth and throughout his or her life, the individual had experience in positive and negative stimuli in endeavor the environment turned. Individuals who attained negative stimuli, they would have relatively obtained a low level of confidence. Negative stimuli might come from family, community,

office or work environment, schools and etc. If an individual was trapped in a very bad human relationship, it must be immediately found a solution. The first way was to compromise with the environment and to accept the conditions willingly, but if it did not bring about the positive results, it would be better to get rid of the environment at any consequences accordingly.

Recognition and appreciation towards somebody else's existence, showing achievement would greatly increase self-confidence. But, there were not many people available to do with this matter. It required the positive people with the positive mind to do it. So, the solution was by joining in a group of people who had positive mind. We could also use another way, through the self-recognition and appreciation. No matter how small the positive actions we had done, we attempted to admit or to appreciate it.

There are important things to emphasize towards athletes and coaches, that self-confidence would become a very personal perception. It meant that the load matches, opponents' quality, physical readiness, and the technique was part of an individual's ability to manage with the personal affairs. For instance, athlete A would be in similar situation with others which probably indicated nothing to his or position, alternatively, it would be different from athlete B. It could be possibly happened with athlete B who was very frustrated with the situation on same matches. Therefore, self-confidence was a private domain that should be addressed by the athletes and certainly by obtaining some helps within their circumstances. Another important point was self-confidence, which was not brought about inborn. Even any coaches thought that there would be an athlete who was born with high self-confidence, while others did not have it. The process of creating athletes with high self-confidence would be taking times and emphasizing some exercises gradually.

The most important thing in this study was about taking seriousness amongst athletes. The understanding on the exercises would be important to athletes and would strongly support their performance. The imagery training that was available to do routinely would make athletes maintained their strategies during the matches, as the strategy they practiced would automatically appear. However, efforts might require some persistence and seriousness in practices.

CONCLUSION AND SUGGESTION

The imagery exercise can certainly increase self-confidence amongst athletes which have been shown in the cycle 2. Self-confidence is optimally achieved by all athletes who have proved that the imagery training scheme support a positive improvement. The imagery training outputs are influenced by the frequency of exercises, where it will be achieved better if practiced daily. The adapted athletes in this training scheme will be greatly increased the performance. Provided the importance scheme of this imagery training in improving the confidence and supporting athlete's performance, hence the exercises shall be done regularly. In the training practices, the dependent athletes who still need guidance shall be monitored and coached further. Meanwhile, the independent athletes can and manage and improvise their own training schemes.

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THE EFFECT OF EXERCISE METHOD AND MUSCLE STRENGTH TO SPEED SLEEVE CHEST STYLE POOL 100 METERS

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Abstract

This study aims to determine: Effects of Training Methods Pool Interval Distance 21 Meter and Interval Distance of 50 Meters and Arm Muscle Strength Against Speed 100 Meter Breaststroke Pool in Learning Sports. This research used experimental research with a 2x2 factorial design population in this study were all first semester students who take the course T / P swimming. The technique sampling is randomly with a total sample of 28 students. The data collection technique is using the arm muscle strength test, test interval of 21 meters and 50 meter intervals and tests 100 meter breaststroke swimming. Data analysis techniques in this study are: Normality Test (method lillefors) and homogeneity test (method Barlett). Based on the results of research are: (1) There are significant differences Interval Distance 21 Meter and 50 Meter Interval Distance; (2) There are significant differences in muscle strength high arm; (3) There is an interaction between the interval of 21 meters and 50 meters as well as the strength of the arm muscles against swimming speed 100-meter breaststroke in learning the sport. In the resulting increase swimming speed of 100 meter breaststroke, in addition to the selection of the right form of exercise should also consider the physical condition of components that can support its success. Penjasorkes swimming coach or teacher should not overlook the power factor of the arm muscles students. Due to the high strength of arm muscles would be much more optimized in doing 100-meter breaststroke swimming than the lower arm muscle strength.

Keywords: Interval training of 21 meters, Interval training 50 meters, along the arm muscular strength, and the speed of breaststroke in 100 meters.

DEVELOPING OF MULTI-FUNCTIONAL BASKETBALL FOR PHYSICAL EDUCATION IN FIFTH GRADER IN CITY OF SEMARANG

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Abstract

Learning tools in physical education and recreation in elementary school used by the teachers we are still insufficient and lack, of the needs there was appropriate with students' characteristic especially in basketball, volleyball, badminton, sepak takraw, tennis, tonnis, kasti, , tradisional beteng an and high jump tool box, because of several problems, they were: (1) the tools for basketball game were still lack, (2) the basic competence had not been achieved maximally, (3) the students' characteristic were not suitable with this game, , the researchs purposes were (1) creating the multi function basketball's ring for Physical Education in Elementary School, (2) producing the effective tools for development, (3) giving a cheap easy and safety product, the researche's cases .research 's method was research and development, The development's procedures were (1) analyzing the product that will be develop: (2) developing the first product: (3) the expert validating: (4) field experiment: (5) product revisitation: (6) the final result: and (7) the test effectiveness of the development product. result by the subject's expert for all aspects were "Very Good" with the average score 4,32. Conclusion of the research was producing the development product of the multi function n the basketball's tools fo elementary students which effective to be used the suggestion for physical education teachers so that the development product could be used in basketball, volley ball, badminton, sepak takraw, tennis, tonnis, kasti, tradisional betengan, high jump and tool box. to facilitate the teachers in elementary physical education learning process.

Keywords: *developing, basketball, physical education, multi-functional tools , elementary-school students.*

INTRODUCTION

Physical Education Sport and Health is an integral part of the educational process that utilizes physical activity and health for meghasilkan change holistically (H.J.S. Husdarta, 2011: 3). Areas of study Physical Education in school has a unique role compared to the field of study: 1) lays the foundation of character, 2) build a foundation of strong personality, 3) develop sports manship, and cognitive, 4) develop motor skills, 5) know and understand the concept of physical activity as information to achieve fitness, and healthy lifestyle, (Samsudin, 2008: 2-3). The unique role can promote the growth and development of the whole realm of physical, psychomotor, cognitive, and affective each learners are balanced therefore, Penjasorkes learning environment must be set properly in accordance with the curriculum. Learning activities taught in the primary school curriculum includes bola besar games, small ball, and athletics. In big ball games which include football, volleyball, and basketball. These three types of games that had a core and regulations of different game. focus game of football is the focus of the foot and put the ball into the goal with the right techniques. The core game of volleyball is to focus on the hands and the ball can be passed through the high net. The core game of basketball is to focus on the hands and put the ball in the basket. At the core of the small ball game tonnis focus on hand and hit the ball to pass through the net, the core focus of the game of sepak takraw in the legs, the head, and the ball can be passed net. focus badminton game in hand and shuttlecock just over the net, the core of the material jump high on the sports of athletics is that students can pass the bar

and did not fall. The achievement of the core of the game in physical education learning can be realized with the concept of movement, the right techniques, and the infrastructure that supports it, so the concept of motion and technique should be given the basic knowledge in the learning process. Suryobroto, (2005: 4) means is very important because without the means to make learning less effective. In addition means can also help learners to discover knowledge that is needed as well as encouraging students to be active in the learning process. Tools in big ball games, small ball, athletics at the high jump requires a tool as supporting learning motor skills and knowledge in order to achieve the goal that maksimal. option these types of content when conducting its activities in the learning requires as a buffer net pole, the pole as a base rounders, installing reflective board basketball hoop and pole as a prop bar in the high jump event branched gymnastics. The results of the initial survey of existing infrastructure in 15 Primary School on January 7, 2015 in five districts namely: city Gajahmungkur Mungkur, and city Banyumanik, city Mijen, city Genuk, city Gunungpati Semarang. City area: big ball games, small ball, and athletics in the jump event. The results of suvei that has been done will be presented by the following table.

NO	School area	Net pole					
		1	2	3	4	5	6
1	SD N Plalangan 01	X	V	X	V	V	X
2	SD N Patemon 2	X	V	X	V	V	X
3	SD N Plalangan 03	X	V	X	V	V	X
4	SD N Pakintelan 1	X	V	X	V	V	X
5	SD N Banyumanik 03	X	V	X	V	V	X
6	SD N Banyumanik 01	X	V	X	V	V	X
7	SD N Srandol Wetan 02	X	V	X	V	V	X
8	SD N Bulu Setelan 01	X	V	X	V	V	X
9	SD N Sultan Agung	X	V	X	V	V	X
10	SD N Sendang Mulyo 06	X	V	X	V	V	X
11	SD N Kembang Arum 04	X	V	X	V	V	V
12	SD N Kembang Arum 02	X	V	X	V	V	X
13	SD N Sekaran 1	V	V	V	V	V	V
14	SD N Sekaran 2	X	V	V	V	V	X
15	SD N Patemon 1	X	V	X	V	V	X

(Source: The results of the initial survey in elementary school in Semarang 2015)

Specification Table:

1. Basketball
2. Badminton
3. Tonnis and tennis
4. Takraw
5. Ball voly
6. Pole high jump

X = Not having

V = Having a tool

Characteristics of learners of primary school expects tool modified to be used as a convenient tool and adjusted as well as in the learning of basketball requires a ring basketball that fits Characteristics learners to easily perform technic shott directly, on the game volleyball, takraw, badminton, tennis, tonnis, ball and high jump with modified tool will generate net pole can be set high or low, adjusting the width of the field. Such conditions will make students more comfortable with the level success very large. Samsudin, (2008: 58), declare that: "Developmentally Appropriate Practice" (DAP), This means that the task of teaching delivered must pay attention to the growth and development child, and can help lead to changes in device characteristics the same as high school students the first and secondary schools, it will hinder the development of learners primary school success level very small value does not correspond to the characteristics of the learning activity.

From the results of the above problems and the development of the foregoing, the researchers have a concept tool hoop basketball multigunayang are economic as well as having ten usability to be a ring of basketball and some use other, concept hoop basketball also be easy to move, easy to set up with the situation field, and easy to set up high and low net in accordance with the material pembelajaran. Konsep expected with such a multipurpose tool is easy to pengadaanya schools, teachers, and learners easily implement penjasorkes learning material according to curriculum and characteristics of elementary school students.

The importance of the concept of a basketball hoop multipurpose tool to do research for a tool that will be examined adapted to the characteristics of the 5th and 6th grade students who are able to think concretely and have the courage to speak in right of expressing opinions, so that when the tool was not met dikhawatir will become an obstacle in pembelajaran. Dalam penjasorkes learning elementary school level basketball hoop multipurpose tool as a medium that can be tailored to the needs and characteristics of students and as a reference tool concept selanjutnya. Realita found di15 area of survey results the school has not had a basketball hoop as a means of learning the game of basketball with the state a very narrow field is also limited when the appliance is installed permanently reduces the space and security to play the students, while the tool has a basketball hoop multipurpose nature also easy to be moved from the original basketball hoop with a tool that has the value of the function as well as a permanent nature. Economic value of this tool is a multipurpose basketball hoop with a nominal that is not big enough and have many functions as a learning tool.

The problems of the background formulation of the problem for the development of research tools multipurpose basketball hoop as follows:

1. How is the development of a basketball hoop and pole physical education multipurpose as a learning tool in elementary school?,
2. Is a multipurpose basketball hoop can be used to overcome the shortage of tools in elementary school?,
3. Is this product can be accepted by their very nature effective in learning physical education elementary school

research purposes

1. creating a multipurpose tool as teaching elementary school students,
2. Produce an effective learning tool development into products that multipurpose basketball hoop,
3. Provide a multipurpose product that is cheap, easy, and secure as a learning medium primary school learners

This research is expected to benefit both theoretically and practically

1. Master in order to make development tools with the existing media in the neighborhood,
2. Schools can support, encourage and equip teachers for innovation, creativity, and modifications to the development of media learning tools.,
3. Learners primary schools to be used as a direct learning media
4. Readers and other researchers, in order to become a reference also to the general public understanding about the importance of the development tool as a learning medium educational institutions as references similar studies.
5. Society, the elderly, the results of this study are expected to provide knowledge to the general public on the importance of learning tool for elementary school students.

METHOD

This was a development study research design and development (research and development) Borg & Gall in Samsudi (2004: 4) states that this research and pengembangan is a process used to develop or validate the products used in educational learning.

This study design using procedural design, because it is descriptive quantitative research, which is a procedure that describes the steps that must be followed in producing the product. According Wasis Dwigyogo D. (2004: 6)

Subject test is the target user of the product, the elementary school students in the city of Semarang 2 districts of the districts Gajahmungkur Mungkur two in the district Banyumanik selected sample was grade 5 (Five) and 6 (Six) covers from: SD N Sampangan 01, SD N Sampangan 02, SD N Bendan, Al Madina SD 01, SD 03 Banyumanik N, N Banyumanik SD 01, SD Sekaran 1, Small Group 50 Respondent Test, Test Large Group 125 Respondent.

Research procedures or steps in the development can pick and choose the most appropriate measures for research based on the conditions and constraints that it faces. Based on some of the opinion that the procedures used in the research development of the basketball hoop multipurpose tool for learning penjasorkes in primary school students as follows.

1. Conduct an analysis of products that will be developed,
2. Survey of facilities and infrastructure in primary schools penjasorkes,
3. The availability of a tool checklist as a medium of learning
4. Assessment of the problems encountered.,

5. To develop the initial product concept multipurpose tool.
6. Analysis of the purpose and character of the product.
7. Finding the sources of the content of the draft product to be made.,
8. Prepare the stage of making the product.
9. Validation Expert, To validate the product to be produced, researchers involved four (4) experts from the sports faculty to subject matter experts and expert tools.

With the validitasi conducted by experts it will produce a representative measurement tool in obtaining the data. Validation of experts in this study are:

Expert Tools

Expert tool in this study were Drs. Tri Nur Harsono, M.Pd. He is the creator and lecturer Tonnis sport of tennis in Nikken Semarang State University. Expert tool. the second is Supriyono, S.Pd, M.o r, he is a lecturer at Nikken Unniversitas infrastructure of Semarang.

Expert Content

Subject matter experts in the study were Dr. Taufik Hidayah, Kes Drs.Sukardi, M.Pd. He-he is a lecturer that administer education at the Faculty of Science Penjasorkes sports (FIK) and in the graduate program of Semarang State University majoring in Physical Education (POR).

The instrument used to collect data on the development of research tools are the multipurpose basketball hoop : Questionnaire: Expert Materials, Equipment Expert, Teacher, Student. Observation: Getting Data Early, The interview guide: Students, Teachers and Experts, Data Sheets effectiveness: Student. Data analysis techniques used in this research is descriptive analysis techniques percentage. This percentage analytical techniques used to analyze and appraisal subject in assessing the feasibility of the development of quality and product keterimaan. To calculate the percentage using the formula below:

Description:

f = Frequency Subject

n = Number of Overall

P = Percentage of subjects trial results

The decision to use the criteria set by the following:

Table. assessment criteria

Value	scala	cualifitaion
A	80 - 100 %	Very good
B	66 - 79 %	good
C	56 - 65 %	Enough
D	40,1 – 55%	less
E	0 – 40%	Less than Once

Source: Nurhasan (2001: 282)

RESULTS AND DISCUSSION

Product development tool multipurpose Ring Basketball Ring Basketball produced called Mu na (multipurpose). This tool has the functions contained in the Health and Physical Education learning Rekerasi (PENJASORKES) .Siswa can use it easily because it is so practical it is also already given indications or instructions for use so that students in the operation or apply a tool in the learning Penjas orkes not experience difficulty.

Products developed starts with an observation tools and interviews with teachers and students of this stage the researchers found some problems against the existing infrastructure in primary schools. With Problems found in research to formulate the problem to develop a tool that has several functions to be ring basketball, pole net volleyball, pole net sepaktakraw, pole net badminton, pole net tonnis, pole net tennis, baseball, permanian traditional betengan, pole buffer for high jump in athletics material and the storage appliance. Seeing Many diagnostic functions such tools will facilitate teachers in learning because with one tool could to be used with other materials on learning

Validation results Basketball Ring multipurpose product used by specialists matter experts and physical education teachers the tools that the average score given to the aspects of quality learning materials and quality content that is more clearly seen in the table and figure finished product basket et multipurpose too

Table 1. Product Quality Basketball Multipurpose Matter Expert I (ONE)

aspects Rating	matter experts I		average	category
	level I	Level II		
Aspects of quality learning materials	40	43	4,1	Baik
aspects of contents	37	42	3,9	Baik

Table 2. Product Quality Basketball Multipurpose Matter Expert II (TWO)

aspects Rating	matter experts I		average	category
	level I	Level II		
Aspects of quality learning materials	50	50	4,5	very good
aspects of contents	4,6	4.8	5	very good

Table 3. Display product experts Ring Basketball multipurpose tool I

aspects Rating	Expert tool I		Rerata	categori
	level I	Level II		
aspect Display	4,10	4,93	4,8	very good
aspects of use	4,14	4,85	4,6	very good

Table 4. Display product experts Ring Basketball multipurpose tool II

aspects Rating	Expert tool II		Rerata	categori
	level I	Level II		
aspect Display	3,76	4,76	4.26	Sangat Baik
aspects of use	3.57	4.28	3,92	Baik

Table 5 The quality of development tools, testing pe teacher

aspects ratings	Answers		
	yes	no	categori
aspects tool	86%	14%	Very good
Aspects of tools for learning	92%	8%	Very good
security aspects	89%	11%	Very good
Aspects of the effectiveness of the tool	95%	5%	Very good

The Final Result Of The Basketball Hoop Multipurpose Tool As Follows



Picture 1 : Basketball Ring



Picture 2 :Badminton



Picture 3 : volyball



Picture 4 : sepaktakraw



Picture 5 : Tennis



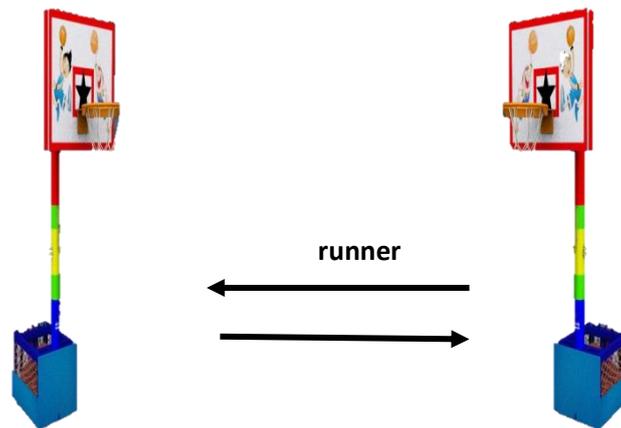
Picture 6 : Tonnis



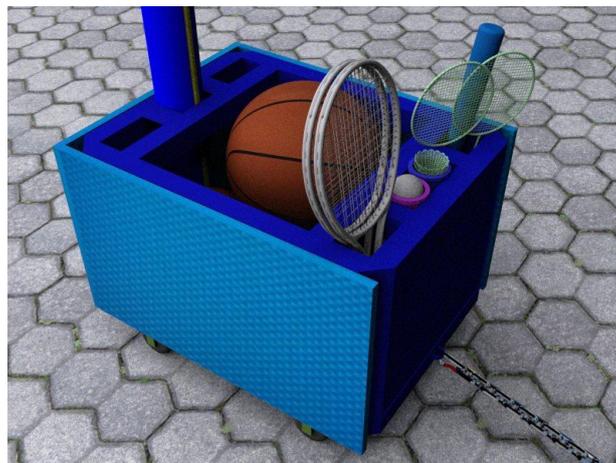
Picture 7: high jump



Picture 8: Tradisional game kasti ball



Picture 9: Tradisional Game Betengan



picture 10 : tool box

CONCLUSION AND SUGGESTION

Based on the results of research and discussion on product development multipurpose basketball hoop on learning of physical education in primary schools in the city of Semarang, some conclusions can be obtained as follows:

1. Have generated a basketball hoop multipurpose product development as a learning tool in elementary school physical education having ten utility functions.
2. Ring basketball useable multipurpose learning tools to address shortages physical education with having ten. Teachers and students have high interest towards the basketball hoop for a multipurpose learning tool because it is more practical too secure. It can be seen from the results of product assessment of teachers and students "very good".
3. Product multipurpose basketball hoop effectively used as a learning process of Physical Education, Sport and Health in elementary school (SD) in Semarang with the assessment of product effectiveness test data in the form of affective, cognitive and psychomotor aspects with excellent results mean that 83.99%. Small scale test 89% "Very Good", and test large scale with a mean 97% category of "Very Good"

SUGGESTION basketball hoop multipurpose tool was created to address the problems in the learning process penjasorkes in elementary school. This product is produced as a teaching tool and a learning resource teacher for students of Elementary School (SD) as well as increasing the affective, cognitive and psychomotor aspects. Based on the conclusions ringbasket multipurpose product development tool for elementary school students, it can be recommended as follows:

1. For the teacher, the basketball hoop multipurpose product can be used as a practical teaching tool and is used as a reference for the development of further tools.
2. For students, a multipurpose basketball produkring can be used as a learning tool and as a tool for self-learning in schools

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INCREASING THE ABILITY OF TABLE TENNIS SERVING STROKE STUDENTS THROUGH ENVIRONMENTAL APPROACHING METHODS

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Abstract

The purpose of this study to observed increasing the ability of table tennis serving stroke students through environmental approaching method which be clasified into pre experimental. There were 24 students from Study program of Physical education, health and recreation Faculty of sport science become population and sample (total sample). All the students got the traitment as long as three months, or fourteen traits with one hundred minutes per trait in each week. The instrument of the table tennis serving stroke were constructed by Pushpendra Purashwani, and A.K Datta in India, that has high validity and riability. The environmental approach methods are the materials which be done as traitment to the students, as followed; wall bounch service stroke, floor bounch service stroke with lowest net as struggling, standing service stroke and wall target service stroke which be packed in the learning proses of table tennis. The data were analysed by descriptive statistic and compare mean (Paired sample t test) with SPSS 16 program to answered five hypotheses as follow; 1) there is significant the ability of table tennis serving stroke students through environmental approach methods betwen pretest and posttest. 2) there is significant different the ability of table tennis serving backhand stroke students through environmental approaching methods between pretest and posttest. 3) there is significant different the ability of table tennis serving stroke through environmental approaching methods between pretest forehand and pretest backhand. 4) there is significant different the ability of table tennis serving stroke through environmental approaching methods between pretest forehand and pretest backhand. 5) there is significant different the ability of table tennis serving stroke through environmental approaching methods between pretest and posttest

Keyword: ability, serving stroke, environment method

INTRODUCTION

Sport is a part of lifestyle for human being who want to keep condition or to have the best physical fitness. For people as non athlete or athlete must be always keep Especially students in the school or students collage in the The University really need the best physical fitness tu support their activities every day. Playing table tennis could be one of the activities to have physical fitness in the school or in the society. For students collage in the Faculty of Sport Science, especially students in study program of physical education, health and recreation, beside become a subject of the study program, also be needed to keep condition.

The playing of table tennis is very interesting to see if the players can show all the stroke skills of the table tennis. One of the stroke skills of the table tennis which always become a problem is service stroke. Almost the refree of table tennis has different perception to correct the serving stroke of the players, so sometime make the different perception for the teachers of the students who become a coach in that competition. Many students always doing unprocedural serving while begining the playing of table tennis, and the refree always punish the players, and this condition make the playing table tennis less interesting. That is mean, In the formal competition of table

tennis, the problem which was always happening how to do the truth serving stroke. Serving stroke become a modal to win the competition.

If we see in the olympic sport nasional In Indonesia, the participant are the students at the primary and elementary school from each provinces in Indonesia follow the competition of table tennis in the regent and town to select who is the best players become representative of Province to follow the nasional competition. Therefore, all the sport teachers in the school have to prepare their pupils to follow the table tennis competition. The student collage from study program of physical education, health and recreation are ready to be the physical education, sport and health teachers in Papua and Indonesia. This teachers have to teach the basic skills of table tennis, as like; service, drive, chop and lob strokes. The service stroke always become a key to get win, because each player always effort to get win through killing the service skill stroke.

Simpson, (1986:83), Preiss, (1992) and Hodges, (2000) said that service stroke is important technique in the table tennis playing. Serving stroke is the way in the first time to get an opportunity to dominate the game. The wrist watch of hand hold main role of service, therefore service stroke is an action which need the speed of hand. The wrist watch is a part of hand can moves quickly. Kartamanah, (2003:37) said service stroke often role; to the first offense, to be survive service, prevent or avoid the first offense competitor. Service could be done with the relative similar motoric, but result the varieties balls for example; the placing of ball, the kharacteristic of ball, and the different strength of ball. The serving stroke will result the different ball spin, as like top spin, backspin, spin and no spin (floating ball), which be difficult to predict because of the varieties changing of ball (Kertamanah, 2003:41).

Kertamanah, (2003:69-70) and Baker, (1987) said there are some information have to be understood by the player relate to serving stroke as follow; 1) the characteristic of service stroke. In each competition, the serving stroke will begin the competition and directly to get score or point. 2) the technique service stroke consist of three basic of components as like; survive ball, swing ball, and impact ball with the bet and net. 3) the advantage of service are to get the ball which can be easy to return or to offense, to broke the tactic and strategy the competitor, to limit or to struggle the competitor doing offense, to disturb the mentality of player and etc.

Drowatzky, (1981:17) said learning is a change of behaviour which become the result of learning that be structured suitable with the environment condition as the activities of human being with their environmental. Schmidt, (1991:155) said there are some important aspect must be known by the teachers through the learning process as follow; 1) learning is the result of drill and experience, 2) learning can not directly be observed but can be seen the result, 3) learning can give the changing of skills relative permanent, 4) learning can stimulus the centre of hyphotalamus, 5) learning can improve the changing into relatif permanent. The purpose of the learning proses to have the result of optimal learning , especially the result of motor skills. Morrow at all, (2000:9) said there are three domain which be achieved by the teachers as like; cognitive domain related to get knowledge, affective domain related to attitude and emosional, with phsycomotor domain related to aktivities of physical and physical fitness.

Singer, (1982:4) and Wiliam, (1998:25) said there are three domains as like cognitive, affective and phsycomotor could be used to manage the learning condition to be comfortable. The phsycomotor domain shall be used to what to do. The cognitive domain, shall be used to what to know, and affective domain shall be used to what to feel. This classification will help the teachers to

know that learning is a process in order; whatever which will be studied by the students, what ever which will be known by the students, whatever will be felt through the learning program will depend on how the students build the interaction with their environment of learning.

Learning with knowing the condition of the environmental become the main problem in this research. How to use everything around the indoor class to be media or infrastructure to support the learning process. Especially in subject of table tennis in study program of physical education, health and recreation, where all the students collage will become physical education and sport teachers in the future. The students collage need scientific information about the media or infrastructure which can be used to support the learning process, include the learning process of table tennis subject. In this research will use the materials that can be done by the students as traitment; 1) wall bounch service stroke, 2) floor bounch service stroke with lowest net as struggling, 3) standing service stroke and 4) wall target service stroke which be packed in the learning proses of table tennis. Everythings around the indoor facility can be used as media or infrastructure of table tennis learning proces.

This media or infratsructure were used as long as the learning process of table tennis subject which hope the students will be active as long as learning proces. This condition is very important for the students to know, in order to have experiences about how to use the environment in learning the motoric skills, include while learning the table tennis serving stroke skill. This is the method which can be used to motivate or to make active the students college in the learning process. Drowtzky, 91981:4) said more spesific that motoric learning is a adaftation attitude to be able movement and muscle respond. This research used the environmental approaching methods to increase the ability of the students college in serving stroke skill.

METHOD

The purpose of this study to observed increasing the ability of table tennis serving stroke students college through environmental approaching method in academic 2016/2017, which be clasified into pre experimental with the pre-posttest design only (Gulo2007). There were 24 students college to be the subjects or population and sample (total sample) were from Study Program of Physical Education, Health and Recreation in Faculty of Sport Science, University of Cenderawasih Papua. The traitment did once time in each week. There were two variables in this research as like the independent variable was environmental approaching method and dependent variable was serving stroke.

the students college got the traitment as long as three months, fourteen traits with one hundred minutes each tratit, to implement the materials of the table tennis towards the serving stroke which be hoped can increase the ability of the students college in serving stroke skill This research had been done as long as gasal semester, in year 2016/ 2017. The materials which had been given to the students college as traitment as like; 1) wall bounch service stroke, 2) floor bounch service stroke with lowest net as struggling, 3) standing service stroke and 4) wall target service stroke which be packed in the learning proses of table tennis. So all the things or condition around the indoor can be used as media or infrastructure to support the learning proces of table tennis.

The subject followed the pretest before traitment and posttest after finishing fourteen traits traitment. Data pretest and posttest were analysed by descriptive statistic to get mean dan standar deviation (SD) and statistic of compare mean (Paired sample t test) with SPSS 16 program to answered five hypotheses as follow; 1) there were different ability of table tennis serving forehand

stroke students through environmental approaching methods between pretest and posttest. 2) there were different ability of table tennis serving backhand stroke students college through environmental approaching methods between pretest and posttest. 3) there were different ability of table tennis serving stroke through environmental approaching methods between pretest forehand and pretest backhand. 4) there were different ability of table tennis serving stroke through environmental approaching methods between pretest forehand and pretest backhand. 5) there were different ability of table tennis serving stroke through environmental approaching methods between pretest and posttest

The instrument of serving forehand and backhand stroke which be used in this research were constructed by Pushpendra Purashwani, and A.K Datta in India, that has high validity and riability which be showed in figure 1 as follow:

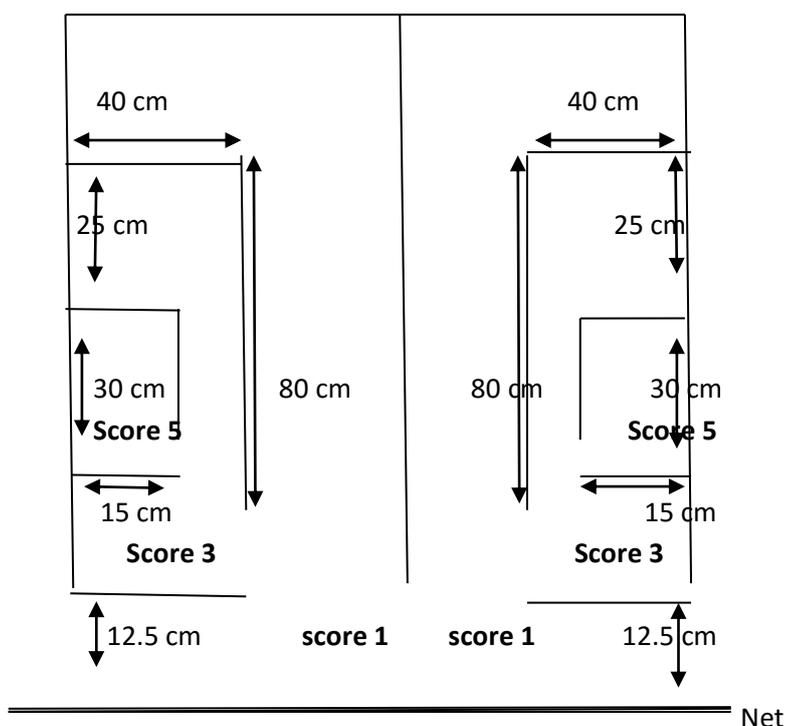


Figure 1. Target Service Test

The purpose of this instrument is to measure the serving stroke ability of the students. There are three target areas which be describe in the table marking above. The first target areas of 30x15 cm, is marked on the side line with score 5. The second target area of 40x 80 cm with score 3 and the third area with score 1. The students was instructed to warm-up and practice before following the test. The score was given according to the bounce of the ball in the marked areas as long 30 seconds. This instrumen be used to collect the data from serving forehand stroke and serving backhand stroke.

The data had been analysed by descriptive statistic and compare mean (Paired sample t test) with SPSS 16 program (Riduwan and Sunarto, (2012) to answered five hypotheses as follow; 1) there is different increasing the ability of table tennis serving stroke students college through environmental approach methods between pretest and posttest. 2) there is different increasing the ability of table tennis serving backhand stroke students college through environmental approaching

methods between pretest and posttest. 3) there is different increasing the ability of table tennis serving stroke students college through environmental approaching methods between pretest forehand and pretest backhand. 4) there is different increasing the ability of table tennis serving stroke students college through environmental approaching methods between pretest forehand and pretest backhand. 5) there is different increasing the ability of table tennis serving stroke students college through environmental approaching methods between pretest and posttest

RESULT

1. Different ability serving forehand stroke students

Serving Stroke

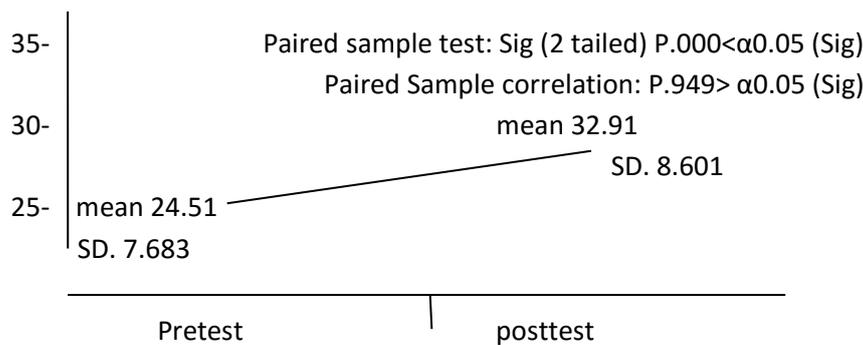


Fig.2: Different mean of serving forehand stroke students

Figure 2 showed that there is significant different the ability of table tennis serving forehand stroke students through environmental approaching methods between pretest and posttest ($P.000 < \alpha 0.05$). According to mean pretest (24.51) and posttest (32.91) showed posttest is better than pretest. This data said that the materials which be given to the students as long as traitment could increased the ability of serving backhand stroke.

2. Different ability serving backhand stroke students

Serving Stroke

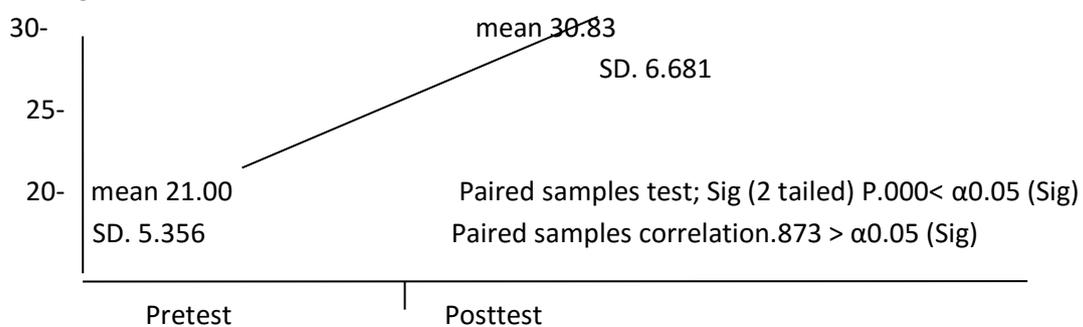


Fig.3: Different mean of serving backhand stroke students

Figure 3 showed that there is significant different the ability of table tennis serving backhand stroke students through environmental approaching methods between pretest and posttest ($P.000 < \alpha 0.05$). According to mean pretest (21.00) and posttest (30.83) showed posttest is better than pretest.

This data said that the materials which be given to the student as long as traitment could increased the ability of serving backhand stroke.

3. Different ability pretest of serving forehand-backhand stroke students

Serving Stroke

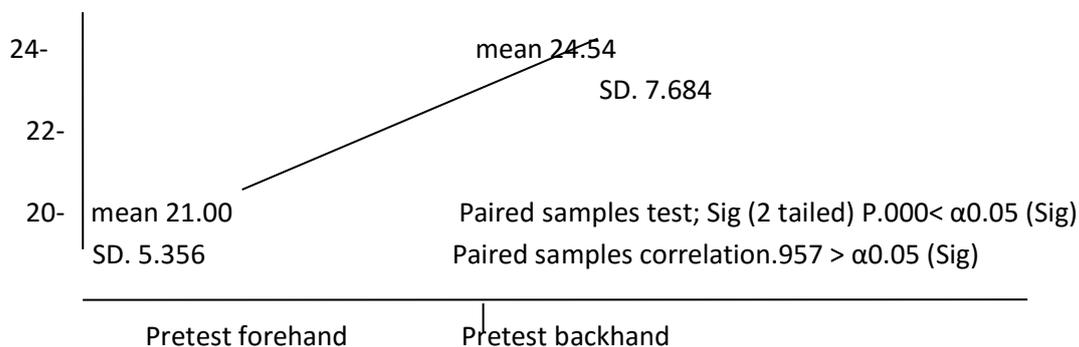


Fig.4: Different mean of serving stroke students

Figure 4 showed that there is significant different the ability of table tennis serving stroke students through environmental approaching methods between pretest forehand and pretest backhand ($P.000 < \alpha 0.05$). According to mean pretest forehand (21.00) and pretest backhand (24.54) showed pretest backhand is better than pretest forehand. This data said that the materials which be given to the student as long as traitment could increased the ability of serving backhand stroke.

4. Different ability posttest of serving forehand-backhand stroke students

Serving Stroke

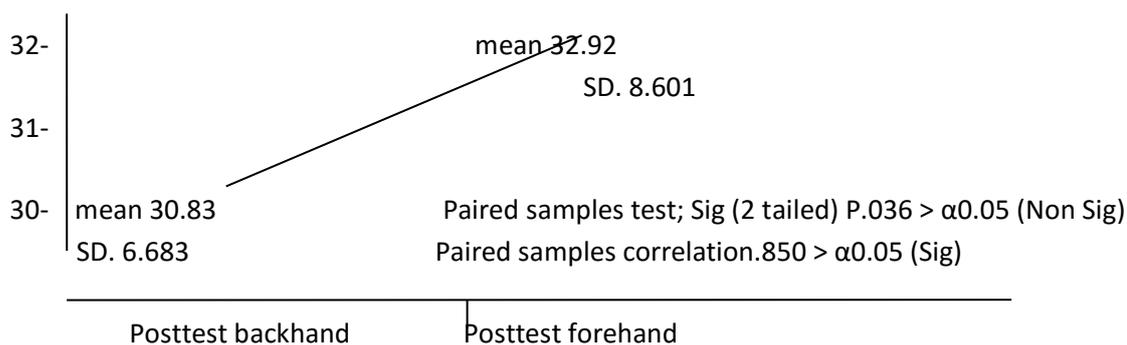


Fig.5 Different mean of serving stroke students

Figure 5 showed that there is significant different the ability of table tennis serving stroke students through environmental approaching methods between posttest backhand and posttest forehand ($P.000 < \alpha 0.05$). According to mean posttest backhand (30.83) and posttest forehand (32.92) showed posttest forehand is better than posttest backhand. This data said that the materials which be given to the students as long as traitment could increased the ability of serving backhand stroke.

5. Different ability combination pretest-posttest of serving stroke students

Serving Stroke

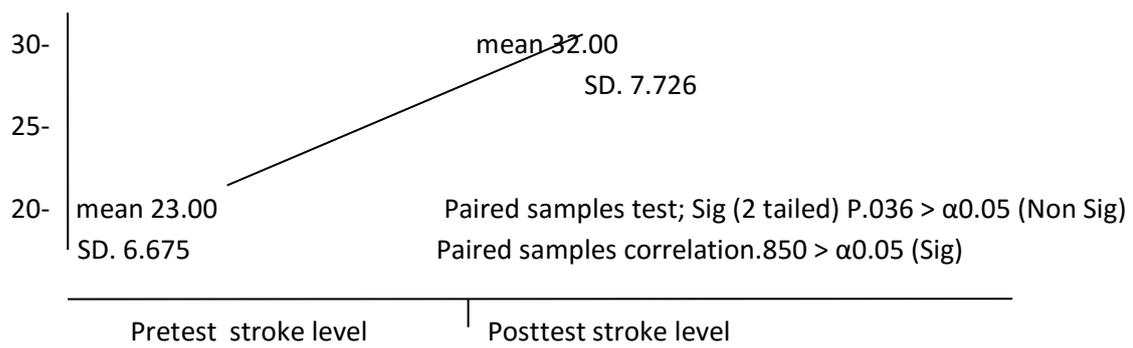


Fig.6: Different mean of serving stroke students

Figure 6 showed there is not significant different the ability of table tennis serving stroke students through environmental approaching methods between pretest stroke level and posttest stroke level ($P.036 > \alpha 0.05 = \text{non significant}$). According to mean pretest stroke level (23.00) and posttest stroke level (32.00) showed posttest stroke level is better than pretest stroke level This data said that the materials which be given to the students as long as traitment could increased the ability of serving stroke level.

DISCUSSION

The increasing of ability the table tennis serving stroke students

The result of this research showed that the environmental method could increase the ability of serving stroke students college as long as learning process. This mean, the materials which had been given to the students college that be adjusted to be media or infrastructure while learning the servicing stroke skill in table tennis can be recomendated become a method to learn the motoric skills.

The increasing of the abilty of the students college in serving stroke skill, support the statement of Singer, (1982:4) that through learning process have to understand or to answer the questions as like; 1) what to do related to psychomotor domain, 2) what to know related to cognitive domain and what to feel related to to affective domain. This mean that the media or infrastructure which had been used as methods in the learning process can increase the ability of serving stroke the students college.

Drowtzky, (1981:17) said that through the learning process will happen the changing attitude as relative permanent, which related to use everythings in the environment so the students can be active as long as learning process. The result of this research support this statement and hope the methods which be used will be managed better in the future, in order to be the new methods in the future for the physical education and sport teachers in the school or in the university.

CONCLUSION

In summary, the result of this research could be concluded as follow: 1) there were significant the ability of table tennis serving stroke students through environmental approach methods between pretest and posttest. 2) there were significant different the ability of table tennis

servicing backhand stroke students through environmental approaching methods between pretest and posttest. 3) there were significant different ability of table tennis serving stroke through environmental approaching methods between pretest forehand and pretest backhand. 4) there were significant different the ability of table tennis serving stroke through environmental approaching methods between pretest forehand and pretest backhand. 5) there were significant different ability of table tennis serving stroke through environmental approaching methods between pretest and posttest

IMPLICATION

According to this research, that there are some informations to be implications, as like; 1) the environmental of the school can be used to be a method or media of learning process in the table tennis lessons. 2) The learning process of the serving stroke the table tennis could be done without using table of table tennis.

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**THE INFLUENCE OF EXERCISE TO TOUCH THE TARGET WITH THE INTERVAL METHOD TO
DEVELOPMENT OF SPEED REACTION TIME AND ACCURACY LUNGE IN FLORET
(STUDY ON FENCING CLUB ATHLETES ATTACK SURABAYA)**

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Abstract

Fencing is a kind of self-defense sport that still needs to keep on to be developed. There are three kinds of weapon used in the Fencing items, namely: 1) Foil, 2) Epee, and 3) Sabre. More of the most important factor in carrying out a technique to play a fencing is a speed reaction time and accuracy lunge to result a point is competition. Remembering the important of a speed reaction time and accuracy lunge in a sport fencing, it is necessary to look for methods of training can roommates an increase of speed reaction time and accuracy lunge. One of effort to an increase of speed reaction time and accuracy lunge is applying or giving method touch with the target interval. The aim of this research is to know the influence of exercise to touch the target with the interval method to Increase on reaction speed and accuracy lunge in florets. The object of this research is an athlete of attack fencing club Surabaya and the amount of the samples taken 20 athletes divided into two groups, namely experimental group and control one roommates consist of 10 athletes for each groups. The methods of this analyze quantitative descriptive uses statistical and comparative methods, meanwhile the process of taking the data is done by pre-test and post-test. The result of descriptive analyze counting can be known that: 1) In the experiment group, the average value of speed reaction time before touch exercise to the target with the interval method (pre-test) is 0.317 and a result after touch exercise to the target with the interval method (post-test) is 0.252. It means that the applying of touch with the target interval exercise method to truly Gives a development of speed reaction time of 0.065 or 65%, 2) In the control group, the average value of speed reaction time before exercise to touch the target with the interval method (pre- test) is 0,296 and a result after exercise to touch the target with the interval method (post-test) is 0.289. It means that the applying of touch exercises with interval method truly Gives a development of speed reaction time of 0.007 or 7%, 3) In the experiment group, the average value of accuracy of lunge before touch exercise to the target with the interval method (pre-test) is 22 and a result after exercise to touch the target with the interval method (post-test) is 28. It means that the applying of touch with the target interval exercise method to truly Gives a development of accuracy of lunge 6 or 6%, 4) in the control group, the average value of accuracy of lunge before touch with interval exercise method (pre-test) is 22 and a result after touch with interval exercise method (post-test) is 25. It means that the applying of touch with exercise interval method truly gives a development of accuracy of lunge 3 or 3%. The analyzing result of paired sample t-test is Obtained: 1) in the experiment group, the value of t-counting 7.64, and the value of P = 0.000. In the other word, that there is a significant influence from a touch to the target with the interval exercise method into a development of speed reaction time., 2) in the group, the value of t-counting -8.508 value of P = 0.000. In the other word, that there is a significant effluence from exercise to touch the target with the interval exercise method of lunge in accuracy into florets. Conclusion: 1) There is a significant influence of exercise to touch the target with the interval method into development of speed reaction time, 2) There is a significant influence of exercise to touch the target with the interval method into development of accuracy of lunge in florets

Keywords: Influence Touch exercise to the target, interval method, speed reaction time, accuracy of lunge, Floret

INTRODUCTION

PRELIMINARY

Background of Study.

One of the characteristics of fencing sport is using weapon which is touching into the target appropriately followed by the speed of time attack reaction, in order to earn points / value. According to Sandra, L. Bauchmoyer & Lefevers Victoria (2007), the measure of success in fencing influenced by the reaction speed and accuracy the fencing athletes's attack at the *touche*. So, the accuracy of *touche* on the attack when reacting is badly needed in fencing.

It is required a special training with the aim is to improve the physical conditions in particular movement with specific skills, which can increase the speed of reaction time and offensive accuracy, especially numbers of florets. According to Paul (2003), that the training provided by observing the intensity, duration of exercise, frequency and rest will thoroughly repair organ regeneration and this training method is called interval training method. Training is a process of practice that is sistematically done repeatedly with the increasing of training load (Harsono, 1996). So, in principle, training is providing physical pressure on a regular basis, systematic, sustainable manner that will enhance the ability of physical activity that is required in muscle recovery with the time between 2 and 5 minutes (Fox et al, 1993).

Same with a research that states that the training is carried out during 6-8 weeks there will be an increase in muscle response when facing the fatigue, it is because the oxygen transport system in the blood leading will get better function (Allister, 1991). Then, the exercise program should be guided by the principles of exercise. Because the training program is a training concept drafted objectively applied to athletes to the goals, objectives, and time are set. According to Freeman (1989), stated that the training program can be planned using periodization. Periodization is a division of the athletes training program into several time levels, where each level has a time of training objectives specifically. There is a division in the periodization program is composed of units of the largest to the smallest unit i.e.: the macro cycle, period, phase, micro cycle, and training sessions. To see the relationships in the planning of training program in a structured, dynamic and systematic.

Interval training method is a form or repetitive training method or series that has interlude time or period of rest (Fox, 1993). The resting period is specifically divided into two: active and passive recovery, depending on the purpose of the exercise is to be achieved. According Rushall (1992), argued that interval training can develop both aerobic and anaerobic energy systems at the level of which varies according to the needs of each sport and athlete. Interval method uses a lot of variation among others: workout distance, duration or length of training, number of replicates, number of series, steps and duration of the interval. The principle of making high intensity interval training and high volume which may at the same time (Nossek, 1995).

In fencing, interval touched training is a form of repetitive training or series interluded by rest time or period, which is used to improve the touch accuracy and speed of time reaction athlete in fencing (Binpres IKASI Sea Games 1993, 1997 and 2007). The purpose of the interval touched training is to enhance the hand muscles, smooth muscle at the pupil of the eye, and nerve that will affect the speed of time reaction and the hand muscle strength related to accuracy strikes, by using a fencing tool (saber fencing) which is touched into the target in interval and repetitive in the fencing ready position and attack with regard to the intensity, frequency and duration of exercise. The

purpose of this exercise is expected to lead to the effects of exercise, namely by increasing the speed of time reaction and accuracy attack (Binpres PB IKASI 1993.1997, and 2007). Speed is one component of many physical conditions that affect the performance of athletes. Speed is needed in many sports, and the fencing is attacking speed. Speed is the ability to use the muscle contraction during a particular action or position, either the minimum or maximum hitch, and the speed will be used gradually and continuously (Silva de Hendry, 1997). According Bomp (1990), the reaction time is the quality that allows through a kinetic response as soon as possible after receiving stimuli. While the meaning of the other reaction time is involved unification (integration) of the central nervous system side on which the perception of the stimulus and the beginning of a proper motion. The reaction time is the time between the individual is given a stimulus to the muscle reaction or the first movement by the individual (Johnson and Nelson, 1984; Philips and Honark, 1979; Ganong, 1991). The accuracy is the ability to direct a motion to the target in accordance with the goal. According to Dervish and Bases (1992), for the development and improvement of accuracy are: 1) the frequency of movements in repeated as much as possible so that it becomes automatic, 2) distance to the target from close to getting away, 3) movement from slow to fast, 4) each there must be a movement accuracy or thoroughness, and 5) are often held games. According Cheris (2005), the attack is a maneuver movement that aims to make forward movement were quick to touch opponents. According to Silva (1997), the attack is a basic technique of a movement, which is a way of moving the position of the body at a certain distance. So it can be said that the attack is an initiative to get points. According Soeratman, (2004), the attacks are offensive action initiatives undertaken to straighten the arm and continuously threatening the opponent's target area being waged by attacking or Fleche.

Design and study design

This research is using experiment. This study has three variables, that are (X) touched to target training with the interval method as the independent variable, while the dependent variable is (Y₁) Speed of reaction time, (Y₂) the touch accuracy. The design of the study are as follows:

Randomized control group pretest - posttest design (Creswell, 2003).

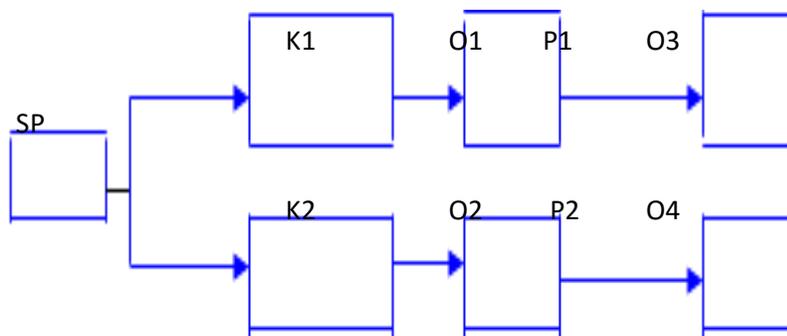


Figure 3.1. Chart of the *pretest - posttest control group design*.

Information:

- SP : Research Subjects (sample)
- K1 : Treatment Group
- K2 : The control group
- O1 : Pretest group I
- O2 : Pretest group II
- P1 : The treatment of treatment group touching to target
- P2 : The treatment of the control group without a target touching
- O3 : Posttest group I after 6 weeks
- O4 : Posttest group II after 6 weeks

METHOD

Population and Sample

Population subjects in this study were male fencer of Junior *Attack Fencing Club* Surabaya. The amount sample in this study is 20 people who are grouped into two by random, and therefore in the overall take.

Speed Reaction Time Test.

Speed reaction time that is expected when an athlete receives stimuli and responds quickly. Speed reaction time is taken three times that pre-test and post-test. Tool that is used is Whole Body Reaction Type II.

Accuracy Attacks Test.

After conducting a speed test of reaction time and then test the accuracy attacks that use "*Kuhadja Fencing Skill Test*" is a test that uses a circular target area with the highest 10 and lowest 1. The diameter of the center circle is 5.08 cm, the next circle outward plus 5,08 cm. This test is done by people trying to stand with the ready position of fencing on the line that has been determined in accordance with the lines being used. Then do a touch. Taken on average three times of touch as much. (Bosco & Gustafson, 1983).

Data Analysis Technique

The collected data were tabulated and analyzed using SPSS for Windows version 13.0 with the significant level of 0.05.

To test the hypothesis, in order to determine whether there is the effect of the treatment given to the reaction time and accuracy attacks on each group of data obtained from the results of tests and measurements in the analysis using ANOVA F test. With the details of the test data is as follows:

6. Descriptive statistics

Used to describe and analyze a given treatment group (Sudjana, 1996).

7. Distribution normality test

To determine whether the obtained data were normally distributed, the normality test. This test needs to be done to meet the requirements of advanced test by using analysis kolmogrov-Smirnov > 0.05 .

8. Homogeneity test

To determine whether the condition before the treatment the same for the whole group (Budayasa K, 2002).

9. MANOVA Test

To test the effect of a given treatment in the experimental group and the control group.

RESULT AND DISCUSSION

The first analysis used is descriptive analysis. Descriptive analysis will present the data in the form of average and standard deviation.

Description Data

Description of data to be presented in the form of research data obtained in the field.

d) Reaction Time Speed Value of Floret Number Treatment Group

Table 4 .1 Based on the average speed of the reaction at the largest pre-test group that is 0.317 compared to group post-test is 0.252. Overall average in the observation group average pre-test is the highest, while the average post-test group is the lowest.

Table 4.1 Description of the reaction time speed value of the Floret number Treatment Group

No.	pre-test				Post-test			
	observation result			mean	observation result			mean
	1	2	3		1	2	3	
1	0406	0336	0347	0363	0334	0275	0280	0296
2	0307	0331	0312	0317	0187	0242	0252	0227
3	0290	0275	0272	0279	0274	0257	0272	0268
4	0342	0333	0336	0337	0253	0268	0275	0265
5	0408	0268	0352	0343	0255	0235	0225	0238
6	0361	0313	0312	0329	0282	0277	0288	0282
7	0278	0259	0253	0263	0199	0210	0241	0217
8	0361	0234	0229	0275	0204	0223	0210	0212
9	0413	0281	0286	0327	0248	0218	0253	0240
10	0365	0353	0310	0343	0288	0262	0285	0278
μ	0353	0298	0301	0317	0252	0247	0258	0252

e) Reaction Time Speed Value of Floret Number Control Group

Based on Table 4.2 the average speed of the highest reaction at pre-test group is 0,296 compared with post-test group that is 0.289. Overall the average on pre - test group observations is the highest average speed reaction, while the average of post-test group is the lowest.

Table 4.2 Description of the reaction time speed value of the Floret number Control Group

No.	pre-test				Post-test			
	observation result			mean	observation result			mean
	1	2	3		1	2	3	
1	0294	0258	0229	0260	0295	0320	0224	0280
2	0310	0293	0244	0282	0276	0272	0238	0262
3	0285	0274	0244	0268	0264	0275	0261	0267
4	0291	0311	0289	0297	0290	0277	0287	0285
5	0350	0297	0288	0312	0296	0275	0278	0283
6	0327	0283	0279	0296	0272	0316	0282	0290
7	0297	0281	0262	0280	0255	0321	0277	0284
8	0272	0263	0257	0264	0249	0325	0291	0288
9	0350	0312	0323	0328	0290	0312	0293	0298
10	0410	0367	0344	0374	0332	0381	0351	0355
μ	0319	0294	0276	0296	0282	0307	0278	0289

f) **Accuracy Attack Value of Floret Number Treatment Group**

Based on Table 4.3, the average accuracy attack post-test group is higher of 28 compared to pre-test group is 22. Overall average at the post-test group observation is the highest average accuracy attack, and the pre-test group observation is the lowest.

Table 4.3 Description of the accuracy attack value of the Floret number Treatment Group

No.	pre-test				Post-test			
	observation result			mean	observation result			mean
	1	2	3		1	2	3	
1	5	7	10	22	9	9	10	28
2	3	7	5	15	9	8	10	27
3	6	7	7	20	10	9	10	29
4	9	8	8	25	10	9	10	29
5	7	6	7	20	9	10	9	28
6	7	6	9	22	10	10	10	30
7	7	4	8	19	10	10	10	30
8	7	8	8	23	9	10	10	29
9	0	7	9	16	9	10	10	29
10	7	9	8	24	9	10	10	29
μ	5	7	10	22	9	9	10	28

g) Accuracy Attack Value of Floret Number Control Group

Based on the Table 4.4, the average accuracy attack post-test group is higher at 25 compared to pre-test group is 22. Overall average at the post-test group observation is the highest accuracy, and on the pre-test group observations is the lowest.

Table 4.4 Description of the accuracy attack value of the Floret number Control Group

No.	pre-test				Post-test			
	day observation			mean	day observation			mean
	1	2	3		1	2	3	
1	6	7	9	22	8	8	9	25
2	6	6	7	19	6	8	8	22
3	5	6	6	17	7	7	8	22
4	8	9	9	26	9	9	10	28
5	7	7	6	20	7	7	9	23
6	7	8	8	23	8	9	9	26
7	7	7	7	21	7	8	10	25
8	7	8	7	22	8	8	9	25
9	4	7	9	20	6	7	10	23
10	5	9	8	22	6	8	10	24
μ	6	7	9	22	8	8	9	25

Normality Test Data

Before testing the hypothesis, the first step that must be done is to make sure that the distribution of data is normal. This is done because the data collected is a ratio scale data. If the data is a ratio scale, then to prove the hypothesis of whether there is influence or the difference between groups was performed with parametric statistical tests that require normal distribution of data.

The normal distribution is the distribution of data that form a pattern bell shape. In the calculation of normality can be tested using the Kolmogorov-Smirnov test. The data criteria whether the data is normal distribution or not is as follows:

3. If Kolmogorov Smirnov significance greater than 0.05 ($p > 0.05$), the data is the normal distribution.
4. If the significance of the Kolmogorov-Smirnov less than 0.05 ($p > 0.05$) then the data are not normally distributed

The complete calculation value can be seen in the following table:

In Table 4.5 shows that all data is in normal distribution, so it can be processed for statistical parametric test.

Table 4. 5 Normality test

Group	Kolmogorov Smirnov	Sig.	Information
pre-test reaction speed treatment group	0658	0779	Normal
post-test reaction speed treatment group	0537	0935	Normal
pre-test reaction speed control group	0601	0863	Normal
post-test reaction speed control group	0907	0383	Normal
pre-test accuracy attack treatment group	0524	0947	Normal
post-test accuracy attack treatment group	0905	0386	Normal
pre-test accuracy attack control group	0542	0930	Normal
post-test accuracy attack control group	0492	0969	Normal

Hypothesis testing

Testing the hypothesis in this study using some test which is paired t test to test the difference before and after treatment. Besides, it also test two t free samples to test for differences between treatment groups (with target) and control (without target). To test the difference in the speed of reaction time and accuracy attack is done with ANOVA test.

b.) Speed differences Reaction Time Floret Number on Target Touching Group and without Target with interval training method

Here is the average speed of reaction time Floret number of the pre-test and post group, and the treatment group and the control.

Table 4.6 shows that the average of post-test speed of reaction time on touching treatment with target is lower, i.e. 0.25230 ± 0.029299 compared to pre-test is 0.31760 ± 0.033718 . the average of post-test speed of reaction time on touchig without target is lower at 0.28920 ± 0.025407 compared to pre-test is 0.29610 ± 0.034834 .

Table 4. 6 Comparison speed time reaction to the pre-test and post-test

Treatment	Group	mean	Std. deviation	N
touching the target	pre-test	0.31760	0.033718	10
	Post-test	0.25230	0.029299	10
Touching without target	pre-test	0.29610	0.034834	10
	Post-test	0.28920	0.025407	10

To ensure that the two groups have significant difference, then, testing the hypothesis by paired t test.

Here are the full results:

In Table 4.7 paired t-test calculation results obtained significance level of 0.000, which means there is a speed difference of reaction time before and after the training is done by touching with target. While in the touching without target, the result is there is no significant difference. With this result, there is influence of interval training method by touching the target at a speed of reaction time in the Floret number.

Table 4. 7 The result of the speed reaction time calculation by using paired t test

Touching the target			Touching without target		
t	Sig.	Information	t	Sig.	Information
7764	0000	There is a significant difference	1,157	0277	No significant differences

To ensure that the use of touching with the target is better than the touching without the target at a speed of reaction time were also conducted with two different free sample test. The data used is the data difference after treatment and before the treatment. Here are the results of t test between two different free samples:

Table 4.8 shows that the training group with the target is being able to make speed reduction reaction time better than the group training without target. Results of testing the homogeneity of variance results obtained both homogeneous group that used the t test results are *assumed equal variances (pooled)*. T test results obtained t value of -5.677 with a significance level of 0.000. So training with the target is making the speed of reaction time proved to be better than training without targets.

Table 4. 8 The result of the t test calculation of speeds reaction time by using two different free samples

Touching training	Mean	homogeneity	t	Sig
with a target	-.0650	Homogeneous	-5.677	0,000
Targetless	-.0070			

h) Differences in Accuracy attack Floret Number on the Target touching Group and without Target with interval training method

Here is the average accuracy attack Floret number at the pre-test and post group and the treatment group (touch target) and control group (touch without target).

Table 4.9 shows that the average post-test accuracy attacks on targets touching treatment is higher at 20.6000 ± 3.27278 compared to the pre-test, 28.8000 ± 0.91894 . The average accuracy attacks on post-test touching treatment without target is higher at 24.3000 ± 1.88856 compared to pre-test at 21.2000 ± 2.44040 .

Table 4. 9 Comparison of the accuracy attack on the pre-test and post-test

Treatment	Group	mean	Std. deviation	N
touching the target	pre-test	20.6000	3.27278	10
	Post-test	28.8000	0.91894	10
Touching without target	pre-test	21.2000	2.44040	10
	Post-test	24.3000	1.88856	10

To ensure that between these two groups there is a significant difference, then testing the hypothesis by paired t test.

Here is more results, the result of paired t test calculations in Table 4.10 showed a significance level of 0.000, which means there are differences in accuracy attacks before and after the training is done by touching the target. In touching training without target may also showed the result that there is a significant difference.

Table 4. 10 The result of the accuracy attack calculation with paired t test.

Touching the target			Touching without target		
T	Sig.	Information	t	Sig.	Information
-8508	0000	There is a significant difference	-11 196	.000	No significant differences

With this result, there is influence of interval training method by touching the target and without target in accurate attacks of Floret number.

To make sure that the touching training with the target is better than the touching without a target in targeting accuracy is also performed with two free samples different test. The data used is the data difference after treatment and before the treatment. Here are the more results of t test two different free samples:

Table 4.11 shows that the training group with the target is being able to make an increase in accurate attack compared to the group training without targets. Results of testing the homogeneity of variance both groups are not homogenous, so that the results of the t test used was *equal variances not assumed (separated)*. T test results obtained t value of -5.086 with a significance level of 0.000. So, training with the target is proved better than training without targets.

Table 4. 11 The result of the accuracy attack calculation using t test with two different free samples

Touching training	mean	homogeneity	t	Sig
with a target	8.2000	Inhomogeneous	5.086	0,000
Targetless	3.1000			

i) Difference Reaction Time Speed and Accuracy Attack Floret Number on Target Touching Group and Without Target with Interval Training Methods

The MANOVA test is used for testing the difference with two dependent variablesthat are the speed of the reaction time and the accuracy of the attack. Here are the complete test results:

Table1 4.12 shows in all parameters of both Pillai's Trace, Wilks' lambda, Hotelling's Trace and Roy's Largest Root acquired a significance level of 0.000. Which means that there are differences in speed and reaction time accuracy attacks on targets and without target touched training by using interval training method.

Table 4. 12 The result of the speed and reaction time accuracy attacks calculation using Manova

Parameter	Value	F	Sig.
Pillai's Trace	0756	26 345	0 .000
Wilks' Lambda	0244	26 345	0 .000
Hotelling's Trace	3099	26 345	0 .000
Roy's Largest Root	3099	26 345	0 .000

CONCLUSION AND SUGGESTIONS

Based on the data that has been collected, processed and analyzed, problems in this study have been answered. Similarly, the hypothesis which is the direction of research activity has been tested, it can be concluded as follows:

4. There is an increase in the speed of reaction time after the touching to target training with interval training method.
5. There is an increase in the accuracy of the attack after the touching to target training with interval training method.
6. Generally that there is an increasing influence and the difference after the delivery of touched training to target and without target with interval training method to speed reaction time and accuracy attack of the Floret number on athletes fencing club AFC in 2010.

Suggestions put forward in this study are:

3. Because science is dynamic, it is necessary to further research involving other possible variables have a role in making the speed of reaction time and accuracy Fencing attack in floret number, so that similar research will be steadier and more in the scientific review.
4. In this study is expected to be a guide to the trainers and observers of the sport of fencing in order to increase the speed of reaction time and accuracy / accuracy of an attack on a floret number.

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**THE DIFFERENCE OF TRAINING EFFECT OF PLYOMETRIC SIDE JUMP SPRINT AND HALF SQUAT TO THE POWER OF LOWER EXTREMITIES
(An Experiment in Male-athletes age 14-15 years at Muria Karate Club
in Kudus Regency 2016)**

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Abstract

The background of this study backs on the data of vertical jump test results that are on average still lacking, a lack of exercise lower extremity muscle power in male- karate athletes aged 14-15, whereas the research problem of this study is: To know whether there are influences of plyometric exercises and half squat against the power of lower extremity of karate athletes of Kudus Muria Karate Club, and the objective of the research is: To know the difference between the two exercises. This method of this study is quantitative research by experiment and the populations are 16 athletes. Meanwhile the sampling technique used is total sampling technique with a number of 16 athletes. The technique of data analysis uses pre-posttest of the obtained data. Based on the calculation of the obtained plyometrics results $t_{4.271} > t_{tt} = 3.7852$ and a half squat $t_{6.524} > t_{tt} = 3.295$. Testing criteria states that reject H_0 if $t(t_h) > (t_t)$, then the first and second hypothesis are accepted, but the third hypothesis there is no significant effect found on both practices. The conclusion of research is that plyometric and half squats exercises can be implemented to increase the power of the lower extremities. The researcher suggest that (1) In giving training athletes the instructors should consider biomotoric age, (2) for the future researchers it is hoped that they can consider the age and the volume of load.

Keywords: Plyometric, Half Squat, Lower Extremity Power

INTRODUCTION

The establishment and sport development are carried out through the stage of exercise introduction, monitoring, scouting and talent development and performance improvement. Talent development and performance improvement can be achieved by an athlete when he can gradually develop talent that will lead to an achievement. (Act No. 3 of 2005: 21).

Definition of an exercise in foreign terminology is often referred to training, exercises, practice. The definition of exercise comes from the word practice that is an activity to improve the skill of exercise using various equipment in accordance with the objectives and needs branch of sport. (Ambarukmi 2007: 1)

Karate is a martial sport that has been growing in Indonesia. Karate is a blend of elements of art, technique of selfdefense art, sports, as well as the inner (spiritual) in containing arts and culture of society to bear and develop martial arts. Karate organization in Indonesia has long been established, but the performance is still far from expectations. It was seen when a team of Indonesian Karate participating at international Championship, such as the Sea Games XXIV, 2007 in Thailand, for example, Karate from Indonesia is still ranked below Vietnam and Malaysia. This

phenomenon should be the basis for the establishment for karate athletes in Indonesia. ([Http: www.Pbforki.Org/PBFORKI-13-153-19122007.pdf](http://www.Pbforki.Org/PBFORKI-13-153-19122007.pdf))

Many karate instructors still tend to use the most favored traditional methods in physical training and technique, yet many approaches have not been implemented to see differences in physical abilities of athletes, as well as the scientific method, for example: they only look at the muscle strength of the lower limb athlete before giving portions and a program of exercise so that the result is maximum.

The achievement of Karate in Kudus regency especially in karate branch of karate undergo the decrease from 2012 - 2014. In the championship of regional student sport game (POPDA) and national student sport Olympic (O2SN) the level of Central Java branch of Karate at Kudus District cannot donate medal. It is so apprehensive, whereas Kudus regency has a huge potential in developing the karate martial art. Regional government along with KONI (Indonesian sport committee) of Kudus regency has made various efforts in order to improve the achievement of Karate, for example: KONI (Indonesian sport committee) has always held POPDA (regional Student Sport game) and O2SN (National Student Sports Olympic) Student's level in Karate sport. Both KONI and POPDA also sent the regional Karate athletes to participate in championship held by Central Java province or by FORI (Federation of Indonesian karate sport). KONI and POPDA also support all Karate Training Centre to hold karate championship in regional, Central Java, and national level. The government also attempts to provide a stimulus to all athletes to perform better, by providing welfare to the athletes and instructors who excel.

Muria Karate Club (MKC) is the first Karate club in Kudus regency established in November 2014. This Club's Manager is Niendyo Woro Permono. Niendyo Woro Permono who is at presents still existing in supplying local athletes who have the potential to improve their achievement. He also recruited former national athlete namely Yellovin Prasetya as a trainer. Moreover a few athletes who've ever won at the regional level, such as: Good Fadli (Kata), Muhammad Azka Yafina (Kumite), Rizal P (kumite), M. Farid (Kumite), Hasnan Habib Saiful (Kumite), Nurul Laili MU (kumite), Falahuddin (kumite), M. Jordan Falatekhan (kumite) were recruited too.

The establishment for physical conditions is intended to optimize the physical ability sportsman as the basis of scholastic achievement. The establishment of physical condition should be given in accordance with technique of exercise, tactics and mental. If one of these components is eliminated, then the training program throughout the year will not be achieved. To achieve high performance, an athlete must have three elements in it, namely: 1) Talent, 2) high motivation, and 3) hard practice (Mansur, 2007: 2).

One of the most supportive physical conditions in practice is a power (explosive). If the exercise is intended to increase the power (explosive power) is trained to athletes aged 14-15 of male karate of Muria karate club in Kudus regency in 2016 so the instructors should know which muscles will be given appropriate training portion in such ages.

Although the male karate athletes aged 14-15 of Muria Karate Club in Kudus Regency in 2016 have been already trained in such a way, however many male athletes in the 14-15 years old still complaining about the weakness of the muscles of their lower extremities.

This is proved in the results of the vertical jump test on male athletes aged 14-15, the results from 16 athletes aged 14-15 are only 5 persons having pretty good results while 11 others are less.

That's why the researcher is very concerned about the exercises being conducted in 2016 for athletes in Muria Karate Club.

Power is one of the most important components of physical condition for karateka who are conducting the exercise, in this case the power can be generated maximally when there is a systematic and structured practice. (Explosive) of muscle power is a very important component to perform explosive movements (fast, strong, and explosive). Power is the mixture of power and speed, when it is formed in the lower limbs of an athlete in MKC therefore it will be very useful for developing the achievements for the karateka.

The exercises aim to improve a strong and fast movement has long been known, while in recent decades it has emerged the exercise that focused on explosive force. Exercises to increase the explosive force can be reached by various methods such as plyometric and weight training. Plyometric exercise is one of the favorite exercises carried out by the current instructor, especially to sports that require explosive power of the lower limb muscles, thus the explosive force (power) is indeed important to use in Karate. While the exercise load like half squats can create explosive force (power) of lower extremity with a continuously or (repeatedly) program performed with the intensity as the portion of the athletes.

STATEMENT OF THE PROBLEM

Based on the background and limitation of the problem then the researcher is able to formulate the problems as follows:

1. Is there any influence of plyometric exercises in the form of side jump sprint exercise in producing explosive force (power) on the entire lower extremity?
2. Is there any influence of weight training exercises in the form of half squat exercise in producing explosive force (power) on the entire lower extremity?
3. Is there the different significant influence between the exercise plyometric exercises in the form of side jump sprint and half squat against the explosive power (power) lower extremity of MKC Kudus Regency?

DISCUSSION OF PROBLEMS

Karate, Kihon, Dachi, and Geri

Karate is a martial art that is developing in the present era. In this discussion, I am trying to explain about Karate-do Shotokan group especially in Indonesia in their competition provide an achievement for Indonesia. Karate in Japanese letter consists of two syllables of "kara" means empty, "te" means hand, and Do means the road / heading track Karate is a science of martial arts using bare hands or without arms, or karate is a technique to fight with bare hands, without weapon, however karate should not be seen as only a technical skill fight its self, because in fact the karate has a meaning far beyond just technique of martial art. Karate is a way of life in which its goal is to give possibility for someone to be able to realize his potential power, both physical and mental aspects related to the spiritual. If karate will ignore the spiritual side, the physical side is less meaningful. (J.B Sujoto 2006: xvii).

The techniques of Karate and using lower extremity muscles

Kihon literally means ground or foundation. Kihon Karate practitioners must master kihon well before studying the word and Kumite. Kihon also will always be associated with Hara as the central source of strength. The principle of Ai which always rotates seems quite synchronic with the anatomy of the pelvic region that becomes the container of overall wrapper Hara overall. (Abdul Wahid 2007: 47)

Dachi is the most important basic movement, because dachi is the foundation of all movements that can generate power lower extremities.

Geri (kick) is the basic techniques of karate using locomotors of bottom leg muscle. Many different and diverse forms of kicks in karate. Geri is used in the fight at a distance that is not too tight, thus power is needed for strong and fast kick.

Exercise Plyometric Side Jump

Sprint

Plyometric exercise is an exercise that is very popular-many instructors to improve the condition of the component 10 physics. As well as to increase the power of the lower extremities in athletes who need strength and plyometric speed. Plyometric exercise also works on the principle that the concentric muscle contraction is much stronger if it immediately follows eccentric contraction of the same muscle. Eccentric muscle movement occurs when the muscle lengthens under load, such as bicep curls decline phase concentric muscle contraction occurs when the muscle shortens under load (John sheperd 2008: 11).

Side jump sprint training is one of the models that uses a low bench or a similar object to jump as a truncated cone and used as the finish line. (Marino 2010: 51)

Load half squat exercise

Exercise of load or weight training is a form of exercise using outside weights or just using his own body as a burden as well as using burble and gym machine or freeweight. Squat (Deep Knee-Band or Half Squat), 2) Front - Squat, 3) Back Squat.Squat is load stored on the shoulder. Furthermore, both knees flexed and then straightened again. This exercise aims to strengthen the muscles of the leg. (M. Sajoto, 1995: 58-59). Half squat is one of movement_to bend the knee up to the elbow parallel to the knee or by bending the knees up to a 90 degree angle and then stand up again (Escamilla et al, 2001).

METHODS

This study is a quantitative research using an experimental research. With the designs of the study are as follows:

Explanation:

Pre- Test treatment Post -Test
Category 1: O1 X1→ O2 →
Category 2: O3 X2 → O4 →

Information:

O1: pretest vertical jump (exercise of jump side sprint).

X1: treatment of side jump sprint training.

O2: posttest vertical jump (jump side sprint exercise).

O3: pretest vertical jump (half squat exercises).

X2: half squat exercise treatment

O4: posttest vertical jump (half squat exercises).

Variable

The variables in this study are included independent variables: Exercises side sprint jump and half squat exercises. The dependent variable is the power of lower extremities.

Population and sample

The populations of this study are 16 people of male- karate athletes aged 14-15 years old at Karate Club Muria Kudus. The samples of the study are 16 persons of male_karate athletes aged 14-15 in Muria Karate Club Kudus.

The equipments used:

Tools used to obtain the study are as follows:

6. Form of a pre-posttest that has been made by researcher.
7. The test tool of vertical jump (unit of centimeters) on the wall.
8. Stopwatch (seconds).
9. A digital camera which is used to take pictures of athletes leap.

Research Process:

In this research the researcher is collecting data by conducting of pre-posttest. Based on the data collection process the first things to do are:

1. Early pretest by means of vertical jump test, to know how strong and how fast stepping on athlete of Muria Karate Club. It is also to know whether the power of the MKC Karate athletes is weak or good.
2. In fact after conducting the pre-test the researcher got an average result of vertical jump is not enough. Therefore the researcher provided treatment for karate athletes by a training provision. The exercises given for karate athletes such as training of side jump sprint and half squat exercise in order to promote the power of their lower extremities.
3. After giving the side jump sprint exercises and half squat drills for 2 months, then posttest was performed by using a vertical jump test. To know whether or not there were influence or increase of the power of their lower extremities. After being given a -2 month training

Technique of Data analysis

The researcher then is going to analyze the results of pre-posttest with a vertical jump test tools using a statistical analysis by analysis of descriptive statistical methods.

RESULTS AND DISCUSSION

The following data are the explanation of the results of the conducted research that is: Research data serves to facilitate the research. The research data include pretest & post test data of the conducted experiment. In addition the result of division of the group from the data pretest that uses the subject of M-S pattern before being treated will be presented by the researcher.

NO	NUMBER	BEST SCORE	RANK	CATEGORY
1.	RONI	54	1	A
2.	AZKA	54	2	B
3.	ULIN	53	3	B
4.	SAUQI	53	4	A
5.	BAGUS	52	5	A
6.	FATTAH	50	6	B
7.	ADI TRI	49	7	B
8.	SIGIT	49	8	A
9.	UMAM	48	9	A
10.	RIZAL	47	10	B
11.	ALDI	46	11	B
12.	AGUS	46	12	A
13.	JORDAN	45	13	A
14.	ZAKKI	45	14	B
15.	HABIB	44	15	B
16.	RADIT	40	16	A

Explanation:

A: Category X1: side jump sprint exercise

B: Category X2: half squat Exercise

After using the M-S pattern hereinafter training provision has been classified. Then data of result of pre-posttest using the test tool vertical jump, then analyzed with normality test, paired t test statistic. Then the table below figure out about normality test results of the research data.

Normality Test Results

Category	P	Sig	Explanation
<i>Pretest Side jump sprint</i>	0.11	0.00	Normal
<i>Pretest half squat</i>	0.15	0.00	Normal
<i>Posttest side jump sprint</i>	0.12	0.00	Normal
<i>Posttest half squat</i>	0.19	0.00	Normal

Tabel4.14 Paired Differences

	Mean	Std. Deviation	Std. Error Mean	t table		t count	df	Sig. 2-(tailed)
				Lower	Upper			
Pasangan Plyometric 1 Pre & Post	3.3750	2.2638	0.8004	1.4824	5.2676	4.217	7	0.004
Pasangan Half Squat 2 Pre& Post	2.8750	1.2464	0.4407	1.0030	4.2980	6.524	7	0.000
Pasangan Plyometric 3 Post&Half Squat Post	0.3750	3.1595	1.1170	-2.2664	3.0164	0.336	7	0.747

Then in the above table below shows that $t_{hit} > t_{table}$:

t_{table} is obtained by deducting Lower & Upper result, while t calculation is clear.

Conclusions and Recommendations

The conclusions of this research:

- 1) There is an effect of plyometric exercises sprint jump to the lower limb/extremity muscle power of athletes of Karate Club Muria Kudus Regency in 2016.
- 2) There effect of half squat to the power of lower limb/extremity muscle of athletes Karate of Muria Club Kudus.
- 3) There is no significant difference at exercise conducted by Karate athlete of Muria Karate Club in Kudus Regency in 2016.

Suggestions on this research:

- 1) In improving lower extremity muscle we can apply plyometric exercise side sprint jump and half squat exercises.
- 2) To pay attention to exercise for outside of uncontrolled treatment to enable them to have possible different portion of training.

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THE INFLUENCE OF PLYOMETRIC JUMP TO BOX AND KNEE TUCK JUMP TRAINING TOWARD LEG MUSCLES' POWER ON THE XI GRADE TKR STUDENTS AT STATE VOCATIONAL SECONDARY SCHOOL NGADIROJO KECAMATAN NGADIROJO KABUPATEN PACITAN 2016

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Abstract

The purpose of this study was to determine the effect of exercise plyometric jump to box and knee tuck jump exercise the leg muscle power, this study used an experimental method (treatment) two-group pretest-posttest design. Sample research is class XI student of SMK TKR Ngadirojo totaling 30 people, divided into two groups, one group totaled 15 people were subjected to box jump drills and group 2, which totaled 15 people were treated knee tuck jump. The results using the formula ttest result plyometric jump training to box on limb muscle power thitung 7.355 with significant level of 5% was obtained ttabel 2.145, 7.335 thitung > ttabel 2,145, there is the influence of plyometric jump training to box on the power leg. Results knee tuck jump exercise value of the leg muscle power thitung 5,895 with significance level of 5% was obtained ttabel 2,145, thitung 5,895 > 2,145 ttable, there are the effects of exercise on knee tuck jump leg muscle power. The results of the comparison the average value of M-e1 > M-e2 (18.85 > 14.23). Based on the calculations, the value of the significant $t = 2.234$ $0.042 < 0.05$, it can be concluded there is no difference between the groups limb muscle power plyometric jump training to box and knee tuck jump after being given a workout

Keywords: Plyometric, Jump To Box, Knee Tuck Jump Training.

INTRODUCTION

Training is a systematically sports activity for a long time, it is improved step by step and personally, aims to build human with physiological and psychological function to fulfill the demand of tasks.

Physical condition training plays important role in athlete's training program, particularly competition athlete. The term physical condition training refers to a training program which is systematical, planned, and progressive, and its goal is to improve functional skill from the entire body in order to improve athlete's achievement (Harsono, 2001:4). Improving physical condition aims to improve athlete's physical skill to the top condition and it is useful to do sports activity to get maximum achievement. There are two methodic ways to improve physical condition, general physical improvement and special physical improvement (Suharno, 1992:24).

The principal of improving training load step by step, is a basic of all sports training planning, from micro until Olympiad cycle, and it must be followed by all athletes without looking at their achievements. An obstacle which is possible to happen on someone's work improvement in training, can cause the stopping of his achievement progress (stagnation) (Bompa, 1994:30).

The term plyometric comes from the Greek plethyein, which means "to add" or "to improve" and the shorter Geek word is Plio means "more" and plyo "move". Metric means "to measure" or "long" (Radcliffe and Farentinos 1985:3). In the other words plyometric is a high intensity training, aims to improve strength and velocity to build leg muscles' power. The intensity of plyometric

training is a control from showed various trainings, plyometric movement from the simplest one to higher and more complex pressure. The examples of plyometric training to improve leg muscles' power are jump to box and knee tuck jump training. Box jump is a jump training which is very useful to build explosion power and bottom part of body power. To do this training it will need a chair or box with a length of 12 until 24 inches (Radcliffe and Farentinos, 1995:62-63).

Knee tuck jump is a training done on a flat and printed surface such as grass, mattress or doormat. This training is done in a series of fast explosive jumps (C. Radcliffe and Robert C. Farentinos, 1985). The knee tuck jump training is a training which is done by standing position, the feet are stretched and the palms of hands faced down as high as the chest, then jump up quickly and move the knees up to chest and try to touch the palm of hands after that land to the ground with the two feet.

Explosive power is a product of power and velocity. Power is a muscle power to assemble maximum power in short time. According to Suharno (1992:37) explosive power is a single muscle or a group of muscles power to save load resistance with high velocity in a whole movement. In other hand power is a product of combination between power and velocity. Therefore, those who are trained have to have power and velocity element. One of the trainings aims to improve leg muscles' power is plyometric and load training. According to Syaifuddin (2006:87) muscle is an organ/tool to make body move. Upper leg muscles (muscles in thigh), have strong membranes named fasia lata.

METHOD

This research was categorized as experimental research which was quantitative method. Experimental was a research which the researcher manipulated and controlled one or more free variables and observed bond variables to find out variances emerged simultaneously with manipulation to those free variables.

In this research the researcher used Two-Group Pretest-Posttest Design method which in this design there was pretest (initial test) before giving treatment. The variables in this research was independent variable that was the influence of jump to box and knee tuck jump training, while dependent (influence) variable was students' leg muscles' power.

Population in this research was grade XI TKR students at State Vocational Secondary School Ngadirojo they were 75 students who were chosen randomly for 30 students. The sample of this research was 30 male grade XI TKR students at State Vocational Secondary School Kecamatan Ngadirojo Kabupaten Ngadirojo Pacitan. Sampling technique used simple random technique which the sample was collected randomly then matched by subject group by separating each group of experimental I and experimental II and dividing the two groups with A-B-B-A formula. The instrument of this research used tests, initial test and final test. One by one student taken the test was measured by vertical jump tool.

Table 1 Research Plan

Group	Pre-test	Treatment	Post-test
Experiment I	<i>Vertical jump</i>	<i>Jump to Box</i>	<i>Vertical jump</i>
Experiment II	<i>Vertical jump</i>	<i>Knee Tuck Jump</i>	<i>Vertical jump</i>

RESULTS AND DISCUSSION

The general image of data result of experiment 1 and experiment 2 group was presented on Table 2.

Table 2 Descriptive of Research Data

<i>Statistics</i>	<i>Pretest</i>	<i>Posttest</i>	<i>Pretest</i>	<i>Posttest</i>
	<i>Experiment</i>	<i>Experiment</i>	<i>Experiment</i>	<i>Experiment</i>
	<i>1</i>	<i>1</i>	<i>2</i>	<i>2</i>
<i>N</i>	15	15	15	15
<i>Mean</i>	54.10	64.30	53.40	61.00
<i>Std. Deviation</i>	8.23	6.65	7.64	5.13
<i>Minimum</i>	37.00	54.50	31.00	48.00
<i>Maximum</i>	73.50	76.00	62.50	69.00

From the table above it was obtained that the information of the students' leg muscles' power average of experiment 1 group before they were given Jump to Box training was 54,1 with standard deviation 8.23 the minimum score was 37 and the maximum score was 73.5. The average of students' leg muscles' power of experiment 1 group after they were given Jump to Box training was 64.3 with standard deviation 6.65 the minimum score was 54.5 and the maximum score was 76. From the table it was obtained the information that the average of students' leg muscles' power of experiment 2 group before they were given Knee Tuck Jump training was 53.4 with standard deviation 7.64 the minimum score was 31 and the maximum score was 62.5. The average of students' leg muscles' power of experiment 2 group after they were given Knee Tuck Jump training was 61 with standard deviation 5.13 the minimum score was 48 and the maximum score was 69. The result of normality test calculation was presented on Table 3.

Table 3 The Result of Normality Test Calculation on Research Data

	<i>One-Sample Kolmogorov-Smirnov Test</i>			
	<i>Pretest</i>	<i>Posttest</i>	<i>Pretest</i>	<i>Posttest</i>
	<i>Experiment</i>	<i>Experiment</i>	<i>Experiment</i>	<i>Experiment</i>
	<i>1</i>	<i>1</i>	<i>2</i>	<i>2</i>
<i>Kolmogorov-Smirnov Z</i>	0.698	0.467	0.782	0.687
<i>Asymp. Sig. (2-tailed)</i>	0.715	0.981	0.574	0.733
<i>a. Test distribution is Normal.</i>				

Based on the calculation it was obtained that sig pretest data value of Experiment 1 group was 0.715 > 0.05 so it could be concluded that pretest data of experiment 1 group was normal distribution. Sig post-test data value of Experiment 1 group was 0.981 > 0.05 so it can be concluded that post-test data of Experiment 1 group was normal distribution. Sig pretest data value of Experiment 2 group was 0.574 > 0.05 so it could be concluded that pretest data of experiment 2 group was normal distribution. Sig post-test data value of Experiment 2 group was 0.733 > 0.05 so it

could be concluded that post-test data of Experiment 2 group was normal distribution. The result of homogeneity data test was presented on the Table below.

Table 4 Homogeneity Test

Data	Group	Variance	Levene Statistic	Sig.	Criteria
Pretest	Pretest Experiment 1	67.757	0.054	0.818	Homogeny
	Pretest Experiment 2	58.436			
Posttest	Posttest Experiment 1	44.279	2.282	0.142	Homogeny
	Posttest Experiment 2	26.321			

Based on the homogeneity test above, for pretest data it was obtained that sig value = 0.818 > 0.05 so it could be concluded that pretest data between Experiment 1 and Experiment 2 group was homogeny. For posttest data it was obtained that sig = 0.142 > 0.05 so it could be conclude that posttest data between Experiment 1 and Experiment 2 group was homogeny. The result of leg muscles' improvement could be seen on the table below.

Table 5 The Improvement of Leg Muscles' Power

No	Group	Average		Improvement	% Improvement
		Pre test	Posttest	pretest – posttest	pretest – posttest
1	Experiment 1	54.10	64.30	10.20	18.85%
2	Experiment 2	53.40	61.00	7.60	14.23%

Based on the calculation it was obtained that $t_{arithmetic} = 0,75$ with sig 0,465 \geq 0,05 so **Ho was accepted**, in other hand it could be concluded that there was no difference of leg power between Experiment 1 and Experiment 2 group beafore giving the treatment. The difference test calculation result of two paired sample t-test averages was presented on the table below.

Table 6 Hypothesis Test 2

Average		T_{arith}	t_{table}	Sig	Criteria
Pretest Experiment 1	Posttest Experiment 1				
54.100	64.3	7.355	2.145	0.000	There was difference

Based on the calculation of t test it was obtained that $t_{\text{arithmetic}} = 7,355$ with sig = 0,000 so **H₁ was accepted**. Then it could be concluded that there was difference between leg muscles' power in Experiment 1 group before and after Jump to Box training. The result of difference test result of two paired sample t-test averages was presented on the table below.

Table 7 Hypothesis Test 3

Average		T_{arith}	t_{table}	Sig	Criteria
<i>Pretest</i> Experiment 2	<i>Posttest</i> Experiment 2				
53.400	61	5.895	2.145	0.000	There was difference

Based on the t test calculation it was obtained that $t_{\text{arithmetic}} = 5,895$ with sig = 0,000 so **H₂ was accepted**, then it could be concluded that there was difference between leg muscles' power in Experiment 2 group before and after Knee Tuck Jump training. The result of difference test of posttest average was presented on the table below.

Table 7 T test of Post Test Data

Average		T_{arith}	t_{table}	Sig	Criteria
<i>Posttest</i> Experiment 1	<i>Posttest</i> Experiment 2				
64.300	61.00	2.234	2.145	0.042	There was difference

Based on the calculation it was obtained that $t_{\text{arithmetic}} = 5,234$ with sig = 0.042 < 0.05 so **H₀ was rejected**, then it could be concluded that there was difference between leg muscles' power of Experiment 1 group and Experiment 2 group after they were given the training.

The improvement of leg muscles' power after Jump to Box training attained 18.85%. The movement in Jump to Box training would make the leg muscles as the rejecter as well as encourager of the body at jumping. Jump to Box training which was done systematically would stimulate leg muscles and front thigh muscle performance. Before jumping up with bending knees hold, that position would make leg muscles assemble optimal explosive power, eventually the jump would be maximum.

The result of this research showed that Knee Tuck Jump training influenced leg muscles' power. The amount of leg muscles' power improvement after Knee Tuck Jump training was 2.66%. Knee tuck jump training trained hamstring muscle power because when doing jump and bending the knees, hamstring muscle was dominant to bottom leg especially on the back side. Hamstring muscle was back thigh muscle.

CONCLUSION AND SUGGESTION

ACKNOWLEDGMENT

From the result of the research, data analysis and discussion it can be concluded that there was influence of plyometric jump to box training toward leg muscles' power of grade XI TKR students at State Vocational Secondary School Ngadirojo Kecamatan Ngadirojo Kabupaten Pacitan Academic Year 2016, there was influence of plyometric knee tuck jump toward leg muscles' power of grade XI TKR students at State Vocational Secondary School Ngadirojo Kecamatan Ngadirojo Kabupaten Pacitan Academic Year 2016, and plyometric jump to box training was better than knee tuck jump training in improving leg muscles' power toward grade XI TKR students at State Vocational Secondary School Ngadirojo Kecamatan Ngadirojo Kabupaten Pacitan Academic Year 2016.

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THE EFFECT OF COBWEBS EXERCISE TOWARDS STUDENT AGILITY IN STUDENTS ACTIVITIES CENTER OF FENCING, SEMARANG STATE UNIVERSITY

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Abstract

The most important thing in fencing is speed. Although the fencing movement only forward and backward, but it takes a qualified physical abilities, especially elements of endurance, strength, power, agility, and speed of reaction. Fifth physical elements became the foundation for students who follow a fencing in students activities center. The purpose of this study to determine the effect of cobwebs exercise towards student agility in students activities center of fencing, Semarang State University. This research is a quantitative study using a quasi-experimental approach that is the subject of the treatment group in the absence of a control group. Goal of this study is 12 students, they are all members in students activities center of fencing, Semarang State University. The data on the agility obtained after the post-test. Data were analyzed using T-test with the help of using SPSS (Statistical Package For Social Science) with a 95% confidence level. From the data collected is then processed and analyzed, the average that the results showed the value of $p = 0.000$ ($p < 0.05$) means that there is a significant influence after being given a workout program cobwebs exercise towards student agility in students activities center of fencing, State University Semarang. The conclusion of this research that cobwebs exercise give effect to increased agility student in students activities center of fencing, Semarang State University.

Keywords: cobwebs, exercise, fencing

INTRODUCTION

Achievement is an accumulation of various factors, including the quality of the physical, technical, tactical and mental maturity. If you want to gain maximum achievement, then these factors need to be well prepared thoroughly, because among the factors with each other interrelated factors, one factor that will determine other factors as well.

According Mochmad Sajoto (1988: 57), physical condition is a unified whole of physical fitness components that can not be separated, both to improve and maintain. The importance of physical condition should be recognized by the coaches as well as all members in students activities center of fencing Semarang State University. The coach should be able to always control the state of the physical condition of his students to be able to detect components of physical ability what it is still lacking and needs improvement training program.

In these conditions, the actions to improve ability of all members in students activities center of fencing semarang state university, especially the agility that is modifying the agility drills. Cobwebs Exercise are agility drills to improve a quick movement, precise and coordinated, because in fencing there is movement backward dodge, parry and ready to retaliate quickly and precisely targeted so that agility is so important for them to improve performance.

According Harsono (2001: 21), "Agility is the ability to change the direction and position of the body quickly and precisely at the time the move". So that students who had been less vigilant when getting an attack of the opponent, converted to quickly and swiftly in receiving attacks from opponents. The purpose of this study to determine the effect of cobwebs exercise towards student agility in students activities center of fencing, Semarang State University. This research is expected to provide a positive indication as well as beneficial to increase agility for all members in students activities center of fencing Semarang State University, especially in the implementation of fencing training.

METHOD

This study will be conducted over 16 sessions in the laboratory of Prof. Soegiyono Semarang State University. Subjects in this study were all members in students activities center of fencing Semarang State University totaling 12 people. Data collection techniques used is total sampling.

Research Variable

The independent variables in this study is cobwebs exercise, while the dependent variable in this study is student agility in students activities center of fencing.

Data collection technique

This study used an experimental method, by providing a treatment that is exercise. This experimental method using a pattern of one group pretest-posttest design. Because in this study used a group of subjects in which the first measurement of agility on each student according to his ability (pretest), and then subjected to treatment for a certain period of time, then measuring the second time (posttest).

Data analysis technique

Data analysis technique used is the statistical analysis, the reason:

- a. Data collected is quantitative data
- b. By using statistical analysis of the results will be more objective.
- c. In the statistics already available techniques and formulas that have been verified.

The formula used to analyze data from experiments using one-group pretest and posttest design.

Factors affecting the study include:

1. Sincerity

Sincerity of each sample is different, so it can affect the study results. To avoid that researchers should provide motivation, control and supervise the exercise, so that the exercise can be run properly.

2. Capability

Each sample has a distinct ability to capture the clarity and demonstration, thus possibly making a mistake in practice still exists. So always held correction.

3. Boredom

To overcome the boredom in the sample during training, the training program prepared in varied so that the training interesting and samples are always training with passion.

Schedule

NO	ACTIVITIES	MONTH						
		1	2	3	4	5	6	7
1.	Design of sampling							
2.	Preparation of data collection							
3.	Data collection							
4.	Data Analysis							
5.	Preparation of reports							

RESULTS AND DISCUSSION

Result

1. Normality Test

Normality test is used to determine a normal data or not, and the data is normally distributed or not. Then it needs to be tested with the One Sample Kolmogorov Smirnov. If the significance or probability value is greater than 5% (0.05) it can be distributed normally. Based on the calculation above is known the value Asymp. Sig. (2- tailed) of pretest and posttest greater than 5% (0.05), so the results of cobwebs exercise can be distributed normally

Tabel, 4.2, Summary Decision Normality Test

Group Data	Value Asym.Sig (2-tailed)	Significant level	Decision
Pretest	0,981	0,05	Normal
Posttest	0,945	0,05	Normal

Sig: significance

2. Homogeneity Test

Homogeneity test is to ensure that variants of each group of the same or similar, so that comparisons can be conducted fairly. To find the data that are homogeneous or can be done with Lavene Test Test. If the significance or probability value is greater than 5% ($P > 0.05$), then the data is homogeneous. Summary homogeneity test with SPSS 16.0. obtained the following results:

Tabel, 4.3, Summary Homogeneity Test.

Group	Test Of Homogeneity of Variances		Conclusion
	Lavene Statistic	Sig	
Pretest Result	1,023	0,273	homogeneous
Posttest Result	1,007	0,103	homogeneous

Sig: significance

The results of the homogeneity of the pretest, it can be seen that: levene statistical value of 1.003 and the Sig. (P = 0.273), due to the Sig. (P = 0.273 > 0.05). While the results of the homogeneity of the posttest, it can be seen that: levene statistical value of 1.007 and the Sig. (P = 0.103), due to the Sig. (P = 0.103 > 0.05), it can be said the distribution of the data pretest and posttest of the member in students activities center of fencing semarang state university is homogeneous.

3. Dependent Sample t-Test

Values used in Dependent test sample t-test is the value pretest and posttest. So that the test results are dependent t-test, as follows:

Tabel 4.4, . Result of Dependent Sample t-Test

Agility		Paired Dependent		T	Df	Sig. (2-tailed)
		Mean	Mean Dependent			
1 st & 2 nd Group	pre-test	15,0715	2,2958	-15,615	53	.000
	post-test	12,7757				

Based on the results of the calculation are written in table 4.4, the above can interpreted, as follows:

- a. Pretest dan Posttest Group, Students Activities Center of Fencing Semarang State University
Ho: Sig > 0,05, it means there is no significant difference between the results of agility drills before being given cobwebs exercise.
Ha: Sig < 0,05, it means there is significant difference between the results of agility drills before being given cobwebs exercise.

Because Sign. <A (0.000 < 0.05), then Ho is rejected and Ha accepted. The conclusion is that there is a significant difference between before and after exercise cobwebs. It turned out that after treatment, the average agility of students increased by 15.2%. So in this study indicate that there is an influence on the agility of the all members in students activities center of fencing Semarang State University proved true.

DISCUSSION

The results of this study stated that the development of agility has benefits for the various elements needed by students in fencing. Elements such agility is clearly in cobwebs exercise. But remember before doing this exercise should be started from simple movements to complex movements.

CONCLUSION AND SUGGESTION

CONCLUSION

Based on the data that has been analyzed as has been described, it can be concluded as follows:

1. Based on the results of the analysis showed a difference before and after cobwebs exercise towards student agility in students activities center of fencing which significantly affect their agility.
2. Based dependent samples T-test pretest and posttest showed that there were significant differences before exercise cobwebs towards student agility in students activities center of fencing Semarang State University.

SUGGESTION

Based on the conclusions, the suggestions can be given as follows:

1. The coaches need to pick and choose the method that suits the characteristics (physical, psychological) athletes.
2. It is recommended to the trainers to provide cobwebs exercise to athletes.

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EDUCATIONAL SPORT CARD GAME AS A PROBLEMS SOLUTION OF CHILDREN THAT ADDICTED WITH ONLINE GAMES

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Abstract

There is rehabilitation center for children who are addicted to online games in China. The approach taken by the rehabilitation center for treating children with Internet Gaming Disorder is one of them is checked in neurological. This disorder was described by the American Psychiatric Association as a new phenomenon where excessive play online games lead to clinical disorders and stress. Since 2013, this association is not even do a lot more research to classify these disorders. Based on the data analysis by literature found card game has several advantages like improving social relations, uphold sportsmanship, simple analysis, fun game, etc. "Anak harus tidak dipaksa untuk bermain olahraga. Olahraga harus dikemas menjadi aktivitas yang menyenangkan yang dapat membangun keterampilan, pengetahuan tentang permainan, persahabatan, dan hiburan" (Hidayatullah, 2008:15). So, card game is expected able to reduce the level of online game addiction.

Keywords: Educational sport, card game, online game

INTRODUCTION

Rarely seen kids playing marbles, kites, hide and seek, and others. Children in this era is often seen playing games on smarthphone, computer, gadget, etc. Not infrequently that today children are more frequent and more like video games on their smartphone or computer. Not even a few children are willing to spend hours of time to play games on the internet shop or cafe. So that children now rarely found playing or exercise that uses a lot of physical activity. in this era many kinds of games, including traditional games and modern games. Traditional games today as kites, playing marbles has been eroded by video game especially online games. Online game consists of two main elements, namely the server and client. The server is a gaming service provider which is the base so that the clients that connect to play games and communicate well. A server in principle only to administer the game and connect the clients. While the client is the game and put on the ability of the server (Ajizah, 2013). Online games have a more negative impact than positive impact, especially for the online game addicts. (Feprinca et al, 2015) Addiction to online games due to desire for achievement, social / interaction and immersion / desire to learn more about online games that are being played will encourage people to continue to play online games that will ultimately lead to addictive behavior person against online game ,

In the digital era, as now, many children spend more time playing online games. They even could be categorized addiction, rather than interacting with their friends directly (Latif, 2016). Online game is a new lifestyle for some circles in every age. Reality is happening in our communities and villages in the city center with many games can become addictive for players (Immanuel, 2009). According to Tan (2014) in his article on online games explains that online games are addictive because the game is required to do a lot of things to keep up with others, with the demands of all the children is usually more time consuming before the game he likes, and consequently there is no

curiosity to play with other kids and just enjoy the solitude ahead of the game. This can have negative consequences for social life. So it is clear that very bad addiction to online games for children. Addiction to online games will have an impact on communication, social, and health problems.

There are 632 million Internet users and there is rehabilitation center for children who are addicted to online games in China. Just imagine, as many as 113,000 cafes and internet cafes can be found in the state with the largest population of this world, many cafe open 24 hour service, even gave place to stay overnight.

In Indonesia alone this internet addiction phenomenon never felt GrandC crew Duniaku.net as a former owner of Game Quarter. He had seen children who all day playing online games. They were still wearing her school uniform. Of course for the gamer citizen and have become parents to always keep an eye on the behavior and habits of beloved children. We do not want our dear family members not experienced the same thing with the kids over?Therefore, the authors are interested in creating an educational sport card game as a solution problem in children online games.

METHOD

The approach used is based on a qualitative descriptive study of literature. This approach hopes to provide precise picture about the state or certain symptoms in the object of study. In this case the authors describe a educational sport card game. There are two kinds data, namely primary data and secondary data. Primary data includes literature that contains knowledge about the sport. Then the secondary data is literature that is relevant to the topics and articles from the Internet. The preparation are arranged with the systematic stages in order to obtain a complete and structured results. The stages are carried out in the writing of this work are as follows: finding and formulating a problem, finding and selecting sources of literature that is relevant to analyze the data to answer the question, formulate alternative problem-solving, make a conclusions and recommend suggestions, and arrange papers.

DISCUSSION

Educational Sport Card Game is a card game played by two or more players are comprised of two types of cards namely sports cards and power cards. Sport card is the primary card in this game, a card that contains sport in bahasa "o", "lah", "ra" and "ga" while the power card is the backup card game that contains instructions punishment in the form of exercise and health such as push ups, sit ups, back ups, pull-ups, etc. Educational Sport card game has a function that sharpen the brain and motoric children and fitness training. The function of a sports card at the appropriate body of the movements performed like push ups, sit ups, etc. Basically a sports game card is not much different from other card games, but in this case the player card sport are invited to move in the form of physical exercise for fitness training. This card can reduce the negative impact of online gaming addiction, such as a lack of communication and health problems due to this card game played by a minimum of two players will automatically bring up the communication by the players. Penalties in powercard can reduce health problems in players.

In general, according to Molly Marsal, Psi., Counselor at the Indonesian Children's Welfare Foundation (YKAI) say, card games teach children about rules, in the card game there are rules that must be adhered together. If the child is not able to understand well the rules of the game, might he

be left behind or lost constantly. Understand the rules should be coupled with discipline. For example, when was her discard and take the card. Without coupled discipline may damage the course of the game. Sportsmanship, in the game there would be a loss and a win. Through the game, children are taught to accept if he was lost and is willing to shuffle the cards or even subjected to other sanctions such as, crossed with lipstick, powder, or others. Conversely, when a win should not be arrogant. Socialization, while playing cards, friendship can be more closely intertwined between parents, siblings, or with peers. Analysis of simple, kids are encouraged to think how in order to win. Thus the child learns to predict, which card should be issued so that he managed to win.

Educational Sport Card Game has several advantages, like train the body fitness, sport card can contribute to maintaining health and fitness training. With physical punishment if late tapped card, it can be a challenge for the players. Train speed / pace reflexes, sport card coachable hand reflex speed, as fast prosecuted hand patted the right card with the pronunciation sequence o, lah, ra, ga. So that the sports card can also be used as entertainment as well as training for martial arts and other athletes who are required to speed the body reflexes. This card sports products are easy to make because the materials used to make it very easy to find. Need creativity to make the sport interesting card so the game will be more fun.

CONCLUSIONS

Educational sport card game can help the development of the sport and health because it can spur a healthy lifestyle by exercising using the fun card game. Sport cards can be used as a smart solution handling online gaming addiction problems in children by encouraging the child to divert his time playing games with playing educational sports card game.

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EFFECT OF EXERCISE FRONT BOX JUMP AND KNEELING SQUAT JUMP ON MUSCLE STRENGTH BACK, MUSCLE STRENGTH LEGS, AND MUSCLE POWER LEGS.

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Abstract

Exercise is the process of improving the quality of athletes consciously separately reached a maximum with a given interpretation of the physical and mental burden on a regular basis, purposeful, gradual increases and repetitive time. Plyometric training is a technique used by athletes in all types of exercise to increase strength and explosive power, to develop the muscle strength back, leg muscle strength and leg muscle power it is necessary to exercise the front box jump and kneeling jump squat. The purpose of this study is to analyze about: (1) the effects of exercise on the front box jumps back muscle strength; (2) the effects of exercise on the jump box front leg muscle strength; (3) the effects of exercise on the jump box front leg muscle power; (4) the effects of exercise kneeling squat jump to the strength of the back muscles; (5) the effects of exercise kneeling squat jump to the leg muscle strength; (6) the effect of the jump squat exercises kneeling leg muscle power. The targets of this research is the son of high school students Ulul Albab Sidoarjo with a total population of 30 people. This type of research used in this research is quantitative with a quasi-experimental methods. The design of this research use only matching design, with data analysis using ANOVA. The process of data collection is done with back dynamometer, leg dynamometer and standing broad jump test during the pretest and posttest. Furthermore, the data were analyzed using SPSS 17.0 series. The result showed: (1) there is a significant effect of exercise program front box jumps to the strength of the back muscles; (2) there is a significant effect of exercise program front box jump to the strength of the leg muscle; (3) there is a significant effect of exercise program kneeling squat jump to the leg muscle strength (4) there is significant effect of exercise program kneeling squat jump to the leg muscle power. The conclusion from this study is that there is an increase in muscle strength back, leg muscle strength, and leg muscle power for each of the groups after being given workout. In addition, there are differences among the three groups seen the effect of the increase in the increase in the strength of the back muscles, leg muscle strength and leg muscle power though ANOVA test, in which the front box jump drills give better effect than exercise kneeling squat jump and the control group.

Keywords: Exercise, Front Box Jump, Jump Squat Kneeling, Muscle Strength Back, Muscle Legs, Muscle Power Legs



**Sport Physiology, Sport Biomechanics, and
Sport Nutrition**

**THE CONTRIBUTION OF PHYSICAL FITNESS AND ANXIETY TO THE SLEEP QUALITY OF OLDER PEOPLE
(A Correlational Study of Physical Fitness and Anxiety to the Sleep Quality of Older People in Kartasura)****Diyono¹, Muchsin Doewes², Agus Kristiyanto³**Student of Sport Science Graduate¹, Departement of Pharmacology, Faculty of Medicine².Departement of Sport Science Studies Program, Graduate Program³.

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Abstract

Old age is a state that will be experienced by humans. The physical change happens in this age group will become a certain problem when it is not treated with proper action since aging process does not only create physical but also psychical problems. Sleep is a rest condition needed by humans. Sleep disorder which often happens to older people can be a disturbing problem in the daily life. Sleeping process does not only relate to a peaceful mind but also a fit condition. The primary concern of this research is to examine the contribution of physical fitness and anxiousness to the sleep quality of older people. This study applies quantitative approach with correlational research method and the population is older adults (>60 years old) from a senior center in Kartasura. There are 60 respondents as the samples. Two out of three employed variables are independent variables which are physical fitness and anxiety, and the other variable is dependent which is sleep quality. Regression and correlation analysis is used as the data analysis technique by doing experiment of preconditions for normality and linearity testing. The hypothetical examination employs regression and correlation analysis, for each are predictor and multiple regression analysis along with double correlation. The result shows that physical fitness and anxiety are related both partially and simultaneously. They create regression equation for the sleep quality of older people, in which the significant relationship between physical fitness and sleep quality is value $p = 0,001$ ($p < 0,05$) while the relationship of anxiety and sleep quality is value $p = 0,001$. Any increase in physical fitness will lead to the improvement of sleep quality for 0,270 and any decrease in anxiety will improve the sleep quality for 0,369. The value R^2 with 0,612 shows that the contributed proportion of physical fitness and anxiety variables towards sleep quality variable is 61,2%. It means that physical fitness and anxiousness contributes for 61,2% while the remaining 38,9% is delivered from other variables which are absent within this test of linear regression model. The research conclusion mentions that physical fitness and anxiety relates and contributes both partially and simultaneously to the sleep quality of older people.

Keywords: physical fitness, anxiety, sleep quality

INTRODUCTION

Aging is a natural process which can be inconspicuous sometimes since it will happen on all systems of human body yet not all of them experience it at the same time. Even though aging process is a universal case, no one knows exactly about the cause or the reason why it happens on people with different ages.

The regression of physical ability on older people is a normal stage which leads to physical and psychological problems including sleep quality. Aside from that, other common problems relate with physical condition, such as sense of balance, strength, coordination, the decrease of body fitness, and others. Older adults also experience psychological problems, including fearfulness, gloominess, and anxiousness. The decrease of physical fitness from the lack of physical activity emerges weakness and limitation of functional activity on the daily life. Anxiousness is a common yet

non-specific symptom from single emotional function which produces the feelings of uncomfortable, fearfulness, and uneasiness in facing the days onward. These problems have possibility in pertaining with sleep quality as the rest phase of an older adult.

From the explanation above, I am interested to use the samples of older people in Kartasura to observe the sleep quality, physical fitness and anxiousness in this research entitled "The Contribution of Physical Fitness and Anxiety to the Sleep Quality of Older People" (A Correlational Study Of Physical Fitness And Anxiety to the Sleep Quality of Older People in Kartasura).

Physical fitness is the ability in doing certain activity by using Vo₂max as the measurement parameter. Here, Vo₂max is the maximal oxygen volume which can be used on a per-minute basis. Guyton and Hall (2008) in Giri Wiarto (2013:13) mention that Vo₂max is oxygen consumption rate in the maximum rate of aerobic metabolism. Thoden in Suranto's module (2008: 118) says that Vo₂max is the measurement of maximal aerobic power estimating the amount of maximal oxygen uptake per unit of time during exercise or test, in which any increase in intensity leads to fatigue. The factors affect Vo₂max are (Burhanudin Sadly, 2015):

- 1) age
- 2) exercise
- 3) altitude (O₂ rate)

The psychological factors are:

- 1) The ability of muscular system in consuming oxygen through energy production process.
- 2) The ability of nervous system, heart and lungs (cardiovascular) in transporting oxygen to the muscular system.

Anxiety is a common yet non-specific symptom from single emotional function. Usually, pathologic anxiousness is a condition beyond normal limit from certain real and maladaptive threat (Kaplan & Sadock, 1997).

One of the general symptom happens to everyone is anxiety. It is an undecipherable and spreadable worrisomeness related to the uneasiness which is impossible to help controlling the anxiousness. **Gamma-aminobutyric acid (GABA)** resistor, as well as endorphin, controls the neuron activity in the part of brain associated with anxiety (Stuart, 2007).

Sleep is defined as an unconscious state in which human can be awakened by receiving sensory stimuli or other stimuli (Guyton & Hall, 1997). Sleep is a process of changes in consciousness happened continuously during certain period (Potter & Perry, 2005). According to Chopra (2003), sleep is two contradictory activities in which the body gets a peaceful rest and the metabolism activity decreases yet at the same time the brain works harder when dreaming, compared to its condition in doing daily activity.

METHODOLOGY

This study was conducted for 4 weeks on November 2016. There are 32 males and 28 females as the obtained samples which are categorized based on sex.

In accordance with the research purpose, the correlational descriptive method is employed. Therefore, correlational descriptive method can be defined as a research conducted by the researcher to understand the connection level of two or more variables without changing, adding, or manipulating the data.

This research applies multiple regression model in analyzing the data. This model is used to understand the influence of independent variable towards dependent variable which is the bank financial performance. Based on the written framework of idea, the research model can be formulated mathematically as :

$$KT = \alpha + \beta KJ + \beta_2 KC + e$$

α	:	Constant
$\beta_1- \beta_5$:	Coefficient
KJ	:	Physical Fitness
KT	:	Sleep Disorder
KC	:	Anxiousness
e	:	error

RESULT AND DISCUSSION

This research tests 2 independent variables towards 1 dependent variable. The independent variables are physical fitness and anxiety while the last variable is sleep quality. Physical fitness is measured with *Balke test* and anxiety is evaluated through *Hamilton Rating Scale for Anxiety (HRS-A)* questionnaire. In this study, the dependent variable of sleep quality employs *Pittsburgh Sleep Quality Index (PSQI)*. The correlational relationship of these variables is shown on the table below:

Table. Correlational result of physical fitness, anxiety, and sleep quality.

Variable	r	Sig. p	Conclusion
physical fitness	.470	0.001	Significant Positive Correlation
anxiety	-.429	0.001	Significant Negative Correlation

Table. The test result of multiple regression hypothesis.

Variable	Unstandardized Coefficients Beta
Constant	1.447
Physical fitness	0,270
Anxiousness	-0,369

Regression Equation:

$$KT = 1.447 + 0,270 KJ - 0,369 KC + e.$$

From the data analysis result, the hypothesis testing can be executed as follows:

1. Hypothesis Testing I

Based on the analysis of the physical fitness to sleep quality variable, the acquired result can be determined from the value of t test with the result shown on table 4.5. It shows that the relationship between physical fitness and sleep quality has correlational coefficient value (r) for 0.470 which means that the relationship has moderate correlation.

2. Hypothesis Testing II

Based on the analysis of the anxiety to sleep quality variable, the acquired result shows a negative relationship of anxiety to sleep quality. It can be determined from the value of t test with the result shown on table 4.5 which points out a significant relationship between anxiety and sleep

quality variable with p value = 0,001 ($p < 0,05$). This relationship has correlational coefficient value (r) for 0.429 which means that the contribution of anxiety to sleep quality has moderate correlation.

3. Hypothesis Testing III

Based on the multiple regression analysis of physical fitness and anxiety to the sleep quality, they mutually produce regression equation as follows:

$$KT = 1.447 + 0,270 KJ - 0,369 KC + e.$$

The equation above shows the physical fitness and anxiety variables which mutually predict the sleep quality. Any increase in physical fitness will improve the quality of sleep for 2,7 and in anxiety improves the quality of sleep for 3,69 (with negative direction). Here, the constant is 1,447 means that when physical fitness and anxiety has zero value, the Y value (sleep quality) is 1,447.

CONCLUSION

1. There is a significant relationship between physical fitness and sleep quality with p value = 0,001 ($p < 0,05$) and the correlational coefficient value (r) is 0.470 which means that the relationship has moderate correlation.
2. There is a significant relationship between anxiety and sleep quality with p value = 0,001 ($p < 0,05$). The correlational coefficient value (r) is 0.429 which means that it has moderate correlation.
3. The regression coefficient of physical fitness shows positive coefficient for 0,270 in which any increase in physical fitness will improve the quality of sleep.
4. The regression coefficient of anxiety shows negative coefficient for 0,369 in which any increase in anxiety will reduce the quality of sleep.
5. The R^2 value is 0,612 which indicates the contribution proportion of physical fitness and anxiety variables to sleep quality variable for 61,2%. In this context, physical fitness and anxiety has a contribution for 61,2% while the remaining 38,9% is delivered from other variables which are absent within this test of linear regression model.

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EFFECTS OF EXERCISES UNILATERAL AND BILATERAL PLYOMETRIC TO INCREASED SPEED AND EXPLOSIVE POWER OF LEG MUSCLE IN MALE BASKETBALL PLAYERS

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LPDP

Abstract

Physical conditions speed and explosive power of leg muscle is part needed in basketball games. Speed is needed dribbling with fast and when doing technique fast break. Explosive power of leg muscle needed when the motion rebound, lay ups shoot and jump shoot, where these movements to produce a dominant figure in the basketball game. The researchers wanted to determine the effect of training plyometric unilateral and bilateral program using the method and compare the training which is more effective to increase speed and explosive power of leg muscle. This research uses experimental, design using is matching only design. This study uses a population of 45 individuals with a sample of the treated group I was 15 people with were given using the method unilateral, treatment group II was given 15 people with training method to bilateral and the control group 15 people without treatment but practicing basketball as usual done. The test used is run 30 meter to measure speed and vertical jump (jumpDF) to measure explosive power of leg muscle. The conclusion of this study training program using the method of plyometric unilateral and bilateral have increase significant effect on the speed and explosive power of leg muscle. To increase speed and explosive power of leg muscle, unilateral is more effective than a bilateral and a control group.

Keywords: Plyometric unilateral and bilateral, speed and explosive power of leg muscle.

INTRODUCTION

Basketball is a type of sport that lately so quickly attracted the attention of many and growing in the life of human beings (Ahmadi, 2007). Basketball is played by two teams, each composed of five players. The goal of each team is to score a number of opponents to the basket and trying to prevent the other team scoring (FIBA, 2012). This sport is a sport which is requiring coordination of the eyes and hands, speed, flexibility, accuracy, agility, power, durability, stamina and a high physical fitness (Swadesi, 2007).

One of the types of training to improve the quality of muscles by using a self loading is plyometric training methods. According to (Chu, 1992) plyometric is a training techniques used for athletes to increase strength and explosive power. While according to (Rimmer and Sleivert, 2000) plyometric is a type of training that develops the muscle's ability to generate power at high speeds (produces Power).

Plyometric training is a type of training that develops the ability of muscles to produce an explosive power (Radcliffe and Farentinos, 1985). Research results Adams, et al in (Singh, 2011) reported that plyometric training can contribute to the improvement of jump, speed, and muscle strength. (Shallaby, 2010) found that plyometric training exercise can improve physical abilities and skills of basketball playing, (Faigenbaum, 2007) that plyometric training improves the performance of jumps and speed of teenager basketball players as well as the results of the research (Rimmer and Sleivert, 2000) shows the influence of plyometric exercises c against 40 meters sprint running.

According to the (Readcliffe and Farentinos, 1985) training for beginners should start the medium exercises like using two-foot and one-foot to increase strength and power. Research results (McCurdy, et al, 2005) unilateral and bilateral training is equally effective for the early phase of improvement of strength and power on one-foot and two-foot on male and female. The pattern of movement of one leg will give the output style relatively high on the hips and around the ankle is relatively low while the movement patterns of two-foot improve high-output pattern at the ankle joint (Kariyama, et al, 2011). Unilateral training movements will lead to a heavier burden than using bilateral training while both of movements are using his own body so that the unilateral exercise is harder or difficult due to the process of squatting while bilateral exercise practices were not too difficult to be appointed. Impellizzeri, et al in (Vaczi, 2013) unilateral exercise in short-term training program will be helpful with the aim of gaining strength quickly. Based on the explanation above, the authors are interested in researching the effectiveness of influence plyometric unilateral and bilateral training methods to increased speed and explosive power in basketball sport. Furthermore, it can be argued the problem formulation of this study as follows: (1) How big is the increasing in unilateral plyometric training to the increasing of speed and explosive power (2) How big is the increasing in bilateral plyometric training to the increasing speed and explosive power (3) Is there any difference in the effect of unilateral and bilateral plyometric training to speed and explosive power.

Training is a physical training program which is planned to help learn the skills, improve physical freshness and especially to prepare athletes in an important match. Training is the systematic process of practice or work, done repeatedly, with increasingly adding loads of exercise or bolder of work (Harsono, 1988). (Bompa and Half, 2009) training is an organized process in which body and mind are constantly exposed to pressure from the various volume (quantity) and intensity. According to Harre in (Sukadiyanto and Muluk, 2011) training is a process of perfecting the ability of exercising with a scientific approach, using the principle of a planned and regular education so as to improve the readiness and ability of the athlete.

The understanding of plyometric according to some authors, such as (Radcliffe & Ferentinos, 1985) is a type of Plyometric to develop explosive power. Plyometric training is important for athletes who require a leap (Chu, 2013). Form of exercise to increase power is plyometric exercises according to (Ambarukmi, et al, 2007). Plyometric movements are done by jumping with one or two feet, with either obstacles or without obstacles. Plyometric exercises is one of the favorite exercise conducted by the current coach, especially to sports that require explosive power ability of limb muscles or muscles of the forearm. From some sense already mentioned, in principle, plyometric exercises are used to increase the explosive power. The results of the study (Sankey, et al, 2012) plyometric training with different intensities can improve jumping ability. (Sankarmani, et al, 2012) a significant improvement over using plyometric training on explosive power of a leg muscle in a regular weight training.

Plyometric exercises a staple in sports that use a lot of power. Eg badminton, high jump and the distance, throwing, basketball and others. (Bubanj, et al, 2010) the results of the two-foot is better than one-foot to jump performance. The results of the study (Sankarmani, et al, 2012) a significant improvement over using plyometric training on explosive power than regular weight training. (Chelly, et al, 2010) Short-term plyometric training can increase leg muscle explosive power and speed. Stannard (Makaruk, 2011) identified the plyometric exercises unilaterally causes a greater

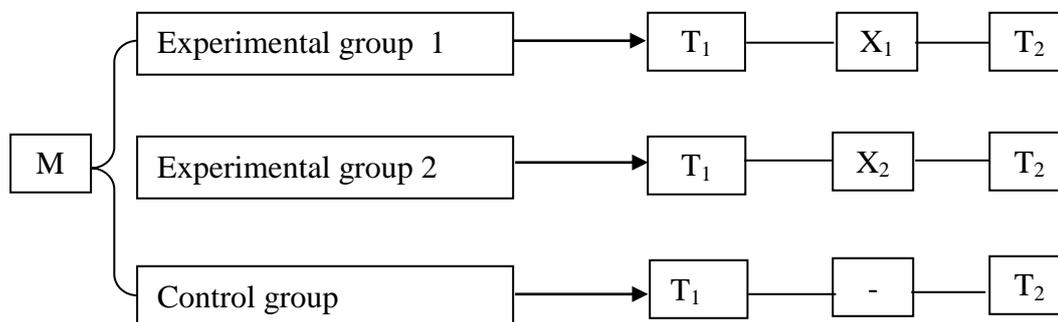
increase (Shankar, et al, 2008) plyometric training can increase vertical leap. As well as results of research (Stojanovic and Kostic, 2002) the influence of plyometric training can increase explosive power.

Speed is the ability of a muscle or group of muscles to respond to stimuli in the fastest time possible (Sukadiyanto and Muluk, 2011). (Sajoto, 1995) is the speed of a person's ability to perform continuous movements in the same form in the shortest time. Bompa, (2009) The speed is the ability to cover distances quickly. Speed is one of the basic components biomotor required in every sport. Every sports activities both games, competitions, and games always require biomotor speed components. A combination of exercise of strength and speed is an exercise to improve the quality of physical condition with the main goal of improving explosive power

METHOD

Strategy and Research Design

This study is an experiment with the design of the study (Randomized Control Groups Pre test-Post test Design) (Maksum, 2012). The study design can be described as follows:



T1 : Speed and explosive power Pretest

T2 : Speed and explosive power Posttest

X1 : Training group 1 : plyometric with Unilateral

X2 : Training group 2 : plyometric with Bilateral

The Population and Research Sample

Population used as subjects in implementation is the male students who followed extracurricular student at SMKN 8 Mataram totaling 45 students. Referring to the design of the study above, the population at the top will be a member of the overall sample, in other words, this study was population research. The technique of grouping samples into three randomized groups. As for the formation of the group in this study is that the group will make three groups experimental 1, experimental 2, and control groups. Then the samples in this study will be grouped as follows group A = 15 people treated unilateral plyometric exercises, group B = 15 people treated bilateral plyometric exercises. Group C = 15 people as a control group.

Procedures

This research is conducted in 8 weeks with 24 times of meeting or 3 times of meeting each week. To clarify this plyometric training in this research.

Group 1 Plyometric unilateral

1. Single leg hop progression
 2. Singgle leg lateral hops
- Group 2 Plyometric bilateral
1. Double leg hop progression
 2. Double leg lateral hops

Research Instrument

1. Speed Measurement using a 30-meter runing (Ministry of Youth and Sports Republic of Indonesia, 2005: 29)
2. Power Measurement explosive leg muscle using DF Jump

Data Analysis Techniques

In accordance with the hypothesis and the type of research used in this study, the statistical analysis used to determine the effect of plyometric training unilateral and plyometric bilateral to increased speed and explosive power in the players basketball, is a t-test paired sample test, the decision of rejection of the hypothesis at $\alpha = 0.05$ and using Analysis of Variance (ANOVA) with significance level of 5% as compared more than two samples.

RESULTS AND DISCUSSION

Description of data to be presented in the form of test data speed and explosive power leg muscle before (pretest) and after (posttest) is given to the treatment of each group include: group I plyometric unilateral, group II plyometric bilateral, research was conducted the male students who follow basketball extracurricular taken as many as 45 athletes and divided into three groups, and each group totaled 15 people

The Analysis of the Hypothesis Testing

To answer hypotheses have been proposed, then the analysis test used in this study is different test average (mean difference test) using test- t- paired t-test analysis. The value used in the calculation of test-t paired t-test is the value pretest and posttest of each group (group I, group II and group III), with the presentation of the data, the final result of test- t- paired t-test is as follows:

Speed		Mean	Sig. (2-tailed)	Description
Group I	<i>pre-test</i>	4.72	0,000	Significant
	<i>post-test</i>	4.27		
Group II	<i>pre-test</i>	4.56	0,000	Significant
	<i>post-test</i>	4.40		
Group III	<i>pre-test</i>	4.75	0.000	Significant
	<i>post-test</i>	4.67		

Explosive leg muscles		Mean	Sig. (2-tailed)	Description
Group I	<i>pre-test</i>	100.62	0,000	Significant
	<i>post-test</i>	104.15		
Group II	<i>pre-test</i>	95.93	0,000	Significant
	<i>post-test</i>	98.03		
Group III	<i>pre-test</i>	102.88	0.008	Significant
	<i>post-test</i>	103.62		

Based on the above table mean calculation results of different test paired samples t-test using paired t-test as follows:

Group I (plyometric unilateral) and group II (plyometric bilateral)

The result of the calculation of the t-test paired t-test on the provision of plyometric exercise unilateral and bilateral plyometric by looking at the value of Sig. (2-tailed) .000, then it can be concluded that H_0 is rejected and H_a accepted because the Sig. 0,000 < value of $\alpha = 0.05$. In other words, there is a significant influence on the administration of unilateral plyometric exercises and bilateral plyometric to the speed and leg muscle explosive power in male students who follow extracurricular basketball at SMKN 8 Mataram.

1. Test Mean Difference between groups (ANOVA).

The mean difference tests between groups simultaneously done using analysis of variance (ANOVA). According to (Maksum, 2012) One Way ANOVA is a parametric statistical technique used to test for differences between three or more groups of data. The steps in the formulation of hypothesis testing as follows:

Table Test Results Calculation Differences between groups of speed and leg muscle explosive power

Source of Variation	Df	F Count	F Count	Sig.	Description
Between groups	2	3.452		0.041 0,000	Significant
In a group	42		26.163		
Total	44				

According to the table above calculation results of different test between groups using One Way Anova possible to conclude that the results of the mean difference between groups, because the calculation results show the value of Sig. 0,041 < α value of 0.05 and Sig. 0,000 < α value of 0.05, it can be said that H_0 is rejected and H_a accepted. In other words, that there are significant differences between the exercise results of plyometric unilateral group, plyometric bilateral group and the control group on the speed and leg muscle explosive power

CONCLUSIONS

LSD analysis results showed that the results of plyometric exercises unilateral, bilateral and control turns plyometric differ significantly. The resulting differences between the mean value indicates that plyometric exercise unilateral influence better than the bilateral and plyometric exercises control over the speed and leg muscle explosive power in male students of SMKN 8

Mataram. This is evident from the above that the provision of descriptive exercise in group I had a greater influence in increasing the speed of the male students of SMKN 8 Mataram who follow extracurricular basketball.

RESULTS

DISCUSSION

The speed and explosive power leg muscle are component of physical condition which is very important to the success in playing basketball. To master the basic techniques in the game of basketball a person must have the speed and explosive power of leg muscles because the basic techniques in the game of basketball such as dribbling, lay-ups, jump shoot and scramble the ball (rebound) is a basic technique which is supported by the speed and explosive power leg muscle for success in the game of basketball, because in many games, the team that did the most rebounds during the game will earn the victory. Therefore it is very important for every basketball player to have the speed and explosive power of leg muscle

Granting unilateral plyometric exercises give better results than the provision of bilateral plyometric exercises in order to increase speed and leg muscle explosive power results in extracurricular basketball male student at SMAKN 8 Mataram. From the results of tests of significance using a post hoc test states that there are significant differences between the administration of plyometric exercises unilateral and bilateral plyometric to the speed and explosive power of leg muscle in extracurricular basketball of male student at SMKN 8 Mataram.

The results of plyometric exercises unilateral provides greater improvement compared with plyometric exercises bilateral due to movement of plyometric exercises unilateral will lead to a heavier burden than the plyometric bilateral while both of them using his own body so that the plyometric exercises unilateral is harder or difficult due to the process of squatting while the exercise by the two legs practices were not too difficult to lift, the pattern of movement of the foot will exert a force output and hips are relatively high and relatively low around the ankle area while the pattern of movement two feet high boost output patterns at the ankle joint (Kariyama, et al 2011) From the results of the bilateral and unilateral plyometric training research, influence to increase the speed and explosive power of leg muscle, according to the research results of McCurdy, et al (2005) the training of one foot and two feet are equally effective for initial phase of improvement of strength and power on one foot and two feet on male and female.

Thus unilateral better plyometric training in improving the speed and explosive power leg muscle. This result is consistent with the findings of relevant research results. Whereas in trained female, one foot jump training boosts high jumps, shorter than the training of two feet (Makaruk, in Vaczi et al, 2013). Similar results were reported by Dalacore, dkk in McCurdy, et al (2005) the plyometric training one foot better than two feet to improve explosive muscle legs of one foot and two feet on women's volleyball players, so it can be used as a reference on the exercises increased speed and explosive leg muscles.

CLOSING

CONCLUSIONS

1. Unilateral plyometric treatment Program has significant impact on increasing speed and explosive power of leg muscle.

2. Bilateral plyometric treatment Program has significant impact on increasing speed and explosive power of leg muscle
3. There is difference between the effects of plyometric unilateral and bilateral plyometric on speed increasing. Unilateral Plyometric treatment program is more effective in improving the speed and explosive power of leg muscle when it is compared to bilateral plyometric and control treatment program.

SUGGESTIONS

Based on the conclusions above, it can be made a suggestion to improve a sports exercise in basketball, especially in plyometric exercises. In accordance with the research results, the suggestions will be given include:

1. Application of unilateral plyometric exercises turns giving better results than bilateral plyometric exercises to increase speed and explosive power of leg muscle, therefore this unilateral plyometric exercises should be used as a reference in short-term courses for trainers in training provision of speed and explosive power of leg muscle increasing and consider bilateral plyometric training for long-term training program.
2. If a coach gives training programs, he should certainly pay attention and treat athletes appropriately with the characteristics and level of ability of the athletes especially in the determination of sets and reps in order to achieved maximum results without experiencing overtraining.
3. Require further study on the application of plyometric exercises, especial, ilateral and bilateral plyometric to the speed and explosive power of leg muscles with different populations and a number of more samples that is expected to get more precise resul' garding the implementation of the training methods.

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SURVEY LEVEL OF PHYSICAL CONDITION OF STUDENTS PRODI PENJASKESREK STKIP TAMAN SISWA BIMA

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Abstract

The specific objective of this research is to gain an upgrading of skills through physical conditions at the level of students Penjaskesrek STKIP Taman Siswa Bima categorized very high, high, medium, low, very low. The method used in this penelitin is descriptive quantitative research is the kind of research that give an idea or commentary on a situation as clear as possible without any treatment of the object under study. The study population numbered 151, of the number of samples will be taken sample of 60 people. The results of survey research through VO2max levels of physical condition MFT bleep test. That level of physical condition of students Penjaskesrek STKIP Taman Siswa through MFT bleep tests exist at the level of 5-11 categorized as very high, high, medium, low and very low on the average value of 2434.6. Thus the physical condition of students Penjaskesrek good standard category.

Keywords: physical condition, VO2MAX, MFT bleep test.

INTRODUCTION

Competency of students Penjaskesrek one of them is physical competence (physical fitness) that is important in the activity of motion is thus a strong basic foundation for humans. According Afriwardi, (2011: 31) "physical Fitness is a condition when the body still had strength left to carry out activities that are lighter sporting or entertainment after the activity / routine physical activity". Thus it is very urgent to get the student competency mapping exercise in this study. This research will test the physical fitness of the cardiovascular, therefore, we will get the accurate data on the ability of the students who have the potential of skills which is good. So from the background of the above problems while the problems in this study was the physical condition of students Prodi Penjaskesrek STKIP Taman Siswa Bima through MFT bleep test.

Strengthening to potential in sport student needs through some tests and measurement that exist in sport science, because the sport is not just a theoretical potential possessed by students, but most important, and the main is the potential skills. Because sport student will become educators who are able to implement the knowledge they have.

Formulation of the problem In accordance with the identification problem, so as for the formulation of the problem in this research are as follows: What is the level of physical condition of the students Prodi Penjaskesrek STKIP Taman Siswa Bima who has the ability sagat high, high, medium, low and very low?

Research purposes

The purpose of this study is

1. To determine the level of physical condition of students Penjaskesrek STKIP Taman Siswa Bima
2. To determine VO2 Max is there any difference on the level of physical condition of students Penjaskesrek STKIP Taman Siswa Bima

Scope of problem

1. The ability of students Prodi Penjaskesrek STKIP Milky Student Park in the exercise of physical condition. These restrictions are adapted to the problems discovered in the early observation.
2. The heart and lung endurance of students to exercise the level of physical condition through VO2 Max using MFT test bleep

Benefits of research

1. Guidance training using the training methods and test the level of physical condition,
2. The creation of teachers who have skills in the sport, and the addition of the amahasiswa reference experience

Understanding Sports

Sports from period to period has its own record in development, good record of achievement and a record decline in athletic performance itself. Not to mention the problem at the level of competition of athletes, coaches, and government bureaucracies, thus to overcome this problem is bersinergis to build such a great sport. The negative dynamics that occur in the body of the sport should be abolished, now being built is a positive value. According to Agus Kristiyanto (2012) Linkage public dynamics problems with the issue of sports, sometimes are real and looks very thick, but sometimes are vague. The problem is not limited to sports news only addresses problems of competition or event activities neighbor race to the branches of a particular sport. Problems sports wrapped by a variety of multi-complex and multidimensional problem. In insights so, then the dynamics of public high acceleration will lead to actual problems of sports must be coupled with other issues that are umu. Sports bersimbose with the political, economic, social, and cultural. The following will describe the terms of the sport. Now the sport has an important role in human life. Through sports can be formed healthy human physical, spiritual and has a personality, discipline, sportsmanship so high that eventually will form a human quality. A fact which can be observed in the world of sport, show a tendency to an increase sports performance rapidly from time to time either local, national or international. It can be seen from the record solutions which continue to be made in certain sports, the appearance of effective and efficient technique to be reviewed by a good physical condition

Training methods

Harsono, (1992) in Joseph Hadisasmito and Aip Syarifuddin, (1996) comprises the following exercises:

- a. Physical training
This exercise is specifically indicated to develop and improve the physical condition of athletes, which includes the physical components include: muscle strength, endurance, flexibility (flexibility), stamina, speed, power, stamina muscle, agility, balance, and others. Exercises for memahirkan movement techniques. Exercise techniques are exercises specifically meant to establish and develop motor skills and neuromuscular habits.
- b. Exercise Tactics
Exercises to foster the development of interpretive power or commentary on athletes, the patterns of the game, strategy, tactics of defense and attack, making it virtually impossible hesitate opponent will be able to mess up our team with a form of attack or defense that we do not know.
- c. Mental Exercise

Mental development of athletes is no less important than the development of the three factors mentioned above. Though no matter how perfect physical development. Technique and tactics of an athlete. Peak performance unattainable if not also growing mentally. Therefore, every game is not just a battle of the body, but also a battle of the mind, even 70% is a mental problem and only 30% of other issues. Mental exercise more emphasis on the development of maturation (maturity) athletes and emotional development-implusif, for example, the spirit of play, unyielding attitude, confidence, sportsmanship, maturity champion, emotional balance even in a stressful situation and snxiety, and so forth. Regular exercise impact on decreasing the frequency of the pulse at rest and during exercise-training with sub-maximal load. It thus increasing the efficiency of the functions it menunjukka Ergosistemma-2. The value of the maximum heart rate among children trained to untrained no different. Exercise regularly after a couple of months significantly increase strokevolume (fill rate) of the heart. This is why the heart can pump the same amount of blood with pulse frequencies less. Regular physical exercise produces functional balanced development impact on dimensions such as volume cardiac, respiratory volume, the value of total hemoglobin, blood volume and value Vo max. Increased circulation function is also due for being good blood distribution diperiferi and their biochemical adaptations of muscles.

Training Objectives

The purpose of training is essentially increase the maximum limit (BKM) primary (anaerobic capacity) and secondary BKM (Aerobic Capacity) through anaerobic training and aerobic training strongest and accurate. Anaerobic capacity is the initial working capital, while the aerobic capacity is to support working capital.

Furthermore, it should be understood what is really being targeted physical training. Physical training target both the anaerobic and aerobic than two goals:

- a. Local Training: Training the muscles are treated to a variety of motion tasks
- b. General training (general / systemic): ergosistema thorough training (Santoso Giriwijoyo, et al. 2012)

Sufficient physical activity is very beneficial for children, because it stimulates bone growth, develop the capacity of the lungs. Mempelancar training is also beneficial for blood circulation, lower blood pressure, and reduce the level of cholesterol. This became the basis for treatment in training. for program increases physical fitness is good, students should be more mobile. (Syarifuddin, 2012).

Definition of Physical Fitness Physical fitness is absolutely owned by the personnel sports because physical fitness is an important part in the human body, the following will be described in terms of physical fitness.

According to the President Council On Physical Fitness And Sport quoted by Charles T. Kuntzleman and The Editors Of Consumer Guide, 1978 (in Junusul Hairy 2010) Centre is the physical ability to carry out everyday tasks diligently and vigilance, without experiencing fatigue means and still be able to enjoy their leisure time and deal with things that are not unexpected.

1. Components of Fitness physical Giri Wiarto (2013) components contained in physical fitness are:
 - a. Speed (speed);
 - b. Agility (Agility);
 - c. Coordination

- d. Endurance
- e. The balance
- f. Flexibility
- g. Strength
- h. Explosive power
- i. Reaction time

2. Body composition

Importation of energy to the body in the form of energy must eat the equivalent expenditure of energy, because energy can not be created or destroyed. Arrangements or energy use include (1) the external work done by the skeletal muscles to move external objects or moving the body in the external environment; (2) the internal workings. Which consists of all the energy-dependent activity of other non including the external work of the heart muscle and smooth muscle, gland secretion, and protein synthesis. Only about 25% of the chemical energy in food is used to perform internal work on kahirnya emerged as body heat. Metabolic rate, the energy expenditure per unit of time, measured in kilocalories of heat generated / hour (Didin Tohidin, 2010)

Physical fitness that will either make up a good performance, if physical fitness is owned by athletes capable supplied by the energy carried during exercise will be forming force is very powerful, so physical fitness is inseparable from the introduction of the right energy on the production of motion that are efficient in physical activity sports. Of the various terms can be concluded that physical fitness is the ability and the body's ability to make adjustments or adaptations to the physical load without causing excessive fatigue. The level of physical fitness that is owned, can be seen from the ability in physical activity. People who have better physical fitness can run physical activity, daily to efficiently, effectively and productively without experiencing significant fatigue.

Physical training

Physical exercise is a physical activity according to how certain rules are carried out systematically in a relatively long time as well as the load increases progressively. Physical Latihan aims to improve the efficiency of the system functions on parts of the body and prevent injury dominant actively used. Physical training developed and implemented for the achievement of various objectives, namely: health (preventative and rehabilitative).

Recreation and physical kompetitif. About exercise continues to grow, nukan A variety of means applied, but also a scientific assessment of land for improving the quality of human resources. It must continue to be cultivated, because with the challenge of either bio-physio-psycho-social of private actors and the environment around us increasingly complex weight (Goddess Laelatu Badriah, 2013)

Exercise physical condition are packaged in a physical exercise program, will result in changes to the various systems of the body, ranging from: the nervous system. Muscular system, connective tissue systems, systems of respiration, heart-system of blood vessels, immune system, reproductive system, and hormonal systems, which are generally aimed at improving the health status of the perpetrators. Beginning in the 1980s studies Physical exercise is seen from the sport kinetics is the study of the movement of energy that creates motion, and change the position on somewhere for some reason when exercising. Includes a basic understanding of human motion and structural

influences that affect motion. It is important to complete the appropriate activities and enhance the ability of the kinetic analysis in sports. Efficient motion is motion that sustain the success of the sport appearance. Perfection of sports skills depend very high ability to apply the principles of kinetic (Ricky Wirasasmita, 2013)

The physical condition is one of the preconditions that are necessary in any efforts to improve the achievement of an athlete, it can be said basic foundation of the starting point of a prefix sporting achievement. The physical condition is a unified whole of the components can not be separated, either increase, or maintain. This means that any efforts to improve the physical condition, then it must develop all these komponenene. Although it should be done with the system prioritas, (what components should receive training portion larger than the other components). Corresponding status is known, after the component is measured and assessed. component-component physical condition can dikemukakan as follows:

1. The power or strenght.
2. The durability or endurance
 - a. Local muscular endurance or local endurence
3. General endurance or cardiorespiratory endurance
4. Explosive power or muscle power musculer
5. The speed or speed flexibility or flexibility
6. Balance or balance
7. Coordinate or coordination
8. The agility or agility
9. The precision or accuracy
10. The reaction or reaction

As with komponenene balance, coordination and agility, then the component accuracy and better reaction given in the training program each branch (Mochamad Sajoto, 1988)

Understanding VO2 Max

Physical activity was measured using a short form International Physical Activity Questionnaire (IPAQ). Determining the level of activity based on the volume of activity in time particular for seven days back in units of METs-minute (IPAQ Research Committee, 2005). Some statistical tests include Kruskall-Wallis test, Spearman's test, and Friedman test was used to analyze the correlation factor of BMI, gender, and physical activity on VO2max values

Sharkey cited by Suharjana (2008) to lead a healthy life one must observe a 7 habits of life, namely:

1. Exercise regularly
2. Sleep taste
3. Breakfast was good
4. Eat regularly
5. Weight control
6. Freedom from cigarettes and drugs
7. Not menkomsumsi alcohol

Hypothesis

Based on the results of the study of theories have been put forward, it can be formulated hypothesis in this study as follows:

1. An increase in good physical condition terhadap students who have the ability VO2max test bleep
2. An increase in VO2max test bleep between categories is very high, high, medium, low and very low

Framework of thinking

The framework to be presented in this study, based on a true theory and deals with variables that are objects of this study. In addition to the frame of mind is also the rationale of the research that will be developed in this study. The framework is expressed as follows:

To improve the physical condition up to the proficient level, needed physical exercise focused on physical factors VO2max test bleep, which are of very high ability, medium, low and very low.

From the above, in this study considered that the determination of the ability of the physical condition through a VO2max test bleep can be determined by having the ability is very high, medium, low and very low. So expected is going relationship between the dependent variable with the independent variable.

Relevant Research

The relevant research in this study are as follows:

1. Siti Hanifah. 2015. Analysis of VO2max Students SMA Negeri 1 Balung Jember
2. Yanuar Reza Amos Rahanyaan. 2013. Physical Condition Survey on Student Ekstrkurikuler Dragon Boat Rowing SMA Negeri 22 Surabaya

METHOD

Types of research

In accordance with the existing problems, this kind of research is quantitative descriptive approach for the results of the research presented in the form of images. Descriptive is the kind of research that give an idea or commentary on a situation as clear as possible without any treatment of the object under study.

Place and time of research

Research Sites

This research will be carried out on the tennis court STKIP Taman Siswa Bima.

Research time

The time in the conduct physical tests students Prodi Penjaskesrek STKIP Student Park this Bima ie for one semester

Population and Sample

population Research

Population is the generalization region consisting of: objects / subjects that have certain qualities and characteristics defined by the researchers to learn and then drawn conclusions (Sugiyono, 2013). From the definition above, the population of the population in this study were

male students Prodi Penjaskesrek STKIP Taman Siswa Milky year 2015/2016, which amounted to 151 people.

Sample Research

In this study the sample was male students STKIP Taman Siswa Milky many as 60 people. In this study using purposive sampling random sampling is a sampling technique based on the rank or the needed resources to research. Arikunto, (2003: 125) says that for the experimental nature of the research, the sample size of more than 30 people a larger sample. This means the number of samples of 60 students is quite representative (representing) the number of population in this study.

Techniques and Data Collection Instrument

Data Collection Techniques

- a. To prove the accuracy of the data in this study, it will use the testing techniques (Dany and Arikunto. 2012). MFT goal to measure up the heart and lungs with a predicted VO₂ Max, bleep test. Which cover:
- b. Researchers explain the procedures for conducting tests MFT bleep
- c. Samples warming
- d. 20 meters
- e. Width of 1 meter per track
- f. MFT test stage bleep
 - Standing behind the starting line
 - Waiting for the instruction of the playback tape MFT test bleep
 - Perform a run with a distance of 20 meters
 - Students are not allowed out of the track
 - Students must not disrupt the other runners
 - Assessment of students do a run of points 0-20 meters, at the first level, and alternating first student doing a run. And so on until the sample no longer able to continue to run at the next level

Research Instruments

Definition of research instruments are identical to the data collector. In a study, the data collection should be done, because the existing problems will be answered in the study of the process of data collection and data processing (Agung S., dan R. Syaiful D. S, 2011).

Instruments in this research is by using a measuring instrument bleep test. aims to measure the maximum capability of the heart and lungs with a predicted VO₂ Max test bleep which include:

- a. Sosisim
- b. Cassette
- c. Chalk
- d. Pluit
- e. Meter
- f. Paper
- g. Pencil

Data analysis

The data analysis in this research is quantitative descriptive data in the form, it means analyzing the findings of the field about the physical condition of physical fitness through Mft bleep test on students Prodi Penjaskesrek STKIP Taman Siswa Bima

RESULTS AND DISCUSSION

The following will be presented research data P briefly on the number of groups is very high, high, medium, low and very low on the physical condition level survey students Prodi Penjaskesrek STKIP Taman Siswa Bima.

1. Graph of the value of the ability of students per group

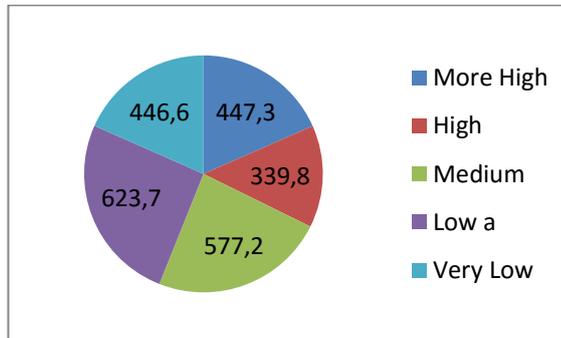


Fig.1: Graph value number of students per group physical condition Penjaskesrek STKIP Taman Siswa Bima

2. Graph value capabilities physical conditions at category level

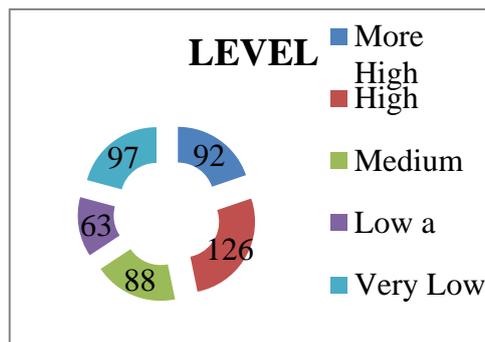


Fig.2 .: Graph value category average level of physical condition of students Penjaskesrek STKIP Taman Siswa Bima

3. Graph physical condition value capability in the category commute

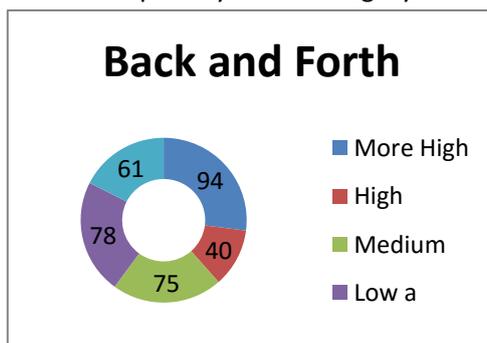


Fig.3 .: Graph value category average commute physical condition of students Penjaskesrek STKIP Taman Siswa Bima

4. The average value of the entire test level of physical condition

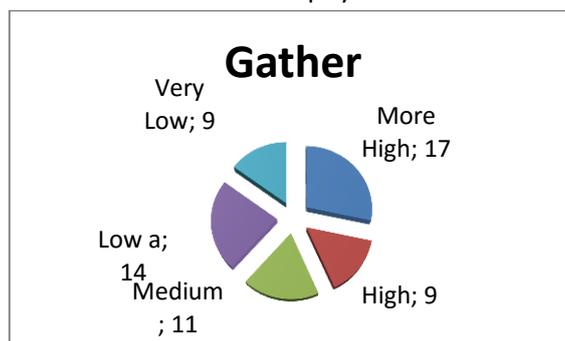


Fig.3 .: Graphs the average value of the overall physical condition of students groups Penjaskesrek STKIP Taman Siswa Bima

CONCLUSION

That level of physical condition of students Penjaskesrek STKIP Taman Siswa through MFT bleep tests exist at the level of 5-11 categorized as very high, high, medium, low and very low on the average value of 2434.6. Thus the physical condition of students Penjaskesrek good standard category.

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**BIOMOTOR AND PSYCHOMOTOR DOMINANT FACTORS ANALYSIS
DETERMINANTS OF TENNIS GROUNDSTROKE FOREHAND ABILITY ON TENNIS
ACHIEVEMENT COACHING OF STUDENTS FKIP UNS**

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Abstract

The purpose of study is to find out the dominant factors of biomotor and psychomotor determining tennis groundstroke forehand ability. The research methods were using a quantitative approach and confirmatory factor analysis design. The data collection was processed and analyzed by using Statistical Program Computerized system with SPSS (Statistical Product and Service Solutions) Version 23 and try-out Kaiser-Meyer-Olkin and Bartlett's Test. The population in this study was 40 students of coaching achievement tennis FKIP UNS Surakarta. The sampling technique was purposive sampling. Data collection techniques applied the test and measurement. The results of study as follows: biomotor and psychomotor factors that determine the tennis ability of forehand groundstrokes on having components value factor $\geq |0,5|$ is : grip strength with the factors component value of (0.84), flexibility with the factors component value of (0.34), limb muscle power by the factors component value of (0.82), speed with the factors component value of (0.91), cardiovascular endurance the factors component value of (0.79), hand-eye coordination with the factors component value of (0.50), agility with the factors component value of (0.79). The conclusion of study as follows: biomotor and psychomotor were the most dominant factors determining the forehand groundstrokes ability. Biomotor factors are the speed with the value (0.91) and psychomotor factors are the agility with the value (0.79).

Keywords: Biomotor, psychomotor, tennis *forehand groundstrokes* ability

INTRODUCTION

Sport is an activity always done by the society, its existence is no longer taken for granted but has become part of people's lives. Sports according Giriwijoyo (2007: 31), is a series of regular exercise motion and planned by people consciously to improve functional ability. Society exercise with a variety of purposes including: to the relation of co-workers, for health, gather with old friends, spending leisure time, education, to the coaching aspect of achievement.

Tennis is a sport game of the Greek state. Tennis are known by people in Indonesia since the Dutch colonial era in the early 20th century before PELTI (Persatuan Tenis Lapangan Seluruh Indonesia) was established, tennis association has been established under the name De Algemeen Neederlansche Tennis Bound or ANILTB founded the Dutch. Along with the development and advancement of age, tennis is growing rapidly in Indonesia. According Mulyono B. (1999: 16) one of the reasons the game of tennis increasing enthusiasts is, "can be played by all age levels provided they are strong enough and does not have a particular type of disease that is forbidden by doctors to exercise tennis".

In any sport, both sports which are an individual, team or sport games is largely determined by factors that determining the success the sport both intrinsic (of the body) or extrinsic (of the surrounding environment). These factors include: factors techniques, tactics, mental, biomotor (physical), psychomotor, anthropometry, motivation, nutrition, genetics and others.

Psychomotor domain is regarding the behavior or control body movement. While the physical domain or biomotor regarding the physical working capacity. Between biomotor and psychomotor domains actually almost the same, these two are inseparable but distinguishable merely because they are both always going to work simultaneously. The two are conceptually different. Biomotor domain respects to the physical work capacity. Basically biomotor capability is the ability of motion in humans that are affected by organ system in the human being, namely: the neuromuscular system (nerves), gastrointestinal, respiratory, circulatory, bones, and joints. All biomotor quality is greatly needed to support or provide ease of learning process of the motion that would be applied to various sports. Biomotor and psychomotor plays a very important to maintain or improve the degree of physical fitness (physical fitness). The degree of one's physical fitness is very decisive of physical ability to carry out everyday charges. In other word, the higher degree of physical fitness so isthe physical work ability. In other words, their work becomes more productive if the physical fitness more increased. Biomotor and psychomotor exercises is a staple in the program of coaching athletes to excel in the sport.

Athletes who have the good biomotor and psychomotor level will be avoided injury. The exercising physical condition program needs to be planned systematically. The aim is to improve biomotor and psychomotor. Physical condition training process be done carefully and repeatedly will increase biomotor and psychomotor. This causes a person getting a skilled, powerful and efficient in performing movements. An athlete who followed an exercise program of intensive physical condition for 6-8 weeks before the season would have the strength, flexibility and endurance were much better during the season. The development of the best physical condition also helps an athlete to able to keep up the next exercise in order to achieve the highest achievement.

Groundstroke forehand s is one of the basic techniques of stroke with an important role in the game of tennis. Because of groundstroke forehand, is the only stroke that at least half of all strokes were available, and can be used for offense and defense in the game of tennis. Honm atc all (1988: 146) mentions that Groundstroke is a kind of blow that have a high enough presentations to get the numbers in tennis, even 47% Groundstroke techniques performed during the game. Based on that argument, it is clear that the technique can stroke the biggest contribution in every tennis stroke technique in comparison with others.

METHOD

This research is using quantitative approach with Analysis Factor Confirmation method. Analysis factor is one of the multi-variant statistic methods which explain the relation between the numbers of alterations that interdependent between one to another with the result that can be made one or more some alterations than the number of first alteration. Analysis factor used for reveal the dominant factors to explain the most influenced variable. Population and sample in this research is all of the students of achievement tennis coach at Teacher Training and Education Faculty of Sebelas Maret University with 40 students. Technique of sample collection is purposive sampling. Type of this research is using co-relational research with analysis program of factor confirmation, which is confirming the relation between the indicator variable and latent variable that determine the ability of groundstroke forehand.

RESULTS AND DISCUSSIONS

The result of the instrument ability method of groundstroke forehand of the tennis students from analysis results confirmatory factor analysis can be state as follows:

1) There are 2 factors from the result of extraction that has bigger eigen value from (eigen value >1) both of the factors are factor: F1, F2.

F1: Include 4 measured variables: X1, X2, X3, X7, X8

F2: Include 2 measured variables: X4, X5

The model that can be make from the result of analysis factor after rotation with observe the variables that has big loading as follows (source of the result of varimax rotation):

$$F1 = 0.843 X1 + 0.343 X2 + 0.822 + 0.503 X7 - 0.792 X8$$

$$F2 = - 0.910 X4 + 0.797 X5$$

Both of the factors that successful extracted is the dimensions of the ability of groundstroke forehand in detail, both of the dimensions and measured variable is completed with dimension naming (factor) can be seen in the table 2 as follows:

The results of the statistical test analysis bio-motor dominant factor in determining the ability of a forehand groundstroke is the speed with component values 0.91. Then, factor of psychomotor factors that determine the ability forehand groundstroke is agility of value component factor of 0.79.

Table 1. The Results Descriptive Analysis Data of Biomotor and Psychomotor Factor Determination of Tennis *groundstroke forehand* Ability.

Research Variable	Sample	Test Result				
		Total	Mean	Max	Min	St. Dev
The power grip		1800.20	45.00	58.30	30.10	5.78
Flexibility		635	15.88	19	10	1.97
Limb Muscle Power		1914	47.85	60	31	7.54
Speed		400.08	10.00	11.20	8.09	.72
Cardiovascular Endurance	40	1417.50	35.43	44.50	31.00	2.67
Balance		331	8.28	10	7	.960
Hand Eye Coordination		327	8.18	10	7	.931
Agility		177.53	4.43	5.39	3.05	.53
Groundstroke forehand Ability		1231.00	30.7750	33.50	28.00	1.46301

Table 2. The results of analysis determining factors biomotor and psychomotor of tennis forehand groundstrokes ability.

	Component	
	1	2
The power grip	.843	-.054
Flexibility	.343	.321
Limb Muscle Power	.822	.236
Speed	-.075	-.910
Cardiovascular Endurance	.265	.797
Hand Eye Coordination	.503	.279
Agility	-.795	-.317

The hypothesis testing is basically a step to test or find out the truth if the null hypothesis (H_0) is rejected on significant level/ extent certain confidence was rejected and the alternative hypothesis (H_a) is accepted, or otherwise the null hypothesis (H_0) is received and the alternative hypothesis (H_a) is rejected. In this study, the hypothesis is obtained by looking at the value of the count results Anti-image Correlation Matrices and rotated matrix^a component. Based on the hypothesis above and statistical calculation factor analysis, the hypothesis test results of this study are:

1. Factors biomotor grip strength, flexibility, limb muscle power, speed, endurance cardiovascular determine the tennis groundstrokes forehand ability.

a) The strength of the grip determines the tennis groundstrokes forehand ability

Based on the anti-image matrices correlation contained in table 4.5 of factors grip strength has a value of 0.695 or > 0.5 with communalities values in Table 4.8 amounted to 0.714, which means the percentage of grip strength has a role to a factor of 71% and the value of rotated component matrix 0.84 which means that grip strength is a member of the deciding factors biomotor and psychomotor abilities forehand groundstrokes (H1 accepted)

b) Flexibility determines the tennis groundstrokes forehand ability

Based on the anti-image matrices correlation contained in table 4.5 of flexibility factor has a value of 0.685 or > 0.5 with communalities values in Table 4.8 amounted to 0.220 which means that flexibility has a role to factor percentage at 22% and rotated component matrix value of 0,34 which means that flexibility is a member of the factors that determine biomotor and psychomotor groundstrokes forehand abilities (H2 accepted).

c) Power limb muscles determines the tennis groundstrokes forehand ability

Based on the anti-image matrices correlation contained in table 4.5 of leg muscle power factor has a value of 0.802 or > 0.5 with communalities values in Table 4.8 amounted to 0.731 which means the limb muscle power has a role to factor percentage at 73% and the value of rotated component matrix of 0.82 which means the limb muscle power is a member of the factors that determine the ability biomotor groundstrokes forehand (H3 accepted).

d) Speed determines the tennis groundstrokes forehand ability

Based on the anti-image matrices correlation contained in table 4.5 the speed factor has a value of 0.801 or > 0.5 with communalities values in Table 4.8 amounted to 0,833, which means the percentage of speed has a role to a factor of 83% and rotated component matrix value of 0,91 which means that speed is a member of the factors that determine the ability biomotor groundstrokes forehand (H4 accepted).

e) Cardiovascular endurance determines the tennis groundstrokes forehand ability

Based on the value of anti-image matrices correlation contained in table 4.5 of factors cardiovascular endurance has a value of 0.687 or > 0.5 with communalities values in Table 4.8 amounted to 0.705, which means the percentage of cardiovascular endurance has a role to a factor of 70% and the value of rotated component matrix at 0.79 which means that cardiovascular endurance a member of the factors that determine the ability biomotor groundstrokes forehand (H5 accepted)

2. Psychomotor balance factor, hand-eye coordination, agility determines the tennis groundstrokes forehand ability.

a) The balance determines the tennis groundstrokes forehand ability

Based on anti-image matrices correlation contained in table 4.5 the balance factor has a value of 0.375 or <0.5 and therefore is not eligible to be a balance members and the factors to be eliminated from further analysis, which means that the hypothesis is rejected (H_6 rejected).

b) Hand-eye coordination determines the tennis groundstrokes forehand ability

Based on the anti-image matrices correlation contained in table 4.5 of factors Coordinating hand-eye has a value of 0.707 or > 0.5 with communalities values in Table 4.8 amounted to 0.331, which means hand-eye coordination role for factors have a percentage of 33% and the value of rotated component matrix of 0.50 which means hand-eye coordination is a member of the factors that determine the ability biomotor groundstrokes forehand (H_7 accepted).

c) Agility determines the ability tennis forehand groundstrokes

Based on the anti-image matrices correlations contain in table 4.5. Factors agility has a value of 0.640 or > 0.5 with communalities values in table 4.6 amounted to 0.733 percent, which means the speed has a role to a factor of 73% and rotated component matrix value of 0, 79 which means agility eligible to be a member of the factors that determine the ability of biomotor forehand groundstroke (H_8 accepted).

Based on the result of hypothesis examination of analysis factor biomotor and psychomotor which determines the ability of tennis groundstroke forehand above found a variable psychomotor that must be eliminated from factor analysis dominant or (H_0 rejected) because has value MSA under 0,5 is balance (0,375). Then, factor biomotor and psychomotor determine tennis groundstroke forehand ability (H_0 accepted) or has factor component value $\geq 0,5$ as follows:

1. The power grip with component values a factor of 0.84
2. Flexibility with component values a factor of 0:34
3. Power leg muscles with component values a factor of 0.82
4. Free with component values a factor of 0.91
5. Cardiovascular endurance with component values a factor of 0.79
6. Coordination hand eye with component values a factor of 0:50
7. Agility with component values a factor of 0.79

CONCLUSIONS AND SUGGESTION

1. The most dominant biomotor factor determinate in tennis groundstroke forehand ability is speed with a value of 0.91.
2. The most dominant psychomotor factor determinate in tennis groundstroke forehand ability is agility with a value of 0.79.

Biomotor and psychomotor factors has been explained in the research results are expected to be a benchmark in tennis sports coaching, so it will have an impact on the opening up the coach insight to the importance of improving the quality biomotor and psychomotor of tennis player by supported systematic and planned training program, in order to reckon all the psychological and biological effects results of coaching.

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THE DIFFERENT EFFECT OF SQUATS AND STANDING CALF RAISES WEIGHT TRAINING METHODS ON TRIPLE JUMP ACHIEVEMENT

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Abstract

The background of this research is to improve student achievement in the men's triple jump sports health education Sebelas Maret University. The main objective of research was to find out: the different effect of, Squats and Standing Calf Raises weight training methods on triple jump achievement. The research method employed was the experimental one with a 2x2 factorial design. The sample of research was the Male Students of Sport and Coaching Education Department of Teacher Training and Education Faculty of Surakarta Sebelas Maret University, consisting of 30 students. The research variables consisted of 1 independent and 1 dependent ones. The independent variables were (1) practice method as manipulative variable squats and standing calf raises weighted practices. The dependent variable in this research was triple jump. Technique of collecting data used was test. Technique of analyzing data used was a two-way variance analysis and advanced test was carried out using LSD (Least Significant Difference) t-test, at significance level of 5% ($\alpha = 0.05$). The computation of variance analysis was carried out using SPSS 20 statistic program.. The results of research were as follows. There were different effects of weight training on triple jump achievement, T-test $0,018 < 0.05$. Standing calf raises weight training exerted the best effect on triple jump achievement. The group of students with standing calf raises weight training methods had the best achievement in triple jump compared with other groups, with the mean achievement of 1201 cm.

Keywords: squats and standing calf raises weight training, triple jump achievement

INTRODUCTION

Athletics is the mother of all sports, athletic movements such as running, jumping, and throwing has been done since the days of our ancestors even since ancient times. Athletics is also a reference for the unborn other sports, because of the continuous movement with other sports. Athletic develop according to changing times, the basic movements such as running, jumping, and throwing developed and categorized in some sports, such as running up to now can be categorized according to the distance, such as the 100m, running the 200m, 400m and the various categories again still exists in run category. To jump are also categorized in a variety of athletics, as the most basic is the long jump, triple jump and then developed into, and also the high jump. For the throwing motion is also categorized in a variety of sports in athletics, for example, shot put, javelin, discus throwing. Besides athletics is also mandatory to be tested at all levels of education. PE subjects taught in elementary school (SD), Junior High School (SMP), High School (SMA) and Vocational High School (SMK) or at universities. Through the eyes of PE lessons students are expected to be aware of the importance of exercise, can foster an attitude of discipline is better and can improve their health through exercise with certain ratings. The long jump is a jump most basic category for athletics in the category jump, leap away an assessment based on an athlete's time to make the leap in a sandbox according to the rules. Triple jump is the development of one of the long jump athletics in terms of the jump. Triple jump was also tested in a race both the local level, the municipal level, the provincial level, the national level organized by PASI even international level like the Olympics

hosted by IAAF). In addition, in terms of education, the triple jump was also tested in the course of the Department of Education and Health Faculty of Teaching and Education University March Surakarta. As a subject, it must be mastered triple jump, able to do the movements correctly, and can achieve a leap within the limits by students majoring in Education and Health. As trainers, prospective teachers and educators prospective students should be able to train and teach appropriate age development, there must be a change for the better in terms of teaching and training mthat aim to get a good result. By leveraging advances in technology and facilities that support the infrastructures existing, prospective educators and trainers should be able to master some methods of training or a good teaching in order to achieve good results and maximum. In such cases there must be some obstacles faced to achieve the expected goals. In this purpose better performance with training methods should be better also fit the changing times. One of the obstacles often encountered is still the implementation of appropriate experience or training program is taught by a teacher candidate to become educators of his generation who are now without a corresponding change in the times and the existing technology. Supposedly in terms of teaching and training, teacher or coach should be able to take advantage of technology, means that existing infrastructures in the days that have been advanced as now, did not implement training programs were and are still taught again. By leveraging technology and infrastructure that coaches are expected to improve a better athlete and a maximum in order to obtain a better performance again. In this case the triple jump achievement. How do the triple jump is divided into several different techniques, the techniques underlying the triple jump, among others, 1). Phase prefix (run) 2). Repercussion 3). Landing stage. Based on these stages, in accordance with the basic technique is expected to triple jump athlete must have a good quality leg muscles must be strong and of course, in this case the necessary elements of strength and speed (explosive power) of a group of muscles that support the movement. Other factors besides exercise program that can support the achievement loaded triple jump is the proportion of the body (anthropometrik ratio) of either the athlete's height, weight, leg length, foot length or other anthropometric factors. Measurements anthropometrik includes two types of measurements. First, that with regard to the dimensions of the body. Second, that with regard to body composition. Measurement of body dimensions in the form of measuring the length or size of the portions. While the measurement of body composition in the form of a measurement of body fat content or elements other weight formation. Length of body parts determine the overall harmony of the body. In the structure of the body, limb length or height are formed on the long legs. In this study the authors chose one type of jump training methods load (Weight Training). Exercise load is a way of systematically applying certain procedures on the various muscles of the body. At this burden exercise program implementation using tools such as dumbbells or a load that has been combined into a specialized tool for the exercise load. In training methods to improve the current burden rested on the triple jump. The increase in limb muscle power is needed because when the pedestal jump the required speed and strength that will produce the maximum effect of the leap.

METHODS

The method used in this study is an experimental method with 2 x 2 factorial design study randomly selected sample of male students of physical education programs and health departments and Health Education, Guidance and Counseling, University March Surakarta academic year

2016/2017 still a student active (still actively taking classes). Population and then sample selected at random sample of 30 students.

RESEARCH RESULT

The result this study provide further interpretation, especially regarding the results of the data analysis described earlier. And still associated with testing existing hypotheses :

1. Effect of exercise weight exercise load Squats and Calf Standing triple jump achievement Raise to At the time of the initial test group, on the Group Statistics table looks average (mean) for the group Squats are 958,1333 dan to Standing Calf Raises group is 939.1333, meaning that the average value of the group Squats higher than the average value of the group standing Calf Raises during the initial test. Nevertheless this difference that there is no differences as between the two groups significantly. This can be seen in Table 4.9. T test results showed sig 0387 or > 0.05 , it can be said there is no significant difference between the results of the ability of group Squats Calf Raises Standing with the group at the initial test.

However, after the treatment of each group there is a change in the average value. In Group Statistics table looks average (mean) for the group Squats are 990,8667 and to Standing Calf Raises group is 1060.0667, meaning that the average value of the group Standing Calf Raises higher than the average value of the group at the time of test Squats end. In addition the results of T test showed sig 0,018 or < 0.05 , then we can conclude there is a significant difference in ability between the results of the group's ability Squats Calf Raises Standing with the group at the end of the test. An increase that occurred between the two treatment groups can be seen the table below:

Visible differences between the results of the initial test with a final test. The data also seen the effectiveness of the methods Standing Calf Raises the ability of the triple jump better than methods Squats, as shown in the table resulting increase in group methods Standing Calf Raises are 13% better than the increase in the group metode Squats has only increased by 3% only ,

Testing Requirements Analysis

1. Normality Test

In this study, the normality test performed with SPSS 20.0, and the method selected is the Shapiro-Wilk test. From the test results of normality, in general, the sample in the treatment groups come from populations with normal distribution. This requirements regarding the second parametrisitas about normality are met.

1. Test Homogeneity

Analyses were performed using Levene Statistic. Unknown output values of each group significance of = 0.682. Because the significance value > 0.05 It can be concluded that the initial test data have the same variant or homogeneous.

A. Hypothesis Testing

1. Hypothesis I

There are differences in the effects of exercise load Squats and Standing Calf Raises triple jump achievement treatment given before test before being treated, a group formed in the study tested the differences first. It is intended to know the statutes members in both groups. After treatment by

departing from the same state or not. The result of the difference between the group the group Squats and Standing Calf Raise before being treated

as follows:

interpretation

Test steps as follows:

1. Determining Hypothesis

Ho: There is no difference between the average value of the group Squats with an average value of the sample group

Ha: There is a difference between the average value of the group Squats with an average value of the sample group

2. Criteria based testing probabilities:

- a. Ho accepted if the P value > 0.05
- b. Ho is rejected if the P value < 0.05
- c. On the Group Statistics looks average (mean) for the group Squats are 958.1333 and for groups Standing Calf Raises is 939.1333, meaning that the average value of the group Squats higher than the average value of the group Standing Calf Raises when the test awal. Hasil T test showed sig 0387 or > 0.05, it can be concluded there was no significant difference between the results of the ability of the group's ability Squats with Calf Raises Standing group on the initial test.

1 Given the difference Test After Treatment

Once treated, the group Squats and the group Standing Calf Raise.

From the calculation results Independent Samples Test t test with SPSS 20.0 Data obtained the following data

Interpretation

Test steps as follows :

1. Determining Hypothesis

Ho: There is no difference between the average value of the group Squats with an average value of the sample group

Ha: There is a difference between the average value of the group Squats with an average value of the sample group

2. Testing Criteria Based on probabilities:

Ho accepted if the P value > 0.05

Ho is rejected if the P value < 0.05

3. On the Group Statistics looks average (mean) for the group Squats are 990.8667 and for groups Standing Calf Raises are 1060.0667, meaning that the average value of the group Standing Calf Raises higher than the average value of the group Squats when the post test. T test showed sig 0,018 or < 0.05, then we can conclude there is a significant difference in ability between the results of then group's ability Squats, and Standing Calf Raises with the group at the end of the test.

CONCLUSION AND SUGGESTION

Effect of Treatment Exercise load

There is a significant difference in the effect of exercise load to the achievement of triple jump. Standing calf raises exercise method gives a better effect than the method Squats.

Implication

Having regard to all forms of weakness above, the implications of the results of studies related to the achievement of triple jump can be expressed as : Looking at the results of research and study of theory explains that the training load can significantly increase leg muscle strength, can automatically increase achievements in triple jump. In general from of exercise load the Standing calf raises can be a major consideration for coaching athletes selected in the triple jump, however, this form of exercise Squats can also be selected as an alternative considering that the two forms of training also has a significant impact on the achievement of triple jump.

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Table(s)

Table 1 The average pre test and post test

Group	Pre Tes	Post Test	Enhancement (%)
<i>Squats</i>	958,1333	990,8667	3%
<i>Standing</i>			
<i>Calf</i>	939,1333	1060,0667	13%
<i>Raises</i>			

CONTRIBUTION OF PHYSICAL ACTIVITY LEVEL AND BODY MASS INDEX ON BLOOD PRESSURE RESPONSIVENESS

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Abstract

Based on World Health Organization (WHO) report, 7.5 million deaths/ 12.8% of the total of all death is caused from raised blood pressure. Sedentary life style (Less of physical activity or consuming unhealthy food) and weight gain contribute for raised blood pressure/hypertension disease. The purpose of this study was to explore contribution of physical activity level and body mass index (BMI) on blood pressure responsiveness. This research was descriptive correlational study and hold on September 2016 in STIKES Bina Putera Banjar City. There are 60 students met the defined inclusive and exclusive criterion who mere measured accordingly with:(1) body mass indeks calculator, body mass index (2) International Physical Activity Questionnaire (IPAQ), physical activity level (3) cold pressor test, blood pressure responsiveness. Data analysis were done by regression and anava. The result showed both of physical activity level and body mass index either partial or simultaneous have correlation which formed regression equation. Body mass index has positive correlation with blood pressure responsiveness. Raising of blood pressure responsiveness for 0.587 was due to of body mass index rise. Physical activity level has negative correlation with blood pressure responsiveness. When physical acitivity level gained, there will be little arising of blood pressure responsiveness for -0.01. The simultaneous correlation showed 55,3 % of physical activity level and body mass index contribute for blood pressure responsiveness. The conclusion is physical activity level and body mass index either partial or simultaneous contributed for blood pressure responsiveness.

Keywords : physical activity level, body mass index (BMI), blood pressure responsiveness

**EFFECTS OF S-CURVE RUNS AND SPRINT IN-OUT EXERCISE METHODS AGAINST
THE INCREASE OF SPEED IN 100 METERS SPRINT OBSERVED
FROM FOOT LENGTH AND HEIGHT RATIOS
(An Eksperimental Study Toward The Students Of Chevron Soccer School Pekanbaru)**

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Abstract

The purpose of this study was to find the effect of differences between S-curve runs and Sprint in-out exercise methods against the increase of speed in 100 meters sprint; the different increases of speed in 100 meters sprint for the runners with big, medium, and small ratios of foot length and height; and the differences of interactions between S-curve runs and Sprint in-out exercise methods and foot length and height ratios against the increase of speed in 100 meters sprint. This research was conducted at Chevron Soccer School in Pekanbaru for 8 weeks by using experimental method of 2 x 3 factorial designs. The research population contained students of the school. Purposive Random Sampling was utilized as the sampling method included 42 students with big, medium, and small ratios of foot length and height, for each took 14 students as the samples. ANOVA was employed as the data analysis technique. Prerequisite tests of data analysis were conducted beforehand by using the sample normality test (Lilliefors Test at $\alpha = 0.05$) and homogeneity of variance test (Bartlett's Test at $\alpha = 0.05$). Results of data analysis indicated that there were significant differences between S-curve runs and Sprint in-out exercise methods against the increase of speed in 100 meters sprint with $F_{\text{count}} = 10.54758 > F_{\text{table}} = 4.07$ in which the effects of S-curve runs exercise has better improvement than Sprint in-out exercise, with the average increases for each are 2.17 and the 1.7; there were significant differences between the runners with big, medium, and small ratios of foot length and height with $F_{\text{count}} = 14.16068 > F_{\text{table}} = 3.22$. The increase of 100 meters sprint result on samples with big ratios of foot length and height was better than samples with medium and small ratios, for each has average increase of 2:43, 1.89 and 1:51; and there was no correlation effect between S-curve run and Sprint in-out training methods and the foot length and height ratios against the increase of running speed, in which the $F_{\text{count}} = 0.29174 < F_{\text{table}} = 3.22$. Conclusion Results of data analysis indicated that (1) there were significant differences between S-curve runs and Sprint in-out exercise methods against the increase of speed in 100 meters. (2) there were significant differences between the runners with big, medium, and small ratios of foot length and height The increase of 100 meters. (3) and there was no correlation effect between S-curve run and Sprint in-out training methods and the foot length and height ratios against the increase of 100 meters sprint.

Keywords: S-curve run training method, Sprint in-out, foot length and height ratios, 100 meters speed

RELATIONSHIP PROTEIN INTAKE TO MUSCLE GRIP STRENGTH OF ATHLETE

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Abstract

The purpose of this study was to examine relationship nutrient intake to muscle grip strength of athlete. The research was conducted from September to October 2016. The number of sample in this research was 20 table tennis athletes in Pariaman City. The instruments used in this research were a handgrip dynamometer and *food recall* form. The result of the research showed that the average energy intake of a table tennis athlete was 2134 ± 231 calorie, the average protein intake was 77.6 ± 21.1 gram, the average intake of carbohydrate was 370.9 ± 49.5 gram, and the average intake of fat was 47.2 ± 12.1 gram per day. In addition, the energy intake was up to 76,5% of the demand of energy in a day, the protein intake was 73.7% and the fat intake was 51,8% from that of needed by an athlete. There was no significant correlation between energy consumption and protein intake.

Keywords: Muscle Grip strength, protein intake, table tennis

INTERVENTION OF MUSCLE RELAXATION EXERCISE TO SWIMMER CONFIDENCE INCREASING

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Abstract

Positive energy or negative energy will inevitably impact the performance of athletes. That influence can be positive and can also be negative, depending on the dominance in the energy possessed. An athlete who has positive energy will be visible appearance is always full of fun, excitement, love, strength, optimism, enjoyment, pride, has the challenge of self, team spirit and self-motivation. The energy will allow the athlete to be in a good mental state, good concentration and relaxed state of the muscle, making it possible for athletes to reach peak performance. Then the athletes who have negative energy will be seen in his performances that show anger, resentment, anxiety, fear, tension, be negative, threatening and frustrating. The energy allows the athlete to be in a fragile mental state, the concentration of poor athlete who is accompanied by muscle tension. These circumstances do not allow athletes to achieve peak performance (Komarudin, 2013: 104). Athletes who have this situation must be overcome, using the proper technique so as not to negatively impact the performance of athletes. The technique used is progressive relaxation exercises, the technique could provide an opportunity for athletes to be able to create muscle contraction and relaxation automatically, starting from this part of the upper body to the lower body. With this technique, the athlete can tell which muscles in a state of tension and relax and athletes can have the ability to make the muscles relax when muscles in a state of tension in a very critical situation, for example during the game is in progress.

Keywords: Muscle Relaxation, Confidence Athletes

INTRODUCTION

Exercise is a process, that's when exercise goes a coach and athlete can know the strengths and weaknesses that exist, so it can do the repairs properly and appropriately. With practice the physical, technical, tactical, mental (psychological) and so it will be known changes. Exercise or training is a systematic training process that is done repeatedly and increasingly burden the number of training days is increasing.

The maximum of the existence of facilities and infrastructure will also support the success of a practice. If the facilities and infrastructure available, then the exercise will be easier to do centralized. However, if the facilities and means less available, it can be used a combination of centralization with decentralization. The place is very dibutuhkan training camp so that surveillance and monitoring exercises can be done optimally. The place was a training camp used to menggebleng athletes in preparing for events such as PON, SEA Games and other events. Here all the needs of the athletes are already available, such as facilities and infrastructure practice, a nutritionist who will be the regulator and supervisor of nutrition of athletes, health experts who will monitor the health of the athletes, psychologists and so on. Ahead of PON in almost every province held a training camp or TC centralization, as well as in Central Java. This is done to prepare the athlete both physically and mentally to face PON.

Positive energy or negative energy will inevitably impact penampilan athletes. That influence can be positive and can also be negative, depending on the dominance in the energy possessed. An athlete who has positive energy will be visible appearance is always full of fun, excitement, love, strength, optimism, enjoyment, pride, has the challenge of self, team spirit and self-motivation. The energy will allow the athlete to be in a good mental state, good concentration and relaxed state of the muscle, making it possible for athletes to reach peak performance. Then the athletes who have negative energy will be seen in penampilannya that show anger, resentment, anxiety, resentment, fear, tension, be negative, threatening and frustrating. The energy allows the athlete to be in a fragile mental state, the concentration of poor athlete who is accompanied by muscle tension. These circumstances do not allow athletes to achieve peak performance (appendices, 2013: 104).

Athletes who have this situation must be overcome, using the proper technique so as not to negatively impact the performance of athletes. The technique used is progressive relaxation exercises, the technique could provide an opportunity for athletes to be able to create muscle contraction and relaxation automatically, this part of the body from top to bottom tubih section. With this technique, the athlete can tell which muscles in a state of tension and relax and athletes can have the ability to make the muscles relax when muscles in a state of tension in a very critical situation, for example during the game is in progress.

Athletes who have confidence tends to want to always win when competing, athletes are usually not afraid to take a chance in the match and can control the atmosphere of the game to take advantage for himself. Conversely, if the athlete does not have kepercayaan themselves then tend to play not to lose and tend to try to make mistakes when playing. Confidence can affect the mental spirit, meaning coaches will usually prefer with the change of the spirit of the athletes themselves which is something that will determine winning or losing.

ISSUES

In the above problems presenter emphasized several issues including:

1. Role relaksasi muscle exercises to improve the performance of athletes?
2. How relaksasi exercise muscles?
3. How would you rate the confidence of athletes?

OBJECTIVES

The author's writing a paper with the aim of:

1. Knowing how much influence muscle relaxation exercises swimmer in the face of an exercise program and swimming races.
2. Keeping the task and the fundamental role of a coach to be able to build the confidence of an athlete with a well that in the end the main purpose of sports performance can be achieved.

DISCUSSION

Definition of Confidence

Self-confidence is one aspect of personality which is authorized and developed through practice and interaction with the social environment. In sports terms of self-efficacy is better known as a sports-confidence. Sport-confidence by Vealey (in Juriana, 2012: 6) is as an individual belief

regarding kemampuannya to succeed in the sport. Then, according to Monty P. Setiadarma (2000) describes the self-confidence is a sense of confidence in athletes where he was able to complete a good job in a sports performance.

Meanwhile, according to Singer (in appendices, 2015: 67) Percayaca self is a feeling that he has the ability to do what must be done. Athletes who have self-confidence always think positive for menampilkan best thing and allow raised confidence in him that you are able to do something so that the appearance is still good. Instead of athletes who have negative thoughts and do not believe in themselves to show the best thing would always hesitate and doubt that he was able to do so penampilanya decline.

Based on some understanding of the above, it can be concluded that confidence can be interpreted as a confidence level of individuals or athletes on its ability to succeed in certain sports situations.

Measurement of Self-Confidence

Tools for measuring Sport-confidence've pretty much developed in the USA by Vealey, including the Trail Sport-Confidence Inventory (TSCI), SSCQ (Sources of Sport-Confidence Questionere), The Carolina Sport Confodence Inverntory (CSCI) and The State Sport -Confidence Inventory (SSCI) (Feltz, 2008). Meanwhile, Singer (in Setyobroto, 2005) propose a model test of confidence is called Self-Perception Test, where athletes are asked to set or to assess themselves about: his talent, his efforts made, difficulties encountered, good luck in the sport, and self-assessment or status in the sport.

In this study, researchers conducted measurements of confidence by conducting interviews and questionnaire results SSCI adaptation. SSCI is considered to represent for SC-State has a positive relationship with the SC-Strait and competitive orientation (Morrison, 1999)

Definition of Mental Training

According to the dictionary of psychology (Kartono & Gulo, 2000: 276) explains that mental raised the question of the mind, intellect or memory, adjustment of the organism to the environment and specifically refers to the adjustment that includes the functions realized by the individual symbols.

Then Chee (in appendices, 2013: 4) defines that the mental skills training is exercise done in a systematic and deliberate on strategies and methods designed to improve the performance of athletes, by improving mental skills. Furthermore, mental skills training designed to produce state and athletes skills that lead to better performance improvement (Rushall, 2008).

Stages Mental Exercise

According to Ali Maksum (2008: 118) explains that there are three stages of mental exercise as follows:

1. Stage of education

The step meant as an effort to provide knowledge, information and explanations of mental training to athletes that the benefits of mental exercise. This stage aims to athletes realize the importance of studying the mental exercise. Later this stage begins with a discussion of the importance of mental training, how many times the athletes are already doing mental exercises and examples of mental cases that have occurred in the world of sport.

2. Stage acquisition or acquisition

The stage leads to learning techniques and strategies and implementation techniques of the various different mental exercises. This stage aims to determine the uniqueness and condition of each individual, some form of assessment is expected to be known how the capabilities of individuals and what are its needs.

3. The implementation phase or stage of training

This stage is an attempt to apply the mental exercise in true reality, there are three phases to note are: achieving automation of mental skills, mental skills to integrate into physical activity or

Form of Mental Training

1. Relaxation Exercises

Williams (in Frans Nurseto, 2009: 25) explains that the relaxation is one technique that can relieve anxiety, argues that: "it is important to Realize that some relaxation techniques are the motor skills that need to be learned.". It also Satiadarma (2000: 198), says as follows: "that relaxation is not just a psychological ease tensions, but also improve a person's physical condition. According to Psychology SEAG team XIX, 1997 (in Frans Nurseto, 2009: 25) It also can reduce muscle tension relaxation and reduces other stress symptoms such as anxiety, unable to make decisions, attention is narrowed and so on.

Exercise relaxation techniques have been widely used athletes primarily to reduce excessive excitement and tension is felt. This exercise brings a person to a state of relaxation in the muscles. If the person is in such a state, there will be a reduction in the tempestuous emotional reactions, both in the central nervous system, and the autonomic nervous system and may further increase the feeling of fresh and healthy both physical and spiritual. This is according to James Lange theory, which suggests the interaction between emotions, such as anxiety, body condition (tension in the muscles). So if an athlete can relieve anxiety or relax muscles, there will be also a reduction of tension or anxiety and the athlete's body becomes relaxed (Frans Nurseto, 2009: 26).

Exercise Progressive relaxation techniques or known by PMR (progressive muscle relaxation) is a training method used in this research, conducted by menengangkan relaxation of muscles throughout the body before making these muscles relax. Methods of relaxation exercises should be done systematically starting from the upper muscles until the bottom of the muscles in the body. For example, the muscles of the head (from the forehead, eyes, cheeks, lips, tongue) further neck muscles, shoulder muscles, arm muscles, chest muscles, the abdominal muscles, back muscles, until the muscles of the lower ie leg muscle (appendices, 2015; 101) ,

CONCLUSION

From the discussion above, the writer can conclude, among others:

In these results it can be concluded that the intervention in the form of mental training is effective in improving confidence in the swimming athletes possess. In other words, mental training in a systematic and comprehensive interchanges could provide maximum impact for increasing the confidence of athletes. Moreover, that rekreasi be a form of exercise that is considered instrumental in increasing the confidence of athletes rang.

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INTERPERSONAL COMMUNICATION LINK, PERCEPTION KINESTHETIC AND CONSISTENCY MOTION ACHIEVEMENT ARCHERY ATHLETES

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Abstract

The method used was survey by using correlational techniques. The Samples is 35 athletes men and women of the total population of 50 athletes. The research instruments were used: (1) Interpersonal communication using test instruments questionnaire interpersonal communication, (2) Perception Kinesthetic using test instruments sense hand movements on the horizontal plane, (3) Consistency of motion using the test scoring within 30 meters of 2 sessions, (4) Performance archery athletes using achievement test total score achieved last round recurve athletes. Data analysis techniques used to answer the hypothesis of this study is the technique of regression and correlation analysis. The Results of testing the first hypothesis, there is a positive relationship between interpersonal communication (X_1) with archery athlete's performance (Y), it is indicated by the correlation coefficient (r_{y_1}) of 0.571 with the regression equation $\hat{Y} = 21.46 + 0.571 X_1$. Coefficient of determination of $0.571^2 = 32.58$. The second hypothesis, there is a positive relationship between the perception of kinesthetic (X_2) with archery athlete's performance (Y), it is indicated by the correlation coefficient (r_{y_2}) of 0.630 with a regression equation $\hat{Y} = 18.52 + 0.630 X_2$. Coefficient of determination of $0.630^2 = 39.65$. The third hypothesis, there is a positive relationship between the consistency of motion (X_3) with archery athlete's performance (Y), it is indicated by the correlation coefficient (r_{y_3}) of 0.508 with a regression equation $\hat{Y} = 24.62 + 0.508 X_3$. Coefficient of determination of $0.508^2 = 25.77$. Fourth hypothesis, there is a positive relationship between interpersonal communication (X_1), the perception of kinesthetic (X_2), and consistency of motion (X_3) together with the achievements of athletes in archery (Y), it is shown by the correlation coefficient of 0.794 with a regression equation $\hat{Y} = -4685 + 0.363 X_1, 0.424 X_2 + 0.307 X_3$. Contribution of these three variables is shown by the determination koefesiensi $0.794^2 = 0.629$, so that together, interpersonal communication, kinesthetic perception and consistency of motion contributed 62.9% to the achievement of athletes in archery. So it can be concluded that there is a positive relationship between interpersonal communication, kinesthetic perception and motion consistency with the achievements of athletes in archery.

Keywords: Interpersonal communication, kinesthetic perception, motion consistency, achievements of athletes in archery

INTRODUCTION

Archery is a sport of Olympic or world class. To create a formidable athletes and professionals in need of some process, because no athlete who was born a champion without practicing. Achievement is the result of the exercise has been done over and over and over so that it becomes a proof of an athlete for his hard work during the training process takes place. Success in many arenas are generally the result of planning, hard work, commitment yamng right exercise program Exercise is an iterative process and increased in order to increase the potential in order to achieve maximum (James Tangkudung, 2012: 7). Victory with maximum performance is not only a goal of the archers, but also has become its own pleasure in the sport of archery. Sports archery is a sport that is in need of a good kinesthetic perception level in order to feel the movement made by each individual athlete that promotes the consistency of motion in each release of the arrows. These

factors must be supported by psychological factors that either one of them is the most basic of effective interpersonal communication.

According to Alderman increase or decrease in the athlete's performance in terms of four dimensions: (1) The dimensions of physical fitness, (2) Dimensions skills, (3) Dimensions talent and physical traits, (4) The psychological dimension. that is:

- 1 Dimensions of physical fitness includes, among others, endurance, power, strength, flexibility, agility, speed, reaction, coordination and so on.
- 2 Dimensional skills include: coordination, reaction time, kinesthetic, agility in conducting movements in accordance sport involved.
- 3 Dimensions of talent and physical traits, including the following: physical keadeaan, height, weight, range of movement and so on.
- 4 Dimension Psychological include motifs include: achievement motive, power, lack of dependence, actualization and seek tension and personality traits such as discipline, the desire for more of others, aggressiveness, confidence, emotional stability, openness, responsibility , courage and so on. (Sudibyo Setyobroto, 1993: 16).

Communications became one of the ways in which the human being to know the desires, feelings, and attitudes to be understood by others. Effective communication is if the message delivered by the same sender is able to be interpreted by the message recipient. Everett M. Rogers and Lawrence Kincaid claims that communication is a process in which two or more persons to form or exchange information between each other, which in turn occurred deep mutual understanding, while Shannon and Weaver reveals communication is a form of human interaction interplay one another, either verbally or non-verbally. (Wiryanto, 2004: 6-7).

The process of communication that occurs between some persons in the context of two directions is referred to as interpersonal communication. Interpersonal communication has efficacy in changing attitudes, beliefs, opinions, and behaviors communicant as well as effects and tradeoffs arising from the process of interpersonal communication can be felt.

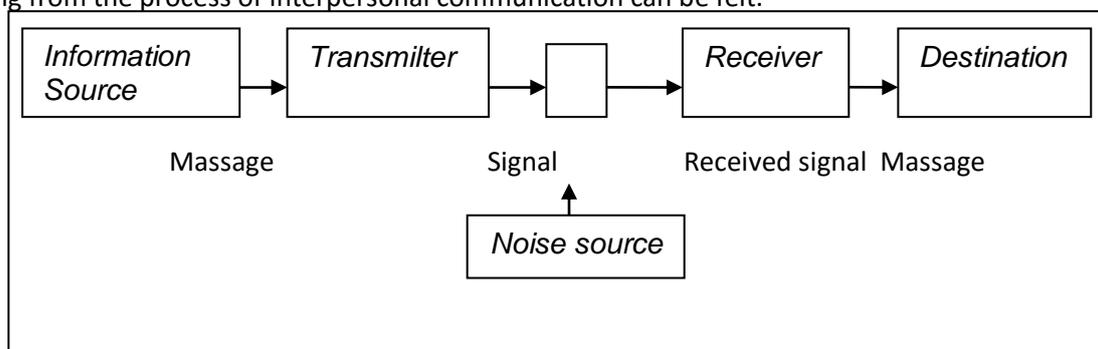


Figure 1. Communication Model Shannon and Weaver

Source : Elvinaro Ardianto, et all. 2007:85

Based on the above description it can be said that form energy, which affects individual decision-making and the possibility of choice that is called information. Generally, the information presented has a goal to increase knowledge, change attitudes, and behavior of individuals. Sources of information (information source) generates a message to be communicated. Transmitter or

transmitter change the message into a signal corresponding to the channel used. Channel or channel medium used to transmit the signal from the transmitter (sender) to receiver (receiver). Destination (target) is the one which is the goal of delivering the message. Noise source (interference message) is an additional stimulus that interfere with the accuracy of messages that can lead to failure of communication can be external, internal, semantics (symbols).

Interpersonal communication have special skills in order to increase its effectiveness. According to Kumar characteristics of effective interpersonal communication include: (1) Openness, (2) Empathy, (3) support, (4) positiveness, (5) Equality. (Wiryanto, 2004: 36).

1. Openness

Our willingness to provide feedback on the other person with an honest, happy and forthright about everything the information received. Openness requires us to be open to those who interact with us.

2. Empathy

Feel what others feel. Our ability to know what is being experienced by others at any given moment from the standpoint of the person. Empathetic people are able to understand the motivation and thoughts, feelings, attitudes of others and himself. Empathic attitude makes a person more easily customize their communications.

3. Support

The attitude of support is a reflection of the relationship of effective interpersonal communication. Being supportive marked with some attitude, namely:

- a. Descriptive attitude: A person who has this trait defines communication as a request for information about a specific incident and not feel it as a threat.
- b. Spontaneous attitude: People are forthright in expressing his thoughts.
- c. Professional attitude: People who are open-minded and willing to hear opposing views and are willing to accept the opinion or advice of others.

4. Positiveness

Someone who has positive feelings toward themselves and others, encouraged people who become friends interact positively for example in the form of praise or appreciation.

5. Equality or similarity

Interpersonal communication will be more effective if the atmosphere is similar, Recognition secretly that both parties are equally valued, and valuable as well as each other have something important to given. For example have a common field of experience, both sides can share information with each other.

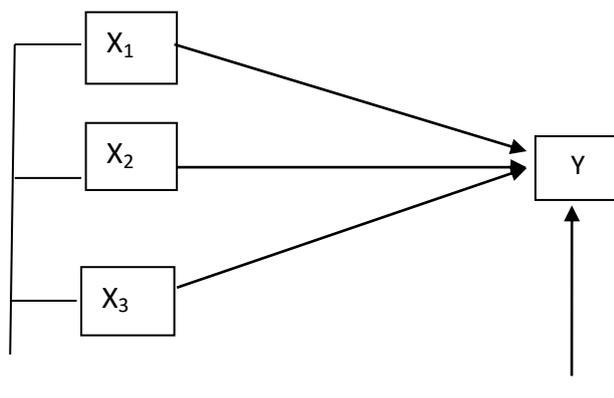
Kinesthetic perception. According Rahantoknam an orderly process and has the function of finding, differentiate, recognize and acknowledge the so-called perception. (Rahantoknam B.E, 1989: 126). Sage stated that kinesthetic is the ability to master the gestures that involve the processing of information, starting from the stimulus to the muscle tendons and joints, then funneled through the nerve tissue to the brain and then responded appropriately. (George H. Sage, 1977: 304). It can be concluded perception of kinesthetic knowledge about body position in space to meet or feel of a movement, the sport of archery, for example, an archer whose ear captures the sound of the whistle or bell rang twice as signs on cue, the archer becomes aware and understand that has been given a cue to get into the line of fire or shooting line.

Consistency Motion. Consistency according to Indonesian big dictionary is permanence and stability. ([Http://kbbi.web.id/konsistensi.html](http://kbbi.web.id/konsistensi.html)). Meanwhile, according to other sources the consistency of the movement is that each player must use the same motion, and the motion of each individual to be more consistent (Mc Kinney, 1996: 192). Motor skills in archery, which is a series of movements of several stages and consists of 9 basic techniques in the process of continuous mutual archery, it will require the ability to analyze a movement archery. In evaluating the archery movement, necessary bebrerapa consideration one of them is consistency archery movement that aims to improve the performance of athletes in archery.

Achievement is the result of the exercise has been done over and over and over so that it becomes a proof of an athlete for his hard work during the training process. According Sardiman A.M Achievement is a real capabilities that results from interactions between the various factors affecting both from within and from outside the individual in learning. While Poerwadinata achievement as a result has been achieved or done, done, and so on (W.J.S.Poerwadarminta, 1991: 768). Athletes in the sport of archery is someone who uses a bow and arrow to shoot well in a workout or race archery. Achievement in the sport of archery is not only marked from each victory achieved by the athletes, but the achievements of athletes in both the race and test scores into evidence and benchmarks if the exercise program given by coaches running well or not.

METHOD

The method used for this study is a survey method that is aimed at gathering information on the variables, and also aims to gather data, using a quantitative approach to the correlation technique. This research is described in the form of the constellation as follows:



Information :

X₁ = Interpersonal communication

X₂ = Perception kinesthetic

X₃ = Consistency motion

Y = Achievement Athlete Archery

The population in this study is archery recurve athletes Jakarta, National PPLP, West Java Athletes and Athletes pelatnas totaled 50 Archery Archery Recurve athletes man and women, while the sample in this study are 35 people with the following criteria:

- a. Archery athlete recorded as local and national athletes
- b. Athletes round recurve
- c. Archery athletes man and women were able to shoot four distances, That is:

Man : 90 meters, 70 meters, 50 meters dan 30 meters.
 Women : 70 meters, 60 meters, 50 meters dan 30 meters.

The instrument used to collect data in this research is to perform tests and measurements of variables included in this study. Data collection techniques in this research is to make measurements on collecting data on interpersonal communication conducted using questionnaires, the athletes then fill it by answering the questions on the questionnaire according to the answers provided. In accordance with the kinesthetic perception of existing instruments. While the consistency of motion is done with the test results score of 30 meters x two sessions by using a score sheet which has been given a target face image, each athlete scored and signaled stuck on the target face image that has been provided as additional information. While collecting data obtained from the archery athlete's performance data from a score of 4 round distance recurve. In this study, researchers act as planners, implementers ie in terms of determining the population and the sample, the research instruments for each variable, to test the validity and reliability of the instrument, carry out the data collection process, to the data processing.

RESULTS AND DISCUSSION

Statistical hypothesis testing first, second, third and fourth conducted by F test. The results are described as follows:

1. Relationship between Interpersonal Communication with Athletes Performance Archery

The first hypothesis proposed in this study "there is a relationship between interpersonal communication with archery athlete's performance". Simple linear regression analysis between interpersonal communication with archery athlete's performance, generate directions coefficient regression "b" of 0.571 and the constant "a" of 21.46, with a regression equation of the relationship between the variables of interpersonal communication with the achievements of athletes in archery, that is: $\hat{Y} = 21.46 + 0.571 X_1$, and the significance of regression test results, namely F_{count} 15.94 greater than F_{table} at 4.15, thus it can be concluded that the regression equation $\hat{Y} = 21.46 + 0.571 X_1$ is an interpersonal communication data pairs (X_1) with archery athlete's performance (Y) was significant (mean). And the linearity test results obtained Fhitung 0.80 is smaller than F_{table} at 2.25, it can be concluded that the shape of the relationship between pairs of data, interpersonal communication with archery athlete's performance is linear. Then increased scores for interpersonal communication (X_1) will lead to an increase of 0.571 score archery athlete's performance (Y) at 21.46 constants.

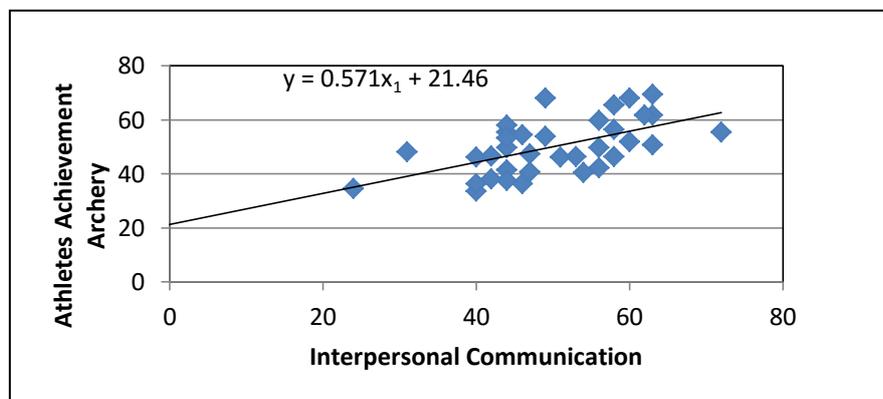


Figure 2. Graph of regression equation Interpersonal Communication (X_1) with Athlete Achievement Archery (Y) $\hat{y} = 21.46 + 0.571 X_1$

The result of simple correlation analysis of the data pairs interpersonal communication with the athlete's performance archery (Y) values obtained coefficient correlation r equal to 0.571. Coefficient significance correlation sought by using T test to test hypotheses. Prices were obtained indicates the magnitude of the relationship between interpersonal communication (X_1) with archery athlete's performance (Y). Distribution of t_{dk} 33 ($n-2$) and the significance level $\alpha = 0.05$, then obtained T_{table} of 1.70. Based on calculations, the $T_{count} > T_{table}$ 3.99 greater than 1.70. It can be concluded that the correlation coefficient between interpersonal communication circuitry archery athlete's performance **is significant (mean)**. Do control of the predictor variables other perceptions kinesthetic (X_2), the obtained partial correlation between interpersonal communication (X_1) with the athlete's performance archery (Y) of 0.633, when it controlled the consistency of motion (X_3) resulted in partial correlation for 0.668, and if controlled perception kinesthetic (X_2) and consistency of motion (X_3) produced a correlation of 0.829.

Coefficient of determination, interpersonal communication (X_1) on the performance of athletes in archery (Y) is equal to $0.571^2 = 0.3258$, and give a donation (contributions) amounted to 32.58%, then 32.58% of the variation of achievement athletes in archery (Y) can be explained by the interpersonal communication with regression $\hat{Y} = 21,46 + 0.571 X_1$. So there is a significant relationship between interpersonal communication (X_1) with archery athlete's performance (Y). The results of this first hypothesis provides information that archery athlete's performance is determined by interpersonal communication, namely that the higher the level of effectiveness of interpersonal communication, the higher the achievements of athletes in archery, and vice versa.

2. Relationship between Perception Kinesthetic with Athletes Performance Archery

The second hypothesis proposed in this study is "there is a relationship between perceptions of the kinesthetic with the achievement of athletes in archery". Simple linear regression analysis between kinesthetic perception with archery athlete's performance, generate directions coefficient regression "b" of 0.630 and the constant "a" of 18.52, the regression equation of the relationship between variables kinesthetic perception with archery athlete's performance, namely: $\hat{Y} = 18.52 + 0.630 X_2$, and the results of testing the significance of regression, $F_{count} > F_{table}$ at 4.15, it can be concluded that the regression equation $\hat{Y} = 18.52 + 0.630 X_2$ is a kinesthetic perception data pair (X_2) with archery athlete's performance (Y) **is significant (mean)**. And the test results obtained $F_{count} < F_{table}$ at 2.33, we can conclude that the relationship between the data pairs, kinesthetic perception with archery athlete's performance is linear. Then the increase kinesthetic perception score (X_2) will lead to an increase of 0.630 score archery athlete's performance (Y) at a constant 18.52.

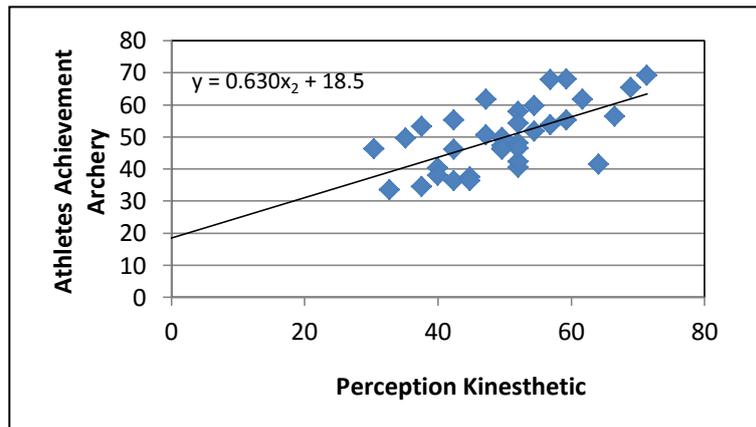


Figure 3. Graph regression equation regression equation Perception Kinesthetic (X_2) with Athlete Achievement Archery (Y) $\hat{y} = 18.52 + 0.630 X_2$

The results of simple correlation analysis of the data pairs kinesthetic perception (X_2) with archery athlete's performance (Y) values obtained koefesiensi correlation r equal to 0.630. Coefficient significance correlation searched using T test to test hypotheses. Prices were obtained indicates the magnitude of kinesthetic perception relationship (X_2) with archery athlete's performance (Y). Distribution of t_{dk} 33 ($n-2$) and the significance level $\alpha = 0.05$, then obtained T_{table} of 1.70. Based on calculations, the Thitung T_{count} 4.66 greater than 1.70. It can be concluded that the correlation coefficient between the kinesthetic perception with archery athlete's performance is **significant (mean)**. Do control of the predictor variables other is interpersonal communication (X_1), the obtained partial correlation between perception kinesthetic (X_2) with the athlete's performance archery (Y) of 0.714, when it controlled the consistency of motion (X_3) resulted in partial correlation for 0.723, and if the controlled communication interpersonal (X_1) and consistency of motion (X_3) produced a correlation of 0.781.

Coefficient of determination perception kinesthetic (X_2) on the performance of athletes in archery (Y) is equal to $0.630^2 = 39.65$, and give a donation (contributions) amounted to 39.65%, then 39.65% of the variation of achievement athletes in archery (Y) can be explained by the perception of kinesthetic with regression $\hat{Y} = 18,52 + 0.630 X_2$. So there is a significant relationship between kinesthetic perception (X_2) with archery athlete's performance (Y). The second hypothesis testing results provide valuable information that archery athlete's performance is determined by the perception of kinesthetic. This means that the higher the kinesthetic perception, then the higher the achievements of athletes in archery, and vice versa.

3. The relationship between Consistency Motion with Athletes Performance Archery

The third hypothesis proposed in this study is "there is a relationship between the consistency of motion with archery athlete's performance". Simple linear regression analysis between the consistency of motion with the achievements of athletes in archery, generate directions coefficient regression "b" of 0.508 and the constant "a" of 24.62, regression equation of the relationship between the variable consistency of motion with the achievements of athletes in archery, namely: $\hat{Y} = 24.62 + 0.508 X_3$. To determine the degree of significance of the simple regression equation, regression significance test results, namely F_{count} 11.46 F_{table} of greater than 4.15, it can be concluded that the regression equation $\hat{Y} = 24.62 + 0.508 X_3$ is a pair of data consistency motion (X_3) with the

achievement of athletes in archery (Y) was significant (mean). And the linearity test results obtained F_{count} 2.98 is smaller than F_{table} at 4.53, it can be concluded that the shape of the relationship between pairs of data, consistency of motion with archery athlete's performance is linear. Then increase the consistency of motion score (X_3) will lead to an increase of 0.508 score archery athlete's performance (Y) at 24.62 constants.

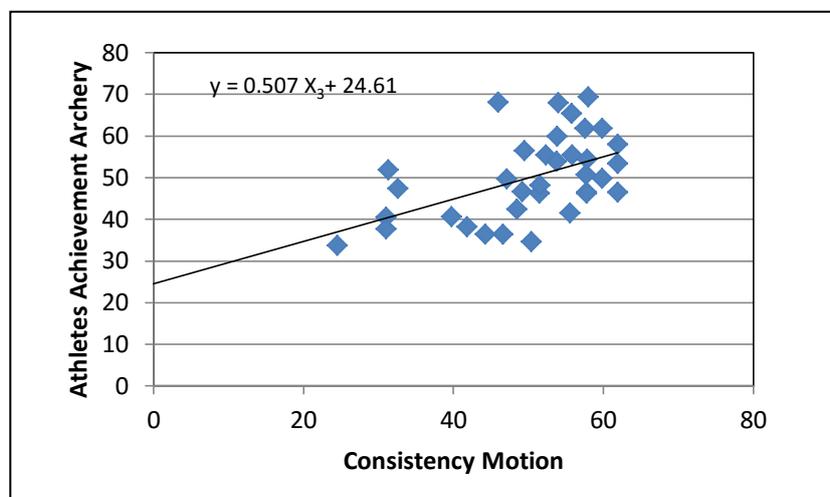


Figure 4. Consistency Motion Graphics regression equation (X_3) and Athlete Achievement Archery (Y) $\hat{y} = 24.62 + 0.508 X_3$

Results of simple correlation analysis of the data pairs consistency of motion (X_3) with archery athlete's performance (Y) values obtained coefficient correlation r equal to 0.508. Koefesistensi significance correlation searched using T test to test hypotheses. Prices were obtained indicates the magnitude of the relationship consistency of motion (X_3) with archery athlete's performance (Y). Distribution of t_{dk} 33 ($n-2$) and the significance level $\alpha = 0.05$, then obtained T_{table} of 1.70. Based on calculations, the T_{count} 3.38 T_{count} greater than 1.70. It can be concluded that the correlation coefficient between the consistency of motion with archery athlete's performance is **significant (mean)**. Do control of the predictor variables other is interpersonal communication (X_1), the obtained partial correlation between consistency of motion (X_3) with the athlete's performance archery (Y) of 0.595, when controlled perception kinesthetic (X_2) resulted in partial correlation for 0.599, and if the controlled communication interpersonal (X_1) and kinesthetic perception (X_2) produced a correlation of 0.730.

Coefficient of determination of consistency of motion (X_3) on the athlete's performance archery (Y) is equal to $0.508^2 = 25.77$, and give a donation (contributions) amounted to 25.77%, then 25.77% of the variation of achievement athletes in archery (Y) can be explained by the consistency of motion through regression $\hat{Y} = 24,62 + 0.508 X_3$. So there is a significant relationship between the consistency of motion (X_3) with archery athlete's performance (Y). The third hypothesis testing results provide valuable information that archery athlete's performance is determined by the consistency of the motion. This means that the higher the consistency of the motion, the higher the achievements of athletes in archery, and vice versa.

4. Relationship between Interpersonal Communication (X₁), Perception Kinesthetic (X₂) and Consistency Motion (X₃) together with Athletes Performance Archery (Y).

The fourth hypothesis proposed in this study is "there is a relationship between interpersonal communication, kinesthetic perception, and consistency of motion together with the achievements of athletes in archery". Multiple linear regression analysis between interpersonal communication, perception kinesthetic, and consistency of motion together with the achievements of athletes in archery generate directions coefficient "b₁" of 0.363, "b₂" of 0.424, "b₃" of 0.307, and the constant "b₀" of - 4.685. Thus the relationship between the variables interpersonal communication, kinesthetic perception, and consistency of motion together with archery athlete's performance was described by the regression equation, namely = -4.685 + 0,363 X₁ + 0,424 X₂ + 0,307 X₃. Results of testing the significance of multiple regression obtained F_{count} 17.57 larger than F_{table} by 2.92, then the regression equation pair of variable data interpersonal communication (X₁), the perception of kinesthetic (X₂), and consistency of motion (X₃), together with the achievements of athletes in archery (Y) **is significant (mean)**. The results of multiple correlation analysis of the data pairs interpersonal communication variables (X₁), kinesthetic perception (X₂), and consistency of motion (X₃), together with the achievements of athletes in archery (Y) gain coefficient value of 0.794.

Table 1. Correlation Calculation X₁, X₂, and X₃ with Y

Correlation	N	R	R ²	F _{count}	F _{table} 0.05
r _{y123}	35	0.794	0.629	17.57	2.92

The results showed a correlation calculation 17.57 F_{count} greater than F_{table} 2.92, it can be concluded that H₀ ditolak and means there is a significant relationship between interpersonal communication, kinesthetic perception and consistency of motion together with the achievements of athletes in archery. And based on the above gain coefficient r_{y123} 0.629 coefficient of determination. It has been suggested that 62.9% of variation results archery athlete's performance can be explained by the variance of interpersonal communication, kinesthetic perception and motion consistency together. So there is a significant relationship between interpersonal communication (X₁), kinesthetic perception (X₂), and consistency of motion (X₃), together with the achievements of athletes in archery (Y). These results provide valuable information that the achievements of athletes in archery determined by interpersonal communication (X₁), the perception of kinesthetic (X₂), and consistency of motion (X₃), jointly and these three variables are variables that need attention in order to improve the athlete's performance archery.

CONCLUSIONS AND SUGGESTION

The study states that interpersonal communication (X₁) has a significant relationship with the athlete's performance archery (Y), with a correlation coefficient of 0.571 and accounted for 32.58% of the achievements of athletes in archery (Y). Kinesthetic perception (X₂) has a significant relationship with the athlete's performance archery (Y), with a correlation coefficient of 0.630 and accounted for 39.65% of the achievements of athletes in archery (Y). Consistency of motion (X₃) had a significant relationship with the athlete's performance archery (Y) with a correlation coefficient of 0.508 and accounted for 25.77% of the achievements of athletes in archery (Y).

Based on the results of research on sport archery athletes to improve performance, the researchers advise that the three independent variables in this study together provide a positive

contribution to the achievement archery athlete. therefore therefore need the attention of sports people especially archery coaches to implement effective communication in the process of practicing or competition, as well as providing training methods that can improve the perception of kinesthetic and consistency of motion for each individual athlete.

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CIRCUIT TRAINING WITH STATIC AND DYNAMIC CORE STABILIZATION EFFECT ON FLEXIBILITY, BALANCE, ABDOMINAL, BACK, LEGS AND ARMS MUSCLE STRENGTH.

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Abstract

Circuit Training make an exercise that becomes a medium to motivate athletes to train in several posts which contain particular moves depend on the goals of the training. The posts of circuit training contain both static and dynamic core stabilization movements of which already set in the grouping. Core stabilization is a set of movements which aim to develop physical condition elements such as flexibility, balance, and abdominal, back, legs and arms muscle strength. The movements are performed for a few seconds with core position move such as the hip flexor stretch, prone bridging on the elbow, prone cobras, side bridging, dynamic hamstring stretch, supine butt lift the arm at side. This study aims to review the effectiveness of Circuit Training with static and dynamic core stabilization. This study was conducted in several phases namely before treatment, during the treatment, and after treatment. Type of research is quantitative with quasi-experimental approach because there is treatment given to the sample. Research shows that circuit training using dynamic core stabilization is better to improve flexibility, balance and abdominal, back and arms muscle strength compared to circuit training using static core stabilization. Both core exercises are not having effects on the increase of leg muscles strength.

Keywords: Circuits, Static And Dynamic Core Stabilization, Flexibility, Balance, Abdominal, Back, Legs and Arms Muscle Strength.

INTRODUCTION

In general, everyone needs good and stable body health, one of the ways to achieve it is by exercising which can maintain and enhance physical performance on an ongoing basis. However, note that any physical activity should be done regularly and gradually in accordance with the needs of each load. The body balance is needed by everyone in order to make the body functions properly and is beneficial for the body do other commonly done physical activities such as running, pushing, jumping, squatting and others. What we expect from an athlete is certainly greater than the regular people.

Core stabilization is one form of exercise that are currently very popular today and is one of the exercises that aims to promote the body center's balance, flexibility and strength, especially abdominal and back muscles. Core stabilization can also enhance endurance capacity of trunk extensor function especially on the hip and bottom back joints pain (Patra, 2013). Each sport definitely needs the balance of the center of body while doing the movements whether they are static or dynamic. Methods of core stabilization exercises can be done for 8 weeks to improve balance for people with joints (Golsefidi, 2013). This exercise can be done by normal people under 8 weeks. The exercise is not only to increase the elements in top physical condition, but it is better if the practice can also be used as an injury prevention for sportsmen because these exercises strengthen the muscles of the basic parts of the body, especially the abdomen, legs, back and arms thereby increasing the effectiveness of exercise and provide good progress for an athlete himself (Behm, 2011).

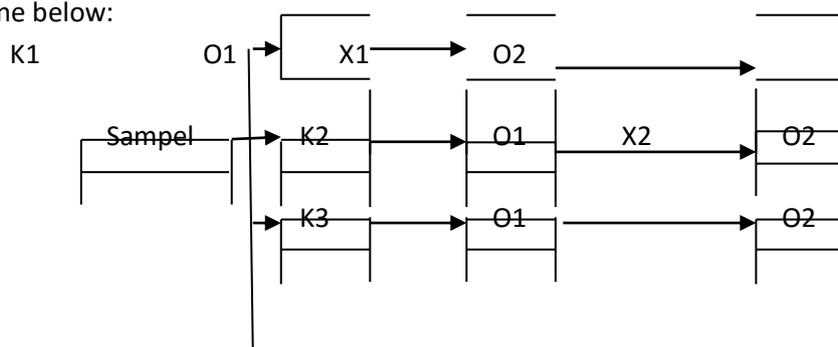
Gymnastics and other dynamic sports are very suitable in practicing the core stabilization exercises to improve balance posture when moving in order to obtain a dynamic movement but remain balanced while doing somersaults in the air (Struhar, 2013). In handstand movement which is one of the basic movements in gymnastics, core stabilization exercises is also required as a form of coordination of not only arm muscle strength but also collaborates with abdominal and back muscles which is displayed in a static position so that the element of balance is very likely to stand out (Forfang, 2015). Core stabilization exercise has many variations of static and dynamic movement. Static balance is useful for maintaining heavy pressure of a movement and made it does not move in its position, whereas dynamic balance is beneficial to maintain the swirling motion in a straight position while in the air (Berscheit, 2015). The treatment given to athletes in the form of core stabilization exercises statically and dynamically generate a significant increase in technique and the physical after being given one of core exercises statically and dynamically (Nazari, 2013). Nevertheless, dynamic exercise increases better technique and physical but not significantly. Several other studies have also found that the exercise can be used as therapeutic lower back injuries when training is given for 6 weeks, while to improve performance in athletes, it takes time for at least 8 weeks for a significant increase (Golsefidi, 2013).

The main muscle strength which increased in the exercise are the core abdominal and back followed by flexibility and balance. This is consistent with the core exercise's purpose which is to improve the balance of the center of the torso in both static and dynamic movement while developing abdominal and back muscle strength (Forfang, 2015). Static core movement can also harmonized, as well as the dynamic movement of the body which involved in improving the reach, speed of movement, or a combination of those two (Mackenzie, 2005). Core movements also support the sport which perform landing with feet as the body balance when landing so that a landing can be done perfectly (Araujo, 2015). One example is gymnastics in which the movement has so many variations and almost all of the movements landed on feet. Perfect movement will support the performance of athletes during a jump, rotation or landing. The movements' perfection must be trained in proper ways, both physically and technique. Core stabilization is suitable to be performed by gymnastics athletes because the movement has a predominance of jumps and spins like a round longitudinal axis (McGill, 2010).

METHOD

Types of research

This type of research is quantitative with quasi-experimental approach because there is treatment given to the sample and uses the design of Control Groups pretest-posttest design with a chart like the one below:



Information :

1. K1: Group-1
2. K2: Group-2
3. K3: Group 3
4. O1: Pretest
5. O2: Posttest
6. X1: Treatment-1 is a circuit workout with core stabilization static
7. X2: Treatment-2 is a circuit workout with the core dynamic stabilization

Variable Treatment

The circuit workout is an exercise that is done by using the posts in which each post contains specific exercises to improve the physical condition of the elements. In this study these posts contain core stabilization exercises with movements that have been selected according to need. Circuit with Core Stabilization Exercises Static is conducted by the group 1 male students of Faculty of Sport Science majoring Sports Coaching Education Department amounted to 14 people are:

1. Hip flexor stretch is one of the stretching movements with hip flexibility and is done with one leg bent behind in position to stretch your hips forward. Movement should be on hold for a few seconds by static. This movement has the aim of developing upper hip flexibility.



2. Prone Bridging on Elbow is one static movements performed on the tummy with the belly lifted up to form the dorsal straight, elbows bent and legs parallel. This movement should hold a few seconds and aims to strengthen the abdominal and back muscles.



3. Prone Cobras are one static movement that is on hold for a few seconds to strengthen the back muscles and waist. This movement is done in the prone position with arms at the side hip and chest and head lifted up.



4. Side Bridging on Elbow is the core movement sideways position and aims to strengthen the sides of the body side statically. This movement is performed with both legs docked, one arm as a stool with a bent position and lifted the body up straight facing side.



5. Butt Lift Arm supine in a Chest is a movement that is done on your back with your hips lifted to the top position and bend the leg at 90°. The position of the hand is on the chest. This movement aims to develop the muscle strength back and waist, abdomen and legs.



6. Prone Bridging around the World with Parallel Hands is a push-up movement survived in a position to bend the elbow. This movement is in the hold several seconds to strengthen the muscles in your arms, stomach and back.



Core Stabilization Exercises Dynamic Circuits that done by the student group 2 male students of Faculty of Sport Science majoring Sports Coaching Education Department amounted to 14 people are:

1. Dynamic Hamstring Stretch is a movement made by the stretching of the legs with pumping way to approach the chest. This movement aims to develop hip flexibility.



2. Prone Bridging on Elbow with Leg Extension is a movement made with tummy and belly lifted up to the back in a straight line. The arm position is bent and legs are straight. This movement is also done by lifting the leg up, alternating between left and right.



3. Supermans is dynamic movements performed in the prone position with both hands straight ahead. Both legs are in the back and lifted up alternately left and right along with the arms are lifted with the legs alternately zigzag. This movement aims to strengthen the back muscles, waist and hips.



4. Side Bridging on Elbow-Side Single Leg Hip Abduction is movement performed with a straight body facing side with one of the arms and legs as a pedestal. Limbs that are above are moved up and down. This movement is done on both sides of the left and right. Aside from being a balance exercises, this movement can also train the muscles of the body side.



5. Supine Butt Lift Arm at Side is a movement performed in the supine position and both knees bends. Hips move up and down to a few minutes.



6. Prone Bridging around the World with Cross Arm movement is a push up with the arms bent alternately at different positions. This movement aims to strengthen the arms, stomach and back.



Group 3 – Control

The control group is a group of male students of Faculty of Sport Science majoring Sports Coaching Education amounted to 14 people who did not conduct treatment such as that carried out by the group 1 and 2 in the study, as this group is the comparison whether an increase or decrease in the results that they got were really out of movements of core stabilization which has been done before.

RESULTS AND DISCUSSION

1. Flexibility

Results of tests and descriptive analysis of data on variable flexibility pre-test in one group to be treated with static circuit exercises of core stabilization value with a sample size of 15 ($n = 15$), the minimum value of 33, the maximum value of 44, the average value of 37.20 and a standard deviation of 3.305. Results of tests and descriptive analysis of data on variable flexibility pre-test in group two to be treated with dynamic circuit workout of core stabilization value with a sample size of 14 ($n = 15$), the minimum value of 19, the maximum value of 48, the average value of 36.786 and a standard deviation of 8.25. Results of tests and descriptive data analysis of variable flexibility pre-test in groups of three which were not given special treatment as the control group exercises value with sample number 14 ($n = 14$), 28.5 minimum value, maximum value of 46.5, the average value of 37.786 and a standard deviation of 6.008. While the results of the test and descriptive data analysis of variable flexibility post-test in one group to be treated with static circuit exercises of core stabilization value with a sample size of 15 ($n = 15$), the minimum value of 35, the maximum value of 46, the average value of 39.53 and standard deviation of 3.608. Results of tests and descriptive data analysis of variable flexibility post-test in group two which were treated with dynamic circuit workout of core stabilization value with a sample size of 14 ($n = 15$), the minimum value of 33, the maximum value of 44, the average value of 37.357 and a standard deviation of 3.3708. Results of tests and descriptive data analysis of variable flexibility post-test in groups of three which were not given

special treatment as the control group exercises value with sample number 14 (n = 14), 27.5 minimum value, maximum value of 47, the average value of 38.321 and standards deviation of 6.04.

2. Balance

Results of tests and descriptive data analysis of variable balance pre-test in one group which was treated with static circuit workout of core stabilization value with sample number 15 (n = 15), the minimum value of 10, the maximum value of 100, the average value of 33 and a standard deviation of 25.908. Results of tests and descriptive data analysis of variable balance pre-test on the second group which was treated with dynamic circuit training of stabilization core value with sample number 14 (n = 15), the minimum value of 5, a maximum value of 81, the average value of 28.57 and a standard deviation of 23.104. Results of tests and descriptive data analysis of variable balance pre-test in groups of three which were not given with the treatment of special training as a control group value with a sample size of 14 (n = 14), the minimum value of 10, the maximum value of 52, the average value of 23 and a standard deviation of 11.462. Results of tests and descriptive data analysis of variable balance post-test in one group which were treated with static circuit workout of core stabilization value with sample number 15 (n = 15), the minimum value of 21, the maximum value of 150, the average value of 62 and a standard deviation of 41.031. Results of tests and descriptive data analysis of variable balance post-test on the second group which were treated with dynamic circuit training of stabilization core value with sample number 14 (n = 15), the minimum value of 10, the maximum value of 100, the average value of 34.21 and a standard deviation of 26.65. Results of tests and descriptive data analysis of variable balance post-test in groups of three which were not given special treatment as the control group exercises value with sample number 14 (n = 14), the minimum value of 12, the maximum value of 61, the average value of 31.43 and a standard deviation of 12.05.

3. Back Muscle Strength

The test results and descriptive data analysis of variable pre-test of back muscle strength in one group that were treated with static circuit exercises of core stabilization value with a sample size of 15 (n = 15), 43.5 minimum value, maximum value of 126, the average value of 94 , 34 and a standard deviation of 22.03. Results of tests and descriptive data analysis of variables back muscles strength pre-test in the second group which were treated with dynamic stabilization core circuit training value with sample number 14 (n = 15), 56.5 minimum value, maximum value of 128, the average value of 96.236 and a standard deviation of 20.164. Results of tests and descriptive data analysis of variable balance pre-test in groups of three which were not given special treatment as the control group exercises value with sample number 14 (n = 14), 45.5 minimum value, maximum value of 126, the average value of 96.25 and a standard deviation of 19.71. Results of tests and descriptive data analysis of variable balance post-test in one group which were treated with static circuit workout of core stabilization value with sample number 15 (n = 15), the minimum value of 21, the maximum value of 150, the average value of 62 and a standard deviation of 41.031. Results of tests and descriptive data analysis of variable balance post-test on the second group which were treated with dynamic stabilization core circuit training value with sample number 14 (n = 15), the minimum value of 10, the maximum value of 100, the average value of 34.21 and a standard deviation of 26.65. Results of tests and descriptive data analysis of variable balance post-test in groups of three that were not given special treatment as the control group exercises value with sample number 14 (n = 14), the minimum value of 12, the maximum value of 61, the average value of 31.43 and a standard deviation of 12.05.

4. Abdominal Muscle Strength

Results of tests and descriptive data analysis of variable abdominal muscle strength pre-test in one group which were treated with static core stabilization exercises circuit value with a sample size of 15 ($n = 15$), the minimum value of 19, the maximum value of 32, the average value of 24.43 and a standard deviation of 3.59. Results of tests and descriptive data analysis of variable abdominal muscle strength pre-test in groups of two which were treated with dynamic stabilization core circuit training value with sample number 14 ($n = 15$), the minimum value of 15, the maximum value of 30, the average value of 23.2 and a standard deviation of 3.93. Results of tests and descriptive data analysis of variable abdominal muscle strength pre-test in groups of three which were not given special treatment as the control group exercises value with sample number 14 ($n = 14$), the minimum value of 21, the maximum value of 30, the average value of 25.4 and a standard deviation of 2.98. Results of tests and descriptive data analysis of variable abdominal muscle strength post-test in one group that were treated with static core stabilization circuit exercises value with a sample size of 15 ($n = 15$), the minimum value of 18, the maximum value of 29, the average value of 24.57 and a standard deviation of 2.95. Results of tests and descriptive data analysis of variable abdominal muscle strength post-test in groups of two that were treated with dynamic stabilization core circuit training value with sample number 14 ($n = 15$), the minimum value of 22, the maximum value of 33, the average value of 26.53 and a standard deviation of 3.4. Results of tests and descriptive data analysis of variable abdominal muscle strength post-test in groups of three that were not given special treatment as the control group exercises value with sample number 14 ($n = 14$), the minimum value of 15, the maximum value of 30, the average value of 23.21 and a standard deviation of 4.079.

5. Arm Muscle Strength

The test results and analysis of descriptive data of variable muscle strength in the arms pre-test of the group which were treated with static core stabilization circuit exercises value with a sample size of 15 ($n = 15$), the minimum value of 19, the maximum value of 50, the average value of 29.86 and a standard deviation of 7.89. The test results and analysis of descriptive data of variable muscle strength in the arms pre-test of two groups which were treated dynamic stabilization core circuit training value with sample number 14 ($n = 15$), the minimum value of 12, the maximum value of 48, the average value of 27.67 and a standard deviation of 9.499. The test results and analysis of descriptive data of variable muscle strength in the arms pre-test of three groups that were not given special treatment as the control group exercises value with sample number 14 ($n = 14$), the minimum value of 16, the maximum value of 37, the average value of 28.57 and a standard deviation of 5.87. The test results and analysis of descriptive data of variables muscle strength in the arms post-test of the group which were treated with static core stabilization circuit exercises value with a sample size of 15 ($n = 15$), the minimum value of 22, the maximum value of 57, the average value of 35.07 and a standard deviation of 9.91. Results of tests and descriptive data analysis of variable arm muscle strength post-test in two groups which were treated with dynamic stabilization core circuit training value with sample number 14 ($n = 15$), the minimum value of 16, the maximum value of 55, the average value of 33.87 and a standard deviation of 9.92. The test results and analysis of descriptive data of variables muscle strength in the arms post-test of three groups that were not given special treatment as the control group exercises value with sample number 14 ($n = 14$), the minimum value of 12, the maximum value of 48, the average value of 27.71 and a standard deviation of 9.86.

Prerequisites Test Analysis Results

1. Normality Test

Normality test is performed on each group, either data of pre-test or the data of post-test on the variable flexibility, balance, back muscle strength, leg muscle strength, abdominal muscle strength and arm muscle strength. Normality test was conducted to determine the distribution of the data in the study whether normal or not as a prerequisite to perform parametric statistical tests. Test for normality in this study used the statistical test Kolmogorov Smirnov. In determining the level of significance it used $\alpha = 0.05$. The test results of normality distribution of data to the pre-test data on each of the dependent variable showed that the data pre-test showed normal distribution. Because the P-value of each variable was greater than $\alpha = 0.05$.

The test results of normality distribution of data to the post-test data on each of the dependent variable showed that the data post-test showed normal distribution. Because the P-value of each variable is greater than $\alpha = 0.05$.

2. Homogeneity Test

Homogeneity test was performed to determine homogeneity of variance of all the necessary groups in this study. Homogeneity test in this study used Levene's test. To determine the degree of homogeneity of variance in this study it used the P value. test criteria were that if the P value was greater than $\alpha = 0.05$, the variance in this study revealed a homogeneous group. And vice versa if the P value was less than 0.05 then the variance in this study group declared not homogeneous. Based on the results of Levene's Test calculations it showed that the variable arm power had a P value (0.189) which meant greater than α (0.05) so that the variables that were declared in each group had a power arm homogeneous variant. Variable power limb had a P value (0.837) which meant greater than α (0.05) thus it declared that variable power limbs each group had a homogeneous variant. Agility variable had a value of P (0.638) which meant greater than α (0.05) so that the variables which were declared in each group had a variant agility homogeneous. Variable speed of reaction had a P value (0.207) which meant greater than α (0.05) so that the reaction speed variable that was declared in each group had a homogeneous variant.

Testing Hypothesis Using Mean Testing of two samples

Hypothesis testing using different test aimed to determine the effect of each treatment given to each group. By knowing the dependent variable that is the increase in flexibility, balance, back muscle strength, leg muscle strength, abdominal muscle strength and arm muscle strength. Then it looked for differences in treatment effect which were given to each group. Test of hypothesis is the probability value of Wilk's Lambda; if the probability value is less than α (0.05) then we can say the treatment effect on the increase in the dependent variable.

1. Results of Multivariate Analysis

The results of statistical calculations to determine whether differences in the type of exercise (Circuit core stabilization static, circuit core stabilization dynamic) and the group not treated the exercise as a control to affect the increased flexibility, balance, muscle strength back, leg muscle strength, abdominal muscle strength, and strength arm muscles showed that the entire value of Probability of multivariate tests conducted showed that (P value = 0.000 <0.05), which means training (core stabilization circuit static, dynamic stabilization core circuit) and a group of untreated

control exercise as the overall effect to increase flexibility, balance, muscle strength back, leg muscle strength, abdominal muscle strength and arm muscle strength.

Multiple Comparisons Test Results

Statistical calculations is to determine the significance of the interaction effect of each independent variable on the dependent variable (flexibility, balance, muscle strength back, leg muscle strength, abdominal muscle strength and arm muscle strength). Besides that test of multiple comparisons is to compare the effect of an independent variable that is the exercise (Circuit core stabilization static, circuit core stabilization dynamic) and the group that was not treated with the exercise as a control on the dependent variable flexibility, balance, muscle strength back, leg muscle strength, strength abdominal muscles and arm muscle strength).

a. The treatment group of static core stabilization exercises Circuit

Based on the results of multiple comparisons test showed that core stabilization exercises static showed the effect on variable balance, arm muscles, and back muscles. While variable flexibility, leg muscle strength, and abdominal muscle strength was not significantly increased. Variable flexibility had a probability value ($P\text{-Value} = 0.537 > \alpha = 0.05$), which means a static circuit workout of core stabilization had no significant effect on the increase in flexibility. Variables of balance have a probability value ($P\text{-Value} = 0.014 < \alpha = 0.05$), which means the circuit core stabilization exercises statically significant effect on the increase in the balance. Variable leg muscle strength had a probability value ($P\text{-Value} = 0.268 > \alpha = 0.05$), which means a circuit workout static core stabilization had no significant effect on the increase in leg muscle strength. Variable arm muscle strength has a probability value ($P\text{-Value} = 0.003 < \alpha = 0.05$), which means the circuit core stabilization exercises statically had significant effect on increasing the strength of the arm muscles. Variable back muscle strength had a probability value ($P\text{-Value} = 0.038 < \alpha = 0.05$), which means the circuit core stabilization exercises statically significant effect on the increase in muscle strength back. Variable abdominal muscle strength had a probability value ($P\text{-Value} = 0.853 > \alpha = 0.05$), which means a static circuit workout of core stabilization had no significant effect on the increase in abdominal muscle strength.

b. The treatment group of dynamic core stabilization circuit exercises

Based on the results of multiple comparisons test showed that core stabilization exercises dynamically showed the effect on the variable of flexibility, balance, strength of arm muscles, back muscle strength and abdominal muscle strength. While the variable of leg muscle strength was not significantly increased. Flexibility Variable had a probability value ($P\text{-Value} = 0.000 < \alpha = 0.05$), which means the core circuit training dynamic stabilization had significant effect on the increase in flexibility. Balance Variables had a probability value ($P\text{-Value} = 0.001 < \alpha = 0.05$), which means the dynamic core stabilization circuit training had significant effect on the increase in the balance. Leg muscle strength Variable had a probability value ($P\text{-Value} = 0.268 > \alpha = 0.05$), which means the dynamic core stabilization circuit training had no significant effect on the increase in leg muscle strength. Variable of arm muscle strength had a probability value ($P\text{-Value} = 0.000 < \alpha = 0.05$), which means the dynamic core stabilization circuit training had significant effect on increasing the strength of the arm muscles. Variable of back muscle strength had a probability value ($P\text{-Value} = 0.029 < \alpha = 0.05$), which means the dynamic core stabilization circuit training had significant effect on the increase in back muscle strength.

Variable of abdominal muscle strength had a probability value (P-Value = 0.000 $<\alpha = 0.05$), which means the dynamic core stabilization circuit training had significant effect on the increase in abdominal muscle strength.

Simultaneous analysis of 95% Confidence Intervals independent variable in each group

To determine the influence of a variety of exercises given to each group is conducted simultaneous analysis of the interval confidence and compares coefficient values of different test between the treatment groups in this study. It shows that a difference average coefficient value of the treatment group that had a higher value is the treatment group on a dynamic core circuit training compared with the treatment group on static core stabilization circuit training. Flexibility variable of the treatment group of static core stabilization had a different test coefficient value of $0.635 < 5.534$ of different test coefficient value of dynamic stabilization core circuit training, which means the effect of dynamic core stabilization circuit workout is better to influence the improvement of flexibility variables than the static stabilization core circuit training. Flexibility variable of static core stabilization treatment group had a different test coefficient value of $0.635 < 5.534$ different test coefficient value of dynamic core stabilization circuit training, which means the effect of dynamic core stabilization circuit workout influence the increase of the flexibility variables better than the static core circuit training. Balance variable of static core stabilization treatment group had different test coefficient value of $2,819 < 4.448$ different test coefficient value of dynamic stabilization core circuit training, which means that the effect of dynamic core stabilization circuit workout influence the increase of the balance variables better than the static stabilization core circuit training. The variable of leg muscle strength of static core stabilization treatment group had different test coefficient values of $1.156 > 0.939$ different test coefficient value of dynamic core stabilization circuit training, that second treatment does not significantly increase leg muscle strength. Variable of strength of arm muscle of static core stabilization treatment group had different test coefficient value of $3.645 < 6.080$ different test coefficient value of dynamic core stabilization circuit training which means the effect of dynamic core stabilization circuit training influence the increase of the variable of power of the arm muscles better than static core stabilization circuit training. The back muscle strength variable of static core stabilization treatment group had different test coefficient value of $2.307 < 2.432$ different test coefficient value of dynamic core stabilization circuit training which means that the effect of dynamic core stabilization circuit training influence the increase in the variable of back muscle strength better than static core stabilization circuit training. The abdominal muscle strength variable of static core stabilization treatment group had different test coefficient value of $0.189 < 4.799$ different test coefficient value of dynamic core stabilization circuit training which means the effect of dynamic core stabilization circuit training influence the increase in the variable of abdominal muscle strength better than static core stabilization circuit training. It can be generally concluded that the dynamic core stabilization circuit training affects the increase of physical condition components better than the static core stabilization circuit training.

DISCUSSION OF RESEARCH

The follow up of this study is a discussion of the results of the analysis of the study. The discussion here is about the decomposition of the results of research on the model of a circuit exercise with static and dynamic core stabilization on the flexibility, balance, muscular strength of

the limbs, back and stomach. But before discussing the results, keep in mind that the purpose of the study is to analyze whether there is influence circuit training with static and dynamic core stabilization to increase flexibility, balance, and muscle strength of the legs, arms, stomach and back. It is also to analyze which is most effective between static or dynamic core exercises to improve flexibility, balance, and muscle strength of the legs, arms, stomach and back.

Circuit Exercises with Static and Dynamic Core Stabilization on Increasing the flexibility

Based on the data that have been obtained, a circuit exercise with the dynamic core stabilization further increases flexibility comparing with static core stabilization circuit exercises. Of course, these results have been tested on a sample with a division of 3 groups. Group 1 is a sample obtained circuit exercise with static core stabilization, and performs the movement to any posts with movements of static core including hip flexor stretch, prone bridging on elbow, prone cobras, side bridging on elbow, supine butt lift arm in chest and prone bridging around the world with parallel hands. While the second one is a sample obtained circuit exercise with dynamic core and performs the movements of dynamic core such as dynamic hamstring stretch, prone bridging on elbow with legs extension, superman, side bridging on elbow-single-leg hip abduction, supine butt lift arm at side and prone bridging around the world with a cross arm.

If the dynamic core movements are reviewed, then these movements are more flexible in movement. The movement is done with the dynamic, the whole body will move either closer or away from the other parts of the body so that flexibility will occur in stages in accordance with ability. Little by little flexibility will be formed for the adaptation of the movement itself. One example hamstring stretch dynamic movement is a movement that wrenched the leg toward your chest to stretch the pelvic area, thighs and backs will occur. The movement can help improve the flexibility of a person. Although static movement can also develop flexibility, the nature of the movement that holds enables the sample do that maximally, but they can also be less than the maximum because of the continuous pain. Stretching method is considered less effective in increasing flexibility because it requires endurance withstanding a certain period (Berscheit, 2015). Flexibility is an important element in the movement of a person, especially in a dynamic sport. Due to the flexibility, someone can move broadly and flexibly to be able to reduce injuries. Some flexibility training methods, one of which is in a static method, in which the state hold a certain position is typical of the static movement.

Under certain conditions such as age, flexibility can still be developed despite the less than optimal. However, it still depends on the seriousness and accuracy of movement at the position of each person (Hosseini, 2012). At age that is no longer young, flexibility is one of the movements that must be done, including by an adult to maintain a permanent joint work in place. Static core stabilization exercises can help maintain flexibility with a dose of proper exercise. Static movements on core stabilization can be provided with a model of the mild movement to medium one. But for the sportsman, it can be improved in motion by a factor of higher difficulty as long as it has the ability of sufficient flexibility so it doesn't cause injury or prolonged illness. From some research, static core stabilization exercises produce no significant difference in improvement between pretest and posttest flexibility. The resulting improvement is not relatively high (Hosseini, 2012). Static models of core stabilization exercises are more suitable for special training as a therapy to prevent injury or to heal the injury (McGill, 2010) due to the hold position is the best position to strengthen the injured

body parts. Pain during either hold a certain position is good for strengthening of the injured body part. Handling injuries by using exercises core static can also be combined with models of movements varied by involving all members of the body such as legs, arms, stomach and the other and carried on in directions different as supine, face down, to the side, rear (Aluko, 2012).

Dynamic core stabilization movements have a lot of variety in which all parts of the body move and hold each other in balance. Flexibility is obtained either from the movements of the legs, arms or other body parts because it is done together at a particular position. The dynamic movements that help develop the flexibility as well at the same time improve the balance well anyway (Schoenfeld, 2016). From some of the statements above, it can prove that static core stabilization exercises are the exercises that are good for strengthening the traumatized and injured muscles, especially in the area of the hip and spine (McGill, 2010). In the process of increasing flexibility, static methods can also be given to a sportsman but with the objective to maintain flexibility or conditioning. Dynamic core exercises are also useful to prevent injury as well as injury therapy, especially the hip, waist and back (McGill, 2010). Dynamic core stabilization jointly develops flexibility and injury therapeutic.

Circuit Exercises with Static and Dynamic Core Stabilization on Increasing the Balance

The balance is one of the objectives of core stabilization movements where almost all movements are holding a position so that they can train someone to be able to move in balance at a specific position. The movement can help develop balance. In the treatment, the core motion is expected to improve the balance such as prone bridging on elbow, prone cobras, side bridging on elbow, and butt lift arm in supine chest. The movement is a kind of static core movements done in circuit training for 8 weeks (Golsefidi, 2013). And the research is to get good results and has a significant effect on improving the balance. In accordance with its objectives, pretest and posttest results showed that the core static balance exercises can improve the very good balance (Berscheit, 2015). Every human body has been equipped with sensor capabilities to maintain a balance so as to maintain the balance in everyday movements because there are three of the nerves system that maintain the balance of human beings which are a sensory nerve, the nerve center and motor nerves (Scott, 2008), such as walking, running, pushing, jumping and others. If the sensors are kept on being trained, then a balance can grow well. A wide variety of movement of static core stabilization is focused on improving the balance. All movements both in the supine position, face down, to the left and right side are movements that require particular focus to hold. This nature is what helps develop balance properly and effectively.

Dynamic core stabilization exercises are basically the same with static movement, it's just a dynamic core movements done with a variety of movements performed by the legs, arms or other members of the body at the time of holding. Basically the core exercises should be done on an ongoing basis in order to get a good balance levels as needed despite all the nervous system work properly. This can facilitate the trainer to improve the technical ability of athletes to a higher level of movement complexity. Core stabilization exercises, both static and dynamic can enhance the balance better and more effective, and they can help improve the athlete's performance due to his significantly improved physical condition and technique, at the same(Nazari, 2014). The ability to move dynamically certainly is needed in many sports such as gymnastics. This is because variations of movement in gymnastics which vary from easy up to difficult movement. Dynamic movement of

course also requires a high balance because of the movement that is more difficult than other static movements. Concentration in balancing the body at the time of spin in the air is also very influential to not fall or fail at landing (Ricotti, 2011).

Based on the existing data in the table, it indicates that the dynamic core exercises improve balance better than static core exercises. This is because the dynamic core movements do require a focus on higher balance when they involve other body parts to move in the current hold position. However, both the core exercises are interconnected so that both improve balance. Dynamic balance is also beneficial to maintain a swirling motion in the correct and straight position based on the characters in motion like in the round longitudinal axis or spiral in gymnastics while in the air (Berscheit, 2015). This dynamic movement can also be given to athletes ranging junior to senior of age because the movement requires balance and strength. Nevertheless static core movement can also be given to the beginner athlete with the appropriate dosage before getting a workout program with a dynamic core. This adaptation can improve the balance of the athletes gradually and continuously so they allow an increase in the balance on the motion-dynamic movement (Yesi, 2014). Here is a table of the results of the balance of the core group of static stabilization.

Circuit Exercises with Static and Dynamic Core Stabilization on Improving Arm Muscle Strength

In various sports movement and the daily movement, the arm is one of the body parts which always play a role in such swing movement in walking, running and jumping. Rotating hands or arms is also required when making certain movements. The arms never stop working on any movement of both static and dynamic movements. At the static and dynamic core stabilization circuit exercise, Arms are always involved in a balancing movement so that the movement is more perfect.

Static core movement carried on by a group which are prone bridging on one elbow, elbow on bridging side, prone bridging around the world with parallel hands are the movements resting on the arm with a certain position. Those movement shows that the arms have a huge dominance in holding the position of either by pushing with the straight or bending arms and being done with one or two hands. While the movement of dynamic core that has been done by the group 2 which is prone bridging on elbow with legs extension, side bridging on elbow-single-leg hip abduction, and prone bridging around the world with a cross arm is a movement similar to the movement of the static core, only members of other body parts such as the legs moves involved with different variations.

But the movement still involves the arms predominantly so that the results of the core circuit training with static and dynamic stabilization of the arm muscle strength is very good. The conclusion from these results indicate that the circuit training with dynamic core stabilization is better than the circuit training with static core stabilization in increasing the strength of the arm muscles. Nevertheless the result has no significant difference with both dynamic and static core stabilization circuit exercise but they equally increase the strength of the arm muscles as well.

Circuit Exercises with Static and Dynamic Core Stabilization on the Improvement of Back Muscle Strength.

One element of the physical conditions involved in movements of core stabilization is the back muscle strength. The back is a part of the body that is important in its role to support body when standing, running, jumping and other movements such as the back and lying face down.

Without the strength of the back muscles, the movements in the sport will look less dynamic and imperfect. Both static and dynamic exercise, muscle strength back is still needed as the support the body so that it takes special training to maintain and improve back muscle strength and one of them is to practice using core movements both static and dynamic stabilization (Araujo, 2015).

Core movements that has been done by the sample either group 1 (static) and group 2 (dynamic) as prone bridging on elbow and with legs extensions, prone cobras, side bridging, supine butt lift arm in the chest or side, prone bridging around the world with parallel or cross arm are some movements that represent core exercises with the attitude of reinforcement at the back and stomach area. The position carried on the movement requires precision angle and hold in a certain time. Holding a position is able to develop back muscles strength. Also the movements of dynamic core, the higher the burden makes the sample practice balance while increasing the back power (Berscheit, 2015).

In every sport, especially dynamic sports, movement is usually very varied like floating in the air, spinning and landing, then the back muscles are needed as a counterweight to the abdominal muscles while moving (Struhar, 2014). Backs also have a very important function in the human body such as giving strength of the structure, movement and protection to the body's tissues. By the time a person stands, backs have got a duty to support the weight of the body. Likewise, when someone bending, squatting, rotating at the waist, backs help carry out such movement tasks. In addition to these tasks, the back is also tasked to protect the central nerves system and organs of the pelvis and abdomen. One part of the back muscles like the latissimus dorsi is a part of the body to form winged backs just like swimmer back muscles (Schoenfeld, 2016).

Core exercise both static and dynamic is excellent for athletes for beside its purpose to increase the strength, as well as exercises to prevent injury. Therapy back injuries can also be reduced with the core exercises (Johnson, 2012). In the sport of gymnastics, a lot of movements require strength back like handstand, handspring, which can be displayed on the giant floor exercises and apparatus gymnastics (Forfang, 2015). If there is injury to the upper or lower back, the performance cannot be optimal and affect the performance of the muscles of the body. Often there are lower back injuries in gymnastics while landing (Araujo, 2015) especially at somersault or spinning through the air which requires a perfect landing because of a certain height. Based on that, then the back muscle strengthening exercises are very important and can be trained with physical exercises for the back and abdomen together for her roles reinforce each other (Fig, 2009). If examined from the research, the movement of both static and dynamic core is movements which must continually be given as strengthening and conditioning, and can be given to developing the strength of the back muscles (McGill, 2010). However, the core principles of the movement cannot be ignored in order to achieve the desired goal as the position and shape of the body when holding which must be considered as well as the media used must be in accordance with the level of difficulty and the light weight core movement itself (Akuthota, 2008).

Circuit Exercises With Static and Dynamic Core Stabilization on Increasing Abdominal Muscle Strength

Abdominal muscle strength has equally important role with back muscle strength. In each conditioning exercise, abdominal and back muscles will always be given because of its complementary. The front and rear body is a unity in supporting the body in every movement. In the

treatment given to groups 1 and 2 (static and dynamic) is the same movements and similar but there are differences in limb movements such as arm and leg on the dynamic core group. But the movements of both static and dynamic core have the characteristics of a regular position and held sometime in certain positions. Static movement is more useful in maintaining strength, while helpful dynamic movement is to improve strength and physical condition of the other element (Berscheit, 2015).

Abdominal muscle is one part of the body involved in the movement of a gymnast like to make the leap into the air, spinning or resisting movement in a certain position. In the dynamic movements work the abdominal muscles so that the posture has not changed into bending or curling up when moving in the air. Correct posture when performing motion is needed to avoid falling and landing wrong so as to prevent injuries (Araujo, 2015) because it also relates to the back muscles. Some of the abdominal muscles will also be involved in the training process such as: (1) transverses abdominus-deepest muscle layer, (2) the rectus abdominus-between the ribs and the pubic bone at the front of the pelvis, (3) external oblique muscles-this muscle allows oblique to play, (4) internal oblique-located inside the hip bone. Abdominal and back muscle strength cannot be separated because they are complementary needs while moving both static and dynamic.

For beginners and junior gymnast, abdominal muscle strength is a part of the body other than the back muscles to be strengthened as the dominant part in moving both static and dynamic (Dowdell, 2013). The strength of the abdominal and back muscles should be continuously administered jointly and continuously in order to achieve the expected strength. In the event of injury to the spine, the abdominal muscles will be working hard in the motion (Dowdell, 2013) that will cause a new injury. Abdominal muscle strength is also needed for the balance of the swirling motion in the air, and this should be given special training in young athletes because of the nature of the movement is not perfect (Ricotti, 2011)

CONCLUSION AND SUGGESTION

The conclusion of research can be detailed as follows: (1) There is a significant influence on a circuit training with static core stabilization in improving balance, arms and back muscle strength at the male students of Faculty of Sport Science majoring Coaching Education Sport, (2) There is a significant impact circuit training with dynamic core stabilization in improving flexibility, balance, abdominals, back and arms muscle strength, in male students of Faculty of Sport Science majoring Coaching Education, (3) There are differences in effects between a circuit training with static and dynamic core stabilization in increasing flexibility, stomach and arms muscle strength on male students of Faculty of Sport Science majoring Coaching Education Sport (4) Exercise circuit with the dynamic core stabilization is more effective than with circuit training with static core stabilization in improving flexibility, stomach and arms muscle strength on male students of Faculty of Sport Science majoring Coaching Education Sport. Of the two training has been given, it can be concluded that with a static core stabilization exercise circuit increased significantly on balance, arms and back muscle strength, while the dynamic core stabilization significantly increased in flexibility, balance, back arms and abdominal muscle strength.

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DIFFERENCES IN EFFECT INTERVAL TRAINING AND CONTINUOUS TRAINING OF ANTIOXIDANT ENZYME ACTIVITIES AND STATUS OXIDATIVE STRESS YOUNG MEN

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Abstract

This study aims to assess effect of difference between the method of continuous training and interval training to increase antioxidant enzyme activity and a decrease in degree of oxidative stress in young men. This study design was randomized group pretest and posttest design. The population in this study were students majoring in sports science faculty of Malang University. Technics sampling using sample purposive aiming with a sample size of 20 people,. divided into 2 groups: group interval training and continuous training. This type of research is a quasi experiment , with a quantitative approach. Data collected by measurement techniques blood samples that is: level MDA blood plasma as an indicator of the degree of oxidative stress, SOD activity of blood plasma as an indicator of antioxidant enzyme activity. The data were analyzed by using MANOVA using α of 0.05. It can be concluded that interval training can reduce the degree of oxidative stress at a minimum of 36.546 ng/ ml, increase the antioxidant activity of a minimum of 12.176 U / ml. While the continuous training can reduce the degree of oxidative stress at a minimum of 63.046 ng / ml, increase the antioxidant activity of a minimum of 10.392 U / ml. Interval training and continuous training are equally effective to decrease the degree of oxidative stress, antioxidant capacity increased.

Keywords : training, oxidative stress, antioxidant enzyme activity

THE ASSOCIATION OF BODY WEIGHT WITH CHOLESTEROL REDUCTION AFTER BODY LANGUAGE GYMNASTIC FOR 45 MINUTES

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Abstract

Purpose of the research to know the relationship between Body weight with Cholesterol Reduction after Body Language Gymnastic for 45 minutes. This research is conducted in Power GYM at ruko SPBU Sunter Kemayoran Street, Jakarta from November 26 to Desember 6, 2016. The method that being used is experiment method "One Group Pre-test and Post-test Design" with purposive sampling technique. Samples are 9 people from 15 people that eligible for the study. Data analysis technique used Pearson Correlation in significant level $\alpha = 0,05$. Final data of body weight with cholesterol shown strong relationship with r value 0,741 then tested results of these calculations to the table on degrees of freedom (df) = 8 and significant level of 0,05 was obtained critical r value 0,666 ($r_{\text{tes}} = 0,741 > r_{\text{table}} = 0,666$). The final conclusion obtained through this research is found the relationship between Body weight with Cholesterol Reduction after Body language Exercise for 45 minutes. The body weight the cholesterol reduction will be.

Keywords: body weight, body language gymnastic, total cholesterol.

INTRODUCTION

Cholesterol is a fat-like substance, found in the blood stream and also in bodily organs and nerve fibres. While there are different etiological roles for various types of cholesterol, such as high and low density lipoprotein. Raised cholesterol increases the risks of heart disease and stroke. Globally, a third of ischaemic heart disease is attributable to high cholesterol. Overall, raised cholesterol is estimated to cause 2.6 million deaths (4.5% of total) and 29.7 million disability adjusted life years (DALYS), or 2.0% of total DALYS. (Kylasov, 2011)

Raised total cholesterol is a major cause of disease burden in both the developed and developing world as a risk factor for Ischemic heart disease and stroke. In 2008 the global prevalence of raised total cholesterol among adults (≥ 5.0 mmol/l) was 39% (37% for males and 40% for females). Globally, mean total cholesterol changed little between 1980 and 2008, falling by less than 0.1 mmol/L per decade in men and women. (Kylasov, 2011)

The prevalence of raised total cholesterol increased noticeably according to the income level of the country. In low income countries around a quarter of adults had raised total cholesterol, in lower middle income countries this rose to around a third of the population for both sexes. In high-income countries, over 50% of adults had raised total cholesterol; more than double the level of the low-income countries.

High cholesterol is a major risk factor for coronary heart disease, a cause of heart attacks, and reducing blood lipid levels lowers the cardiovascular risk. High levels of LDL lead to a build-up of cholesterol in the arteries, whereas HDL carries cholesterol to the liver for removal from the body. A build-up of cholesterol is part of the process that narrows arteries, called atherosclerosis, in which plaques form and cause restriction of blood flow.

The table below demonstrates what cholesterol numbers are considered healthy, borderline and high risk for developing cardiovascular disease:

TYPES OF CHOLESTEROL	LEVELS (MG/DL)	WHAT DOES THE LEVEL MEAN?
LDL	< 100	Optimal
	100-129	Near optimal
	130-159	Borderline high
	160-189	High
	>190	Very high
HDL	<40	Low
	>60	High
Triglycerides	<150	Normal
	150-199	Borderline high
	200-499	High
	>500	Very high

Source: Third Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III), National Institutes of Health

The primary causes of high cholesterol are genetic - very high LDL levels are found in the inherited condition familial hypercholesterolemia. Abnormal cholesterol levels may also be secondary to the following: Diabetes, Liver or kidney disease, Polycystic ovary syndrome, Pregnancy and other conditions that increase levels of female hormones.

High cholesterol levels are a result of modifiable and non-modifiable risk factors. Two major risk factors, diet and exercise, are highly modifiable, meaning that something can be done to change these risk factors and reduce the likelihood of having high cholesterol.

Physical exercise is any bodily activity that enhances or maintains physical fitness and overall health and wellness. It is performed for various reasons, including increasing growth and development, preventing aging, strengthening muscles and the cardiovascular system, honing athletic skills, weight loss or maintenance, and also enjoyment. Frequent and regular physical exercise boosts the immune system and helps prevent "diseases of affluence" such as cardiovascular disease, type 2 diabetes, and obesity.

It may also help prevent stress and depression, increase quality of sleep and act as a non-pharmaceutical sleep aid to treat diseases such as insomnia, help promote or maintain positive self-esteem, improve mental health, maintain steady digestion and treat constipation and gas, regulate fertility health, and augment an individual's sex appeal or body image, which has been found to be linked with higher levels of self-esteem.

Childhood obesity is a growing global concern, and physical exercise may help decrease some of the effects of childhood and adult obesity. Some care providers call exercise the "miracle" or "wonder" drug—alluding to the wide variety of benefits that it can provide for many individuals. Aside from the health advantages, these benefits may include different social rewards for staying active while enjoying the environment of one's culture. Many individuals choose to exercise publicly outdoors where they can congregate in groups, socialize, and appreciate life.

Physical exercises are generally grouped into three types, depending on the overall effect they have on the human body:

1. Aerobic exercise is any physical activity that uses large muscle groups and causes the body to use more oxygen than it would while resting. The goal of aerobic exercise is to increase cardiovascular endurance. Examples of aerobic exercise include cycling, swimming, brisk walking, skipping rope, rowing, hiking, playing tennis, continuous training, and long slow distance training.
2. Anaerobic exercise, which includes strength and resistance training, can firm, strengthen, and tone muscles, as well as improve bone strength, balance, and coordination. Examples of strength moves are push-ups, pull-ups, lunges, and bicep curls using dumbbells. Anaerobic exercise also include weight training, functional training, eccentric training, Interval training, sprinting, and high-intensity interval training increase short-term muscle strength.
3. Flexibility exercises stretch and lengthen muscles. Activities such as stretching help to improve joint flexibility and keep muscles limber. The goal is to improve the range of motion which can reduce the chance of injury.

Physical exercise can also include training that focuses on accuracy, agility, power, and speed. Sometimes the terms 'dynamic' and 'static' are used.[citation needed] 'Dynamic' exercises such as steady running, tend to produce a lowering of the diastolic blood pressure during exercise, due to the improved blood flow. Conversely, static exercise (such as weight-lifting) can cause the systolic pressure to rise significantly (during the exercise).

Kenneth Cooper was the first person to introduce the concept of aerobic exercise. In the 1960s, Cooper started research into preventive medicine. He became intrigued by the belief that exercise can preserve one's health. In 1970 he created his own institute (the Cooper Institute) for non-profit research and education devoted to preventive medicine. He sparked millions into becoming active and is now known as the "father of aerobics". Aerobic exercise comprises innumerable forms. In general, it is performed at a moderate level of intensity over a relatively long period of time. For example, running a long distance at a moderate pace is an aerobic exercise, but sprinting is not. Playing singles tennis, with near-continuous motion, is generally considered aerobic activity, while golf or two person team tennis, with brief bursts of activity punctuated by more frequent breaks, may not be predominantly aerobic. Some sports are thus inherently "aerobic", while other aerobic exercises, such as fartlek training or aerobic dance classes, are designed specifically to improve aerobic capacity and fitness. It is most common for aerobic exercises to involve the leg muscles, primarily or exclusively.

Body language exercise is a program to shape the body by toning every muscle in our body. The benefit of Body Language exercise are:

- Reshaping the posture
- Improve cardio respiratory system
- Strengthening the muscle
- Decrease cholesterol level

METHOD

Nine healthy female 30-45 year old member of Power Gym voluntarily participated in this study. All subjects were member who actively attend the Body Language Class. The cholesterol test procedure was conducted before and after the subject attend 16 times of Body Language class. Before the procedures, each subject was asked to be present in the Gym to give her information about the study. Thereafter in the same day, the subjects read and signed the informed consent form about the study and test procedures, and any possible risks and discomfort that might ensue that was approved by the Gym Authorities. Afterward the cholesterol test prosedur and body weight measurement was conducted.

When the subjects attended the gym on the next 16 times, they carried out the exercise led by Body Language instructor. After 16 times of exercise, the second cholesterol test prosedur and body weight measurement was conducted.

RESULT AND DISCUSSION

Final data of body weight with cholesterol level shown strong relationship with r value 0,741 then tested results of these calculations to the table on degrees of freedom (df) = 8 and significant level of 0,05 was obtained critical r value 0,666 ($r_{tes} = 0,741 > r_{table} = 0,666$). The final conclusion obtained through this research is found the relationship between Body weight with Cholesterol Reduction after Body language Exercise for 45 minutes. The body weight the cholesterol reduction will be.

The results of this study suggest that the LDL cholesterol response to body weight of a subject. Thus, increasing weight in women seems to boost their response to a cholesterol-lowering level. A few other studies have also suggested that obese subjects appeared to be more responsive to lowering cholesterol level.

A possible explanation for the effect of weight on cholesterol-lowering in women may be their higher percentage of body fat. Adipose tissue produces and stores cholesterol, thus, an individual with a greater fat depot would likely produce more cholesterol. Additionally, the greater adipose tissue mass in women could contribute more endogenous cholesterol production to the total pool but reduce rapidly during exercise.

Body weight is known to be strongly correlated with cholesterol production, yet it is not known whether the rate of cholesterol synthesis differs between men and women. Body fat distribution may also confer certain metabolic characteristics. The present results suggest that the LDL response to cholesterol lowering diets in women may be reduced in those with a high weight.

CONCLUSION AND RECOMENDATION

The results of this present study, coupled with those of other reports, suggest that being overweight was no resistance to cholesterol reduction in women. The final conclusion obtained through this research is found the relationship between Body weights with Cholesterol Reduction after Body language Exercise for 45 minutes. The more body weight the cholesterol reduction will be.

Thus, the general recommendations to reduce the cholesterol level are doing exercise more often and reduce dietary fat. These data suggest that overweight women may need to make additional lifestyle changes, such as weight loss or increased exercise, to achieve cholesterol lowering.

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EFFECT OF TOTAL BODY WEIGHT RESISTANCE EXERCISE (TRX) ON ARMS MUSCLE POWER

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Abstract

The research aims to improve arms muscle power. Amount of Samples were 36 peoples divided into 3 groups, each group consisted of 12 peoples with the provision of treatment in group I of TRX Upper body low row, biceps curl and triceps press. Second group was upper body TRX mid row, biceps clutch, and triceps press. Third group was treated with conventional training. Method used in this study was pretest-posttest. Treatment in the study carried out three times a week for 8 weeks. Purposes of this study was to determine 1) Effect of TRX upper body low row, biceps curl, triceps press on arms muscle power, 2) Effect of TRX upper body mid row, biceps clutch, triceps press arm muscle power, 3) difference between workout TRX upper body low row, biceps curl, triceps press and TRX upper body mid row, biceps clutch, triceps press on arms muscle power. Method in this study using the statistical methods of comparative test analysis descriptive, Paired T test, test analysis of variance (ANOVA), test post-hoc LSD. It can be concluded upper body low row, biceps curl, triceps TRX training has significant influence increasing arm muscle power 766.38 joules (22.32%). TRX training of upper body mid row, biceps clutch, triceps press has significant influence increasing arm muscle power 722.13 joules (22.36%). TRX upper body low row, biceps curl, triceps press significantly provide greater influence on arm muscle power than TRX mid row, biceps clutch, triceps press by a margin increase in power of 44.25000 joules.

Keywords: upper body, resistance exercise, power

INTRODUCTION

Physical fitness can be obtained in various ways, one of them is doing physical activity (exercise). Sport is defined as any physical activity that is done deliberately and systematically to encourage, foster and develop the potential of physical, spiritual, and social (Clark, 2012). Sport is a fundamental right of every person, such beliefs are basically rests on a universal agreement, as stipulated in the charter Olympics (*Olympic Charter 2000*), that "sport is a vehicle for the manifestation of human rights". In order for the sport to become more focused interests, the necessary human resources are expected to steer the activities carried out (sports) to be more constructive, so that the results achieved are not only physical fitness, but also achievements. Individual achievement can be measured by looking at aspects of the physical condition, technical aspects, aspects of tactics and psychology. Here is an explanation of why the physical aspects of the condition into one of the most important aspects that need to be improved to achieve optimally. Quoted from Kemenegpora (2008) that "in practice there are some aspects that a person is related, namely, physical aspects, technical aspects, aspects of tactics and psychology". Good physical condition is the key to success in achievement especially for athletes in every sport. Some components of the physical condition needs to be taken seriously.

According to Clark et.al, (2004: 373) that component of physical condition that must be considered is the power (*strength*), the reason is because the physical condition of the power component is one of the basic components bio-motor that is required by everyone in their daily activities. Ratamess (2012: 153) explains that the physical condition of the power component is

divided into 3 groups: maximum strength (*maximal strength*), strength-speed (*power*) and strength endurance (*endurance strength*). Of the three kinds of these powers, "maximum force is the main force and the basis for the kind of power, namely *power* and muscular endurance levels are influenced by how big the maximum strength". According to Downey (2008: 28), *power* is the ability to unleash the maximum force in the shortest time possible. If you want to have a high *power*, the maximal strength training should be done prior to the training of the newly revamped *power* (*speed strength*). From some explanation of the components of the physical conditions to the large muscle groups in the human body, the researchers wanted to provide an alternative workout TRX *upper body* model of the *low row*, *biceps curl*, *triceps press* are compared with training TRX *upper body* models of the *mid row*, *biceps clutch*, *triceps press* the pointing specifically to the physical condition of the component *power* arm muscles with weight training. Weight training in the study carried out by its own body weight.

Ratamess (2012: 229-232) describes the body weight exercises that are popular are the uspension training or total body weight resistance exercise (TRX). This exercise is an exercise using body weight. TRX specifically used to train the strength, power, endurance, balance, coordination, flexibility, and core stability (STC TRX, 2012: 7). This research is expected to be used as a model choice of exercise and body weight training which is effective and efficient and can be used as a large selection of weight training for some sports such as sport climbing (rock climbing), rowing, basketball, baseball, volleyball, rowing, American football and martial arts (boxing, wrestling, martial arts) for some sports that require physical conditions of power components.

METHOD

This type of research is quantitative research. The design study is a quasi-experimental design with a research design using a *matching-only design*. The draft is used to get answers to the research questions that are formulated.

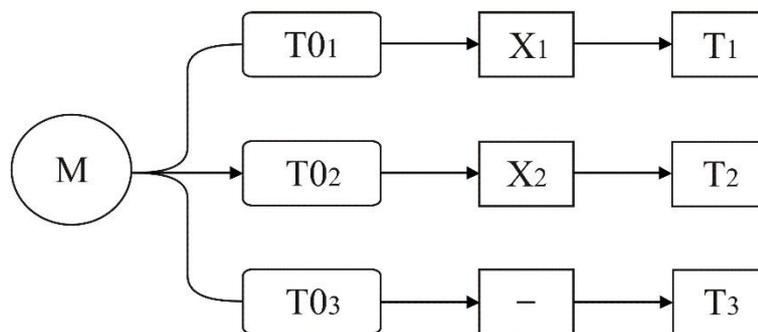


Figure 3.1 Research Design
Source: Infallible, 2012: 48

Information:

- M : *Matching*
- T01 : Initial test (*pre-test power* arm muscles) group 1
- T02 : Initial test (*pre-test power* arm muscles) group 2
- T03 : Initial test (*pre-test power* arm muscle) Group 3
- X1 : Treatment with *upper body* workout TRX models of *low rows*, *biceps curl*, *triceps press*

- X2 : Treatment with *TRX* workout *upper body* models of the *mid row, clutch biceps, triceps press*
 - : Treatment with conventional exercise
 T1 : final test (*post-test power* arm muscles) group I
 T2 : final test (*post-test power* arm muscles) Group II
 T3 : final test (*post-test power* arm muscle) control group

The population of this research is all student of 2012 class in the Department of Physical Education Faculty of Sport Science, State University of Surabaya totaling 139 people who have experience the same motion, has the same bio-motoric ability and the age category 19-21 years of male. Samples in this study amounted to 36 people consisting of 3 groups. The group division is performed using *ordinal pairing* after the students perform *pre-test power* arm muscles.

This study took place in U5 Building *Achilles Sport Science and Fitness Center* Unesa Complex Swimming Pool Campus Unesa Lidah Wetan Surabaya 60213. This research was conducted for 8 weeks with a frequency of exercise three times a week, plus the initial test and final test. The time of the research is based on the Clark's research, et al., (2004: 377) who use practice time for 8 weeks with three times a week of meetings.

The process of collecting data was collected from the test results by using the power bicep arm muscle *power* tests using *Medicine Ball Throw* 3 kg test (Pasurney, et al., 2009: 75). In the first group treated with *low row* exercise *TRX, TRX biceps curl, triceps press TRX*, Group 2 with treatment *mid row* exercises *TRX, TRX clutch biceps, triceps press TRX* and 3 groups treated with conventional exercise at the time of the initial test and final test. Initial test performed before the subject received treatment on February 26, 2015. The final test was conducted on May 1, 2015 after the *upper body TRX* group I and *TRX upper body II* group was getting treatment for 24 meetings, i.e. on 2 March 2015- 29 April 2015 every Monday, Wednesday and Friday.

Overall the data collected then will be analyzed using descriptive and inferential statistics with the statistical analysis using SPSS 20. Before the series of hypothesis testing was done, first, tested the requirements analysis to test for normality and homogeneity of data with significance level of 0.05. Furthermore, for the test of the hypothesis will be used t-test (*paired test*), ANOVA (*analysis of variance*) and LSD (*least significant different*) with significance level 0.05.

RESULTS AND DISCUSSION

Table 1. Initial test data and Experiment Group I Final test

No.	Name	Dependent variable		
		Power		
		<i>pre-test</i>	<i>post-test</i>	<i>Difference</i>
1	57	2973.9	3765.2	791.3
2	59	3407.7	4560.8	1153.1
3	67	3676	4321.4	645.4
4	88	3313.4	4084.5	771.1
5	230	3708.9	4233.6	524.7
6	205	3585.4	4817.6	1232.2
7	35	3137.7	3928.9	791.2
8	28	3483.7	3979.5	495.8

No.	Name	Dependent variable		
		Power		
		<i>pre-test</i>	<i>post-test</i>	<i>Difference</i>
9	239	3066.9	4681.7	1614.8
10	15	4179.4	4683.4	504
11	22	2792	3335.4	543.4
12	2	3867.2	3996.8	129.6
Total		41192.2	50388.8	9196.6
Average		3432.68	4199.07	766.38
standard Deviation		400.5	437.6	399.76
Percentage		22.32%		

From the data results of initial test and the final test of *upper body models TRX group low row, biceps curl, triceps press* can impact an increase in muscle *power* arm who were treated for 24 meetings. It can be seen from the results of the acquisition of *the power* of variable data which showed a significant increase in *power* after being treated for eight weeks. It can be seen from the average of the final test at 4199.07 lower than the initial test average of 3432.68 and an increase in the percentage of muscle *power* arm from *pre-test* to *post-test* amounted to 22.32%. Obtaining these results showed improvement from the *pre-test* and *post-test* to test the arm muscle *power* data results obtained using the *medicine* ball throwing 3 kg test (in the research of Barry L. Johnson et al, 1986: 217).

Table 2. Test Result Preliminary data and Experiment Group II Final Test

No.	Name	Dependent variable		
		Power		
		<i>pre-test</i>	<i>post-test</i>	<i>difference</i>
1	89	2447.8	3347.7	899.9
2	217	3601.5	4089.9	488.4
3	226	3487.9	4122.6	634.7
4	41	3406.9	4845.4	1438.5
5	225	3514.7	4395.6	880.9
6	83	3343.6	4082	738.4
7	269	2726.4	3083.1	356.7
8	219	3441.7	3831.8	390.1
9	17	3968.5	4387.2	418.7
10	8	2748.6	3721.7	973.1
11	16	2537.6	3067	529.4
12	13	3526.8	4443.6	916.8
Total		38 752	47417.6	8665.6
Average		3229.33	3951.47	722.13
standard Deviation		484.73	560.99	317.14
Percentage		22.36%		

Acquisition of data dependent variable *power* showed an increase after being treated for eight weeks. It can be seen from the average of the final test at 3951.47 which is lower than the average of initial test results at 3229.33 with an increase of 22.36% from pre-test to post-

test. Acquisition of data from the test results by using the arm muscle *power* 3 kg *medicine ball* throw test. This increase is a result of treatment for eight weeks of training and with the frequency of exercise three times a week. It can be concluded that both groups between the experimental group I and the experimental group II with giving treatment exercise program *TRX upper body model of the low row, biceps curl, triceps press* and *TRX upper body models of the mid row, biceps clutch, triceps press* can have an impact on improving *power* arm muscles.

Table 3. Test Results Preliminary Data and Group Control Final Test

No.	Name	Dependent variable		
		Power		
		<i>pre-test</i>	<i>post-test</i>	<i>Difference</i>
1	25	3221.9	3237.3	15.4
2	4	2694.6	2760.6	66
3	69	3049.6	3447.8	398.2
4	6	3198.8	3221.9	23.1
5	10	4494.9	4924.5	429.6
6	256	2696.2	3133.3	437.1
7	211	3005.9	3005.9	0
8	212	3746.5	3689.6	-56.9
9	78	3073.8	3453.2	379.4
10	58	3494.5	3503.6	9.1
11	232	3158.4	3492.7	334.3
12	263	2548	3054.7	506.7
Total		38383.1	40925.1	2542
Average		3198.59	3410.43	211.83
standard Deviation		528.71	543.03	216.7
Percentage				

From the data results of initial test and the final test of arm muscle *power* obtained from the *medicine ball* throwing ball 3 kg test, also provides enhanced. It is seen from the mean of final test of 3410.43 which is lower than the average of 3198.59 preliminary tests showed an increase in muscle *power* arm of 6.62% from the *pre-test* to *post-test*. The control group also have an impact on muscle *power* arm, although the increase is relatively small when compared with the experimental group I with this type of training *TRX upper body low row, biceps curl, triceps press* and the experimental group II with a model training *TRX upper body mid row, biceps clutch, triceps press*.

Table 4. Both Dependent Variable Data Normality Test Results

variable	Test	Ex. I	Ex. II	Ex. III	Explanation	Status
		Sig	Sig	Sig		
<i>Power</i>	Initial tests	1	.393	.536	P> 0.05	Normal
	Final test	.988	0.854	0367	P> 0.05	Normal

Based on Table 4, normality test results indicate that the acquisition of data from both the dependent variable that is the strength and *power* is in the normal distribution. This is due to the

significance (p) of each group showed (p) or sig> 0.05, which resulted in H₀ accepted. It can be concluded that the data are taken from normal distributed population.

Table 5. Variance Homogeneity Test Results

Variable	Test	Sig (P)	Explanation	Status
Power	Initial tests	.227	P> 0.05	Homogeneous
	Final test	0.077	P> 0.05	Homogeneous

Based on the test results *levene's test* of homogeneity that has been presented in table 5 shows that all the data from the initial test and final test both the dependent variable that is the strength and muscle *power* arm has a homogeneous variance. This is due to the significance (p) of each group showed p> 0.05, which resulted in H₀ is received, so it can be concluded that the variance in each group is the same or homogeneous.

Table 6. Different Test Results *Dependent* Variables in Experiment Group I

Variable	pair	t-count	Sig. (2-tailed)	Status
Power	Post-test - pre-test	-6.641	0,000	Different

Table 7. Different Test Results *Dependent* Variables in Experiment Group II

Variable	pair	t-count	Sig. (2-tailed)	Status
Power	Post-test - pre-test	-7.888	0,000	Different

Based on the table above there is a difference before and after the treatment of each of the *dependent* variables (*power*) both the experimental group I and group II experiment. This indicates that the level of significance of each variable of 0.000, or in other words, P<0.05. It can be concluded that there is a difference after being given a workout *Total Body Weight Resistance Exercise (TRX)* TRX models *upper body model of the low row, biceps curl, triceps press* and *TRX upper body models of the mid row, clutch biceps, triceps press*. However, in the control group there are also differences, although the difference is relatively small when compared to the second experimental group. For more details can be seen in the table below.

Table 7. Different Test Results *Dependent* Variables in the Control Group

variable	pair	t-count	Sig. (2-tailed)	Status
Power	Post-test - pre-test	-3.386	0,006	Different

If there is a difference between groups influence, the analysis is continued using *multiple comparisons post hoc* test using the *least significant analysis of a difference* (LSD) in the SPSS program series 20 in an attempt to see *the independent* variables which provide significant influence on the increase in *the dependent* variable. The results of the LSD *post hoc* test for variable *power* arm can be seen in Table 9 as follows:

Table 9. *Post-Hoc* Test Results with LSD Power

Group		<i>mean difference</i>	Significance (p)
experiment I	experiment II	44.25000	.737
	Control	554.55000	0,000
experiment II	experiment I	-44.25000	.737
	Control	510.30000	0,000
Control	experiment I	-554.55000	0,000
	experiment II	-510.30000	0,000

Table 9 shows that there are significant differences among the three groups. The difference can be seen in the *mean difference*, so that from the differences giving a difference influence in the increasing arm muscle *power* between research groups. It is well known that in the exercise group I (TRX *upper body model of the low row, biceps curl, triceps press*) have no differences increase muscle *power* arm with a significant exercise group II (TRX *upper body models of the mid row, biceps clutch, triceps press*), but in the control group has a significant difference to increase arm muscle *power* between groups I and II training. On increasing muscle *power* arm, between TRX Group I do not have a significant difference to the group II in giving effect to the exercise increase muscle *power* arm. However, the training arm muscle *power* using the exercises in group I (TRX *upper body model of the low row, biceps curl, triceps press*) and group II (TRX *upper body models of the mid row, clutch biceps, triceps press*) have significant differences on the provision of training in the control group.

CONCLUSION AND SUGGESTION

Based on the results of research and the discussion about the effects of exercise on the *body TRX upper* arm muscle *power*, which has been submitted, it can be stated the conclusions as follows:

1. There is a significant effect of exercise programs *total body weight resistance exercise* (TRX) model of *the low row, biceps curl, triceps press* with an average increase in muscle *power* arm of 766.38 joules (22.32%).
2. There is a significant effect of exercise programs *total body weight resistance exercise* (TRX) model of *mid row, clutch biceps, triceps press* with an average increase in muscle *power* arm of 722.13 joules (22.36%).
3. There is a significant difference by a margin increase in arm muscle *power* by 44, 25000 joule exercise program between *total body weight resistance exercise* (TRX) model of *the low row, biceps curl, triceps press* with TRX model of *mid row, clutch biceps, triceps press* against the arm muscle *power* as well as the experimental group TRX *mid row, clutch biceps, triceps press* is more effective in increasing muscle *power* arm.

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PROFILE OF PHYSICAL CONDITION: SPEED, ENDURANCE, AGILITY, AND EXPLOSIVE POWER OF 15 YEARS OLD FOOTBALL SCHOOL STUDENTS (SSB) OF ELITE AND NON- ELITE LEVEL IN YOGYAKARTA SPECIAL REGION PROVINCE

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Abstract

This research intends to investigate the profile of the physical condition of speed, endurance, agility, and explosive power of 15 years old Football School (SSB) students of elite and non- elite level in Special Region of Yogyakarta Province. The method used was by survey where each sample consisted of 30 students at the elite and non-elite group. The physical condition components of 15 year age SSB students of elite level has average speed 6.91 seconds measured by 50 m sprint, aerobic endurance average 48.7 cc / kg / minute, agility average 18.33 measured by shuttle run, and leg muscle explosive power average 52.80 cm, while the non-elite level has speed profile average 8.28 seconds, durability average 39.43, agility average 19,46, and explosive power average 48 cm with 50 m run speed measurement test, aerobic endurance, agility by shuttle run test, and leg muscle explosive power by vertical jump test.

Keywords: speed, endurance, agility, explosive power, Football School

INTRODUCTION

The football competitions run by FIFA with the organizations below in continental, the sub-continent, until the nation levels continue to grow. The World Cup is the most prestigious football competition run by FIFA. The World Cup is held every four years since 1904. The last World Cup was held in Brazil in 2014 where Germany won the World Cup trophy for the 5th times since the World Cup was held for the first time. How is the position of Indonesia in the World Cup? Indonesia as a nation has never been reported participating in the World Cup finals.

The Indonesia national football team has not been able to get the pride achievement. The Indonesian national team reached the highest official achievement in the Sea-Games champion event champion in 1991, after that, the national team has never achieved achievement in official event. The Indonesia national football team that competed at the Sea- Games Singapore 2015 was even embarrassing defeated 5-0 by Thailand in semi-final round and lost 5-0 from Vietnam in the bronze medal or ranked 3rd.

Bompa (2015) states in order to achieve optimal performance of an athlete, he or she should do some: physical, technical, tactical and psychological preparation. Exercise in sports is something that is related to one another but the physical factor form the basis of the development of other factors. Technical and tactical factors should be prepared after the physical factor and the final determinant is psychological readiness to become a champion or perform optimally. The physical condition according to Bompa (2015) has to be prepared in training. The periodization of physical training is set at the beginning of the training where common physical conditions are held 2-3 months and the physical condition for certain sport is held 2-3 months before the competition. The physical condition training at the competition time is intended only to get perfection or maintain the conditions that have been achieved at the preparation time.

The characteristics of the football game requires every player able to run slowly (jogging), sprint, kick, intercept, heading the ball and all those physical activities should be performed for 2 x 45 minutes or 90 minutes adult football, 2 x 40 minutes or 80 minutes for junior football, and 2 x 20 minutes for under 12 years old players. Based on the data taken through several studies, (Reily: 2003) states that the distance covered by a football player when playing is 7000-12000 m.

In addition to running activities for a long time, a footballer has also to be able to kick the ball hard, dribble nimbly and quickly, have good balance when doing body charge, good coordination to anticipate the movement of opponents and the and the moving ball. The physical condition required by footballer is relatively complex; almost all components needed when playing. FIFA as an organization that is responsible for the development of football in its website in 2004 disseminates data about the characteristics of elite football players. Characteristics of modern football games in fact can be performed by the characteristics possessed by football teams with players who have technical, tactical, mental, physical abilities as can be seen in Table 1 below.

Table 1 Characteristics of Elite Football Players According to FIFA

Height	181 cm
Weight	74 kg
VO2 Max	60-65 cc
10 m Sprint Speed	1"78
20 m Sprint Speed	2"89
60 m Sprint Speed	7"43
Vertical Jump	63 cm

Source: fifa.com

The physical condition of football player evidently has an important role when considering the results of the research. The above list more specifically states that the cardiorespiratory endurance component is the main asset for a football team to excel. The physical condition is an important factor that must be prepared by a football coach if the team led wants optimal performance (to be a champion) in a competition. Bompa (2015) states that physical condition of the basic ability that must be developed and built for athletes or sportsmen, including in football players. The physical condition is a major component that must be solidly built so that the techniques and tactics can be performed according to the needs. An athlete or a football team that does not have good physical condition ability should not expect the targets to be champions.

The physical condition of football players grow and develop progressively since they start training from young until adult age. Football school is an organization or institution conducting football development from 7-15 years old. Football school provides very important basic skills, including coaching of physical condition, if this is not done then at any time until the achievement the objectives will not be achieved. Based on the description above, the researcher wants to know the physical condition of specifically components; speed, endurance, agility and explosive power of 15 years old Football School Students (SSB) in elite level and non-elite level in Province of Yogyakarta Special Region.

RESEARCH METHOD

The research was survey research on major components of the physical condition of 15 years old Football School Students (SSB) in elite level and non-elite level in Province of Yogyakarta Special Region. The research samples were 30 students of elite group and 30 students of non- elite group. Criteria of elite sample group are the best SSB students Yogyakarta selected by the researcher with consideration of main team players in their team/ Football School, ever won football competition between SSB in provincial level while the sample criteria of non-elite are students of SSB in Yogyakarta selected by the researcher with consideration of students of substitution players in SSB and has never won SSB competition at provincial level. The instruments used were 50 m sprint test, vertical jump test, multistage tests, and back and forth run test (shuttle run).

RESULTS

The measurement on components of speed, endurance, agility, and explosive power of 15 years old football school students of elite and non-elite level in Yogyakarta Special Region Province are obtained the results as follows:

Table 2. Profile of Physical Condition Components of Speed, Endurance, Agility, and Explosive Power of 15- Years Old Football School (SSB) Students of Elite Level in Yogyakarta Special Region Province

Physical Component	Average	Highest	Lowest	Unit
Height	161,20	173	152	Cm
Weight	53,50	57	51	Kg
Endurance	48,7	53,1	40,5	cc/Kg.Minute
Speed	6,91	6,24	7,43	Second
Agility	18,33	17,10	19,40	Second
Leg Power	52,80	63	34	Cm

Table 3. Profile of Physical Condition Components of Speed, Endurance, Agility, and Explosive Power of 15- Years Old Football School (SSB) Students of Non- Elite Level in Yogyakarta Special Region Province

Physical Component	Average	Highest	Lowest	Unit
Height	151,2	166	136	Cm
Weight	38,5	48	35	Kg
Endurance	39,43	44,5	37,1	cc/Kg.Minute
Speed	8,28	7,13	9,57	Second
Agility	19,46	18,3	21	Second
Leg Power	48	60	36	Cm

The research results can be used as guidance of football school coaches in Yogyakarta Special Region Province that want to optimize their students. The difference between elite and non- elite groups can be read in details seen in Table 4 below:

Table 4. Comparison of Physical Condition Profile of 15- Years Old Football School (SSB) Students of Non- Elite Level in Yogyakarta Special Region Province

Physical Component	Elite Group	Non- Elite Group	Unit
	Average	Average	
Height	161,20	151,2	Cm
Weight	53,50	38,5	Kg
Endurance	48,7	39,43	cc/Kg.Minute
Speed	6,91	8,28	Second
Agility	18,33	19,46	Second
Leg Power	52,80	48	Cm

DISCUSSION

The physical components have correlation or significant effect on performance or achievement of athletes. The research results of (2002) claims that there is significant correlation between aerobic fitness and anaerobic power on the elite football player performance. The components of endurance, speed, agility, and leg muscle explosive power between elite and non-elite groups have significant differences. The results are in line with the theory that to achieve optimal achievement according to the sport needs that must be prepared and owned by a player or an athlete. The main physical components are endurance, speed, and power in this research are represented by the aerobic endurance measured by using multistage test, the speed by 50 m sprint, agility measured by back and forth run test (shuttle run), power represented by leg muscle explosive power measured by vertical jump test.

Good aerobic endurance is very supportive to a football team to be able to play in quick playing pattern (Bangsbo, 1991). The research results conducted by Abdul Aziz Rashid *et al* in 2002-2004 on the players at Singapore League clubs show that the final ranking standing has the correlation to aerobic endurance ability. More can be read in Table 5 and 6.

Table 5 Measurement Results of Physical Condition (Aerobic Endurance Measured by Multistage Shuttle Run Test Related to the Club Ranking in Singapore Football League Season 2002

Club	Number of player tested	MST	Number of matches			Goals for	Goals against	Goals difference	percentage of matches won	Total points	Ranking
			Won	Drawn	Lost						
L	10	121+13	21	2	5	90	30	60	75	65	1st
I	15	122+16	20	0	8	83	36	47	69	60	2nd
O	12	119+11	17	3	8	74	44	30	65	54	3rd
D	13	120+11	17	2	9	60	43	17	56.2	53	4th
C	11	122+3	13	8	7	55	42	13	46.3	47	5th
E	14	115+12	11	9	8	67	49	18	42.1	43	7th
A	15	129+16	11	7	10	44	30	14	33	37	6th
B	10	111+11	7	2	19	56	73	-17	21.1	23	8th
N	17	119+3	5	5	18	40	60	-40	16.6	20	9th
M	18	110+4	3	5	20	30	67	-37	13.3	14	10th

Table 6. Measurement Results of Physical Condition (Aerobic Endurance Measured by Multistage Shuttle Run Test Related to the Club Ranking in Singapore Football League Season 2003

Club	Number of player tested	MST	Number of matches			Goals for	Goals against	Goals difference	percentage of matches won	Total points	Ranking
			Won	Drawn	Lost						
D	13	116+12	20	3	4	76	29	47	74.1	63	1st
B	15	120+15	17	2	8	76	43	33	63	53	2nd
N	14	109+10	14	5	8	74	52	22	51.9	47	3rd
A	14	117+16	14	3	10	45	48	-3	51.9	45	4th
O	16	132+4	12	8	7	50	42	8	44.4	44	5th
E	11	124+10	12	4	11	48	49	-1	44.4	37	7th
C	14	126+9	10	7	10	43	43	0	37	40	6th
K	14	114+10	6	2	19	36	73	-37	22.2	20	8th
M	13	120+7	4	5	18	36	62	-26	14.8	17	9th
L	14	120+10	4	5	18	29	72	-43	14.8	17	10th

Based on research results of Abdul Rashid, thus it can be stated that the components of cardiorespiratory endurance (aerobic endurance) are the physical components which are important to a football team to achieve highest performance.

The results of the second research is the explosive power component of leg muscle of the elite group has an average result 52.80 and the non-elite group 48 cm, which means the elite group has leg muscle explosive power better than the non-elite groups. The leg muscle explosive power has an important role in supporting the techniques in kicking the ball. The long shot technique requires good leg muscle explosive power. The shot aimed to score (shooting) must be done strongly (kicking the ball in high speed) so that it is not easily anticipated by the goalkeeper. The string kicking/ shot if biomechanically analysed has the following provisions:

$$V_{ball} = 1.2 \times V_{foot} + 2,72 \text{ (Adrian Lee, 2001)}$$

With this provision, the leg muscle explosive power affected by the power and muscle speed components in the weight-bearing is very important role in supporting the performance of football player. The leg muscle explosive power plays an important role to perform kicking technique toward the goal (shooting) and to perform long pass techniques.

The ability of speed and agility shows the similar results with the aerobic endurance and the explosive power component, the elite group has better average ability compared to non-elite group. In the context of young players with better speed and agility, then a football player will be easier to move quickly to do feinting techniques or movement combinations to create opportunities and ultimately the team can score a goal. The essence of football game is a team that scores more goals is the winning team, so that by the speed and agility ability, that would be easier to create chances to score. Many scoring chances mean a football team has greater chance of winning more games.

The characteristics of physical ability on athletes differ among sports, in football especially, regarding the research results can be used as standard or target if team coach intends to perform optimally. The further research would be more interesting for instance on how the characteristics of the physical ability for each different position. Football consists of playing positions such as goalkeeper, center back, right or left back, central midfielder or a winger, striker or attacking midfielder. Leslie Andrews

Portes (2015) finds that goalkeeper and defenders are taller than midfielders and strikers. The agility and aerobic endurance of each position is insignificant for young elite football athletes.

CONCLUSION

The research results show significant differences in the components of the physical condition of aerobic endurance, speed, agility and leg muscle explosive power in elite and non-elite groups of 15 years old SSB students in Yogyakarta Special Region Province. The elite group has the average ability better than the non-elite especially in terms of endurance which strongly supports football players to be able playing consistent for eighty minutes in the teen's football game. The aerobic endurance is a very important determinant component to support the performance of a football team to win the game.

The results of this research are very useful for football coaches or the football school board by referring to this research, the training process should be directed to achieve the targeted physical condition as generated. Other components of physical condition do not mean unimportant but the dominant physical component in sport should be special concern so that the expectations in sport coaching development process can be achieved.

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INVESTIGATION OF BASIC MOTOR SKILLS ACCORDING TO TGMD-2 TEST ON STUDENTS FULL DAY SCHOOL

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Abstact

Children must explore their environment if they are to develop maximum cognitive abilities, and full day school guessed consider movement activities more than other school. This study investigated of basic motor skill levels children at full day school. The sample comprised 14 children aged 8 – 10 years. TGMD-II (Test of Gross Motor Development-2) was used a measurement method for basic motor skills. According test the findings showed that, average locomotors sub-test scores = 8, object control sub-test scores =10 and gross motor quotient = 96. This result indicated motor skill levels is average. The full day school need employing appropriate strategies to target motor skill development across the childhood years is of paramount interest in helping shape children's physical activity behavior, their experiences related to physical activity, as well as maintain their physical activity.

Keywords: Full Day School, Basic Motor Skills

INTRODUCTION

Movement is expressed in a change of position any piece of the body or as a change of complete body position. Astrand indicates that the human organism is created to movement. Application of physical education programs to the developer needs to be qualified to the child's physical fitness, cognitive motor and social-emotional features. Cognitive motor development is defined as to perception of various stimuli through sense organs of the child and depending on these perceptions of some movement to begin. The children that translate to correct perception from correct and sufficient sensations, stage of their development will be the future of the children(Canan Bastik, Arslan Kalkavan, et al. 2009).

Research has provided evidence that participation in physical education (PE) and sports may help facilitate child physical activity. Indeed, participation in sports has been shown to increase overall physical activity behavior among young individuals(Pfeiffer et al., 2006). However, as of 2006, only 3.8% of elementary schools, 7.9% of middle schools, and 2.1% of high schools offered students daily PE for the entire year.

The result of research showed relationship among physical, and children intellectual growth. The result is physical growth and motor development are positively correlated in children aged 5-6, with no such relation between these domains and intelligence (Visnja, et al. 2016). The other study has conclusions is motor activity, and particularly the training of coordinative capacity, could be one of the factors that contributes to increasing the potential for cognitive development in children. That case proved how important motor growth for children is. Development is a lifelong process, and different aspects of development (physical, motor, cognitive emotional, etc.) are correlated and interdependent in multiple ways. The complex interreaction of our genes, and our social, cultural, and physical environment, is what defines us. According to the current theories, cognition, perception, motor behavior, and emotions are in close relationship.

School-based PE offers a great opportunity to ensure children have the necessary fundamental-related movement skills that may help to contribute to increased immediate and long-term physical activity (Paul D. Loprinzi, 2015). Additionally it's difficult to implement school curriculum in Indonesia-based physical education as effort to increase physical activity, It was compounded by implementation of physical education which is not maximal. Development of prevalent obesity in last three decades for children of Elementary school (SD) in some big cities in Indonesia showed the range of the number among 2,1-25 % (Suherman, 2014). Furthermore, physical vitality of Indonesia society, showed very poor less than 20% of Indonesia society have physical vitality average to high.

Full day school

Generally Full day school is a school program that apply teaching learning process for full day at school. Usually school which applies full day school education started at 7.00 am until 16.00 pm. The term of full day school comes from words day school (English) means day school. Definition of day school is day which is used by an institution to give education for children (or school age). By adding word *full* to day school so that education is conducted full over in a day starts morning until near evening.

Full day school started around year 1980 in USA for kids then spread away for higher level until senior high school. The background came up Full Day School is higher of mother who have kids attain the age under 6 years old and they work outside also progress all of life aspects, so that many parents hope their children's academic score will be better as a preparation to step up to next level, also can solve era progress problems. By registering their children to full day school, parents hope their children more spend their study time at school than home and the children at home near evening to gather with their family.

In Indonesia, full day school education model was exist for long time, that is boarding school. Generally boarding school students would learn for full day even over until evening to learn Islam beside others knowledge. In Indonesia, school which applied full day school model usually school based religion or international school.

Full day school program are institution aspect, leadership and management, refer to concept which is developed by school which has full day school program that force good morals and academic achievement. School leadership is spurred on by increasing personal quality, increasing management ability and knowledge of contemporary education concepts which is supported by short-course activity, orientation program and comparison study, mean that this program is conducted simultaneously and continually. The quality of official of full day school is chosen from specialist teacher who professional, qualified and well integrity. Increasing quality of official such as librarian, laboratories and administrator also as concern on developing quality of full day school program. The school curriculum of full day school program is also conducted well to spur superiority in science, religion, language based on information technology (IT), region knowledge, vocational ability and extracurricular and self development.

METHODS

The research is conducted in integrated islamic elementary school (SDIT) Mutiara Hati which applied full day school method. Sample included the total of 14 healthy children (9 boys and 5 girls). Age of participants is 7 – 10 years. Then, the development of basic motor levels of children

was measured by the TGMD-II test. Locomotor tests: Running, gallop, skipping, bouncing, standing long jump, side slipping. Object control tests: Hitting the stopped ball with a stick, dribble the ball, kicking the stopped ball, catching the ball, shooting the ball on the above of waist level, shooting the ball under the waist level. The scoring is based on Total Motor Development Test (Ulrich, 2000).

RESULTS

Basic descriptive statistics for the whole sample is presented in Table 1.

Tabel 1. The Result of Tes Gross Motorik Development-2 (TGMD-2)

Nama	Subtest Standard Scores			(scores)	Deskripsi Rating
	Locomotor	Object Control	Σ		
Afiq	9	11	20	100	Average
Andika	7	10	17	91	Average
Andi	5	11	16	88	Bellow ave
Daffa	5	7	12	76	Poor
Danan	5	11	16	88	Bellow ave
Fabiam	5	10	15	85	Bellow ave
Firdaus	6	10	16	103	Average
Falih	7	11	18	94	Average
Feza	5	11	16	88	Bellow ave
Safira	12	8	20	100	Average
Reva	12	9	21	103	Average
Alfi	12	10	22	106	Average
Mutiara	13	12	25	115	Above ave
Rahien	13	9	22	106	Average
Rata-rata	8	10	18	96	Average

Form the table 1 above seen detailed ability of students' gross motor of elementary school. The average of students' loco motor ability are 8 (*score persentil*), and the average of students' manipulative ability are 10 (*score persentil*). the average of overall students' gross motor ability are 96 and belong to average category.

The results of childrens performance on the initial assasement of each individual skill. According to these result, generally is average of these skill. There physical education teacher has upgrade to work on locomotor and object control skill, because students is average in both area. Based on information TGMD-2, there teacher has developed the following program objectives for students:

1. Student will be able to demonstrate a run, moving there arm in opposition his legs with there elbows bent, four out of lives trials, foe three consecutive classes.
2. Student will be able to demonstrate a leap, reaching with the arm opposite the lead foot, four out of five trials, for three consecutive classes.
3. Student will be able to demonstrate a hop of any kind of on the right foot and then the letf, four out of five trials, for three consecutive classes.
4. Student will be able to demonstrate a horizontal jump with a preparatory movement that includes flexion of both knees with arms extended behind his body, four out of live trials, for three consecutive classes.
5. Student will be able to strike a stationary ball, with his dominant hand gripping the bat above his nondominant hand, four out of live trials, for three consecutive classes
6. Studen will able to demonstrate a kick, in which three is a rapid continous approach to the ball, four out of live trials, for three consecutive classes

7. Student will be able to demonstrate an overhand throw where they transfer his weight by stepping with the foot opposite the following hand, four out of the trials, of three consecutive classes.

DISCUSSION

Based on problem discussion and purpose of this research, explanation about discussion of this research finding to explicit about gross motor ability of elementary students in full day school. The finding result of this research about the result of students' motor development was done using *Tes Gross Motor Development Second Edition (TGMD 2)*. The research finding showed that average score of students' gross motor ability are 96 and belong to medium category.

Curriculum in SDIT used full day school program that has superiority in science, religion, language based on Information Technology, local knowledge, vocational ability, extracurricular, and self development. To know process of curriculum implementation researcher observed on learning process both teachers and students activity. Beside that, implementation information is also found by interview to students. Students activity at school is not limited only in class. And activity which purposed in full day school program is "Integrated Activity" by this approach, all programs and students activity at school from study, play and pray are ordered in a education system. By this system is expected can give Islamic life value to children completely and integrated with education purpose. Education concept which is truly conducted is effective school concept that how creating effective environment for children with consequences, the children is given more time at school environment.

Program and activity which are done in Mutiara Hati integrated Islamic elementary school as integrated program such as: dhuha prayer, islam learning, market day, family day, field trip, out bond, scouting, fun cooking and other extracurricular. A glance of those program which include with students' motor development actually is not enough yet, so it will be better for physical education teacher should maximize movement task on physical education learning. Movement task is movement learning activity which integrated with material and arranged by teacher explicitly and implicitly for students to study (Suherman, 2009). Those movement task are arranged by teacher to achieve learning purpose. So movement task generally is progressive, from easy to difficult, from simple to complex. Movement task can be communicated directly or not by teacher, for example by using students worksheet. Effective programs designed to improve the quality of PE to increase the amount of time that children engage in moderate-to-vigorous physical activity include, for example, the Sports Play and Active Recreation for Kids (SPARK) curriculum (Dowda et al., 2005).

Students response happen after teacher delivered movement task and the students do movement task. Teacher responsibility when students conducting movement task is observe and give feedback to students' performance both individual and group. For example, did students conduct movement task like teacher command. Did they do well ect. Then teacher give response to students to decide what teacher should do next, until movement activity with limited time can give maximal result.

Physical education have many benefit for children healths. Preventing obesity during early childhood is of particular importance, as young obese children are at an increased risk for adolescent and adult obesity (Veltsista et al., 2010; Telama, 2009) and have an increased risk of developing various health morbidities, including hyperlipidemia, hypertension, insulin resistance, respiratory

problems, orthopedic complications, and cancer (Freedman et al., 1999; Fuemmeler et al., 2009; Craig et al., 2008).

CONCLUSION

Based on analysis of result research data and discussion, so this research can be concluded that students' gross motor development in full day school is average category with *motor quotient score* 97. It means overall does not show effectiveness of full day school which is maximal on children motor development.

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SPORT MESSAGE EFFECT ON BLOOD PRESSURE AND PULSE TEST RUN IN 12 MINUTES

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Abstract

Sport Massage helps to increase blood flow, relaxes muscles, remove metabolic waste, and stimulate the various organs. Smooth blood flow will affect blood pressure and pulse. The research problems if there are any differences in the effect of sports massage on blood pressure in a test run 12 minutes Students Forces Sports Coaching Education 2011 Faculty of Sport Science, State University of Semarang in 2013. This type of research Quasi Experiment. Samples 22 20-21 year-old male students majoring PKLO FIK UNNES class of 2011 were divided into 2 groups. The experimental group get a sports massage treatment and a control group did not receive treatment. The research instrument is sphygmomanometer, stethoscope, whistle and stopwatch. The test instrument be run 12 minutes. The measurement results were analyzed using SPSS 18.0 for windows regression (influence) with significance level of 5%. Results of the analysis of data obtained from the results of the regression test SPSS 18.0 for windows. Test the effect of experimental and control groups on the pulse has a significance level of 0,024 and 1,147 F count. Systolic blood pressure had a significance level of 0.001 and 0.658 F count, diastolic blood pressure have a significance level of 0.000 and 5.905 F count. Suggestion of this study that sports massage can be used as a vehicle to a healthy life and as a student sports should not hesitate to learn, explore, and examine the science of physical therapy

Keywords: "Sport massage, blood pressure"

PENDAHULUAN

Massage (pijat) merupakan suatu seni gerak tangan yang bertujuan untuk mendapatkan kesenangan dan memelihara kesehatan jasmani. *Massage* yang menggunakan gerakan tangan secara mekanis, akan menimbulkan rasa tenang dan nyaman bagi penerimanya. *Massage* dapat diberikan kepada semua orang, baik laki-laki, perempuan, tua, muda, dewasa maupun anak-anak. *Massage* merupakan salah satu manipulasi sederhana yang ditemukan manusia untuk mengelus atau mengusap bagian badan yang sakit atau saling membelai satu sama lain untuk menenangkan. *Massage* diketahui dapat merangsang dan mengatur proses-proses fisiologis seperti pencernaan dan pernafasan. *Massage* dibagi menjadi 3 jenis yaitu *sport massage*, *segment massage*, dan *cosmetic massage*. *Sport massage* memiliki manipulasi yaitu *Effleurage*, *Petrissage*, *Tapotement*, *Friction*, dan *Vibration*. Setiap manipulasi memiliki aplikasi pada bagian tubuh tertentu, dengan gerakan dan tujuan tertentu pula. Manipulasi tersebut dapat dilakukan pada keseluruhan tubuh (general) maupun hanya pada bagian tubuh tertentu (partial).

Tujuan *sport massage* adalah melancarkan peredaran darah terutama peredaran darah vena (pembuluh balik) dan peredaran getah bening (limphe). *Massage* membantu memperlancar aliran darah, merilekskan otot, membuang sisa metabolisme, dan merangsang kerja berbagai organ. Lancarnya aliran darah akan mempengaruhi tekanan darah dan denyut nadi. *Sport massage* menggunakan jantung sebagai pusatnya, sebab jantung merupakan pusat peredaran darah. Tujuannya adalah untuk mempercepat aliran cairan *lymphe* dan darah *veneus* atau darah *venosa* yaitu darah yang banyak mengandung sisa-sisa pembakaran, berarti harus mendorong darah itu searah dengan aliran darah pembuluh *vena* yang menuju jantung. Gerakan kontraksi otot jantung

mendorong darah untuk beredar ke seluruh tubuh dan kemudian kembali ke jantung. Saat keadaan *homeostatis* jika kecepatan dan sirkulasi darah yang baik, kerja jantung menjadi makin ringan, penguncupannya menjadi jarang, sehingga denyutnya makin kuat dan baik. Denyut nadi menunjukkan banyaknya pompaan jantung untuk mengalirkan darah ke seluruh tubuh. Makin kuat otot jantung dan makin besar volume jantung, daya kerja jantung akan makin kuat.

METODE

Penelitian ini merupakan jenis penelitian *Quasi Experiment*. Penelitian ini membagi sampel yang ada menjadi kelompok kontrol dan kelompok eksperimen. Perlakuan hanya diberikan pada kelompok eksperimen dan kelompok kontrol (Sugiyono 2012:112; Suharsimi Arikunto 2010:124). Populasi dalam penelitian ini adalah mahasiswa PKLO FIK UNNES angkatan 2011. Sesuai data yang ada di Jurusan Pendidikan Kepelatihan Olahraga FIK UNNES, jumlah mahasiswa PKLO angkatan 2011 berjumlah 261 mahasiswa dimana mahasiswa putri berjumlah 41 orang dan mahasiswa putra berjumlah 220 orang. Jumlah sampel sebanyak 22 mahasiswa dari keseluruhan populasi. Jenis sampel yang dipilih dalam penelitian ini hanya yang berjenis kelamin laki-laki dan berusia antara 20-21 tahun. Tujuannya untuk mempermudah dan memperjelas ruang lingkup penelitian. Teknik penarikan sample yang di gunakan adalah *purposive sample*.

Instrumen yang digunakan dalam penelitian ini adalah alat pengukur tekanan darah yang disebut *sphygmomanometer* dan stetoskop sebagai alat pendengar detak jantung. Menghitung denyut nadi dengan penggunaan tiga jari (jari manis, tengah, dan telunjuk) untuk mendengarkan denyut nadi pada *arteri carotis* baik *pre test* maupun *post test*. Instrumen tes yang diberikan adalah lari selama 12 menit yang bertujuan untuk mengetahui tingkat kesehatan atau kebugaran seseorang. Alat pengukur waktu padalari 12 menit dilintasan atletik FIK UNNES menggunakan *stop watch*. Semua data yang didapatkan di lapangan dicatat dalam lembar observasi.

Tabel 1. Norma Hasil Tes Lari 12 Menit untuk Usia dibawah 30 Tahun

Kriteria	Pria (Km)	Wanita (Km)
Sangat Baik	>2.81	>2.65
Baik	<2.41-2.8	<2.17-2.64
Sedang	<2.01-2.40	<1.85-2.16
Kurang	<1.61-2	<1.58-1.84
Sangat Kurang	<1.16	<1.03

(Sumber: kemenpora, 2005:42)

Prosedur penelitian meliputi beberapa tahap yaitu pengambilan data *pre test, instrument tes, perlakuan, pengamatan, dan post test*. Pengambilan data awal (*pre test*) bertujuan untuk menghitung tekanan darah dan denyut nadi istirahat. Hasil pengukuran awal yang diperoleh kemudian diurutkan mulai dari yang tertinggi hingga yang terendah untuk menentukan kelompok kontrol dan kelompok eksperimen. Pembagian kelompok kontrol dan kelompok eksperimen harus seimbang agar perlakuan dapat dilaksanakan. Seimbang yang dimaksud adalah seimbang hasil perhitungan mean. Instrument penelitian berupa tes lari selama 12 menit di lintasan atletik FIK UNNES kepada seluruh sampel penelitian. Perlakuan diberikan kepada kelompok eksperimen yaitu berupa pemberian manipulasi *sport massage* seluruh tubuh. Tahapan terakhir adalah pengambilan data akhir (*post test*) yang bertujuan sebagai pembandingan jumlah hasil pengukuran tekanan darah

dan denyut nadi antara kelompok eksperimen dan kelompok kontrol. Hal ini bertujuan untuk mengetahui seberapa efektifitasnya perlakuan yang diberikan.

1. Hasil dan Pembahasan

Tahapan pertama dalam penelitian ini adalah pengambilan data *pre test*. Data pre test yang diambil adalah jumlah denyut nadi dan tekanan darah setelah tes lari 12 menit.

Tabel 2. Data hasil *Pre Test 2* Kelompok Kontrol Berdasarkan Denyut Nadi dan Tekanan Darah

No.	No. Responden	Denyut Nadi	Sistol	Diastol
1.	K1	108	100	90
2.	K2	108	140	90
3.	K3	108	130	80
4.	K4	108	110	100
5.	K5	132	140	70
6.	K6	124	140	90
7.	K7	108	120	80
8.	K8	124	120	80
9.	K9	108	120	100
10.	K10	108	120	80
11.	K11	124	130	80

Tabel 3. Data hasil *Pre Test 2* Kelompok Eksperimen Berdasarkan Denyut Nadi dan Tekanan Darah

No.	No. Responden	Denyut Nadi	Sistol	Diastol
1.	E1	108	140	100
2.	E2	124	120	100
3.	E3	124	120	90
4.	E4	124	140	90
5.	E5	132	140	100
6.	E6	132	130	90
7.	E7	132	110	90
8.	E8	132	140	100
9.	E9	108	120	80
10.	E10	124	140	100
11.	E11	132	130	100

Tahapan kedua yang dilakukan adalah dengan menghitung denyut nadi dan tekanan darah pada kelompok kontrol maupun eksperimen. Untuk kelompok eksperimen (kode E), sebanyak 11 responden diberi perlakuan *sport massage* ±45 menit, kemudian diukur kembali denyut nadi dan tekanan darahnya. Kelompok kontrol (kode K), sebanyak 11 responden dihitung kembali jumlah denyut nadi dan tekanan darah setelah istirahat ±45 menit tanpa diberi perlakuan *sport massage*.

Tabel 4. Data hasil *Post Test* Kelompok Kontrol Berdasarkan Denyut Nadi dan Tekanan Darah

No.	No. Responden	Denyut Nadi	Sistol	Diastol
1.	K1	94	100	90
2.	K2	96	130	90
3.	K3	88	130	80
4.	K4	92	110	90
5.	K5	118	130	70
6.	K6	96	130	80
7.	K7	92	120	80
8.	K8	96	120	80
9.	K9	92	120	90
10.	K10	92	120	80
11.	K11	96	130	80

Tabel 5. Data hasil *Post Test* Kelompok Eksperimen Berdasarkan Tekanan Darah dan Denyut Nadi

No.	No. Responden	Denyut Nadi	Sistol	Diastol
1.	E1	68	100	70
2.	E2	68	100	60
3.	E3	84	100	70
4.	E4	68	110	70
5.	E5	84	100	80
6.	E6	76	100	70
7.	E7	82	100	70
8.	E8	68	100	60
9.	E9	68	110	60
10.	E10	68	120	70
11.	E11	68	100	70

Tabel 6. Hasil Uji Normalitas Data

Data Kelompok Eksperimen	p	Keterangan
Denyut nadi <i>pretest</i> pada kelompok eksperimen	0,002	Tidak Normal
Sistol <i>pretest</i> pada kelompok eksperimen	0,022	Tidak Normal
Diastol <i>pretest</i> pada kelompok eksperimen	0,002	Tidak Normal
Denyut nadi <i>posttest</i> pada kelompok eksperimen	0,000	Tidak Normal
Sistol <i>posttest</i> pada kelompok eksperimen	0,055	Normal
Diastol <i>posttest</i> pada kelompok eksperimen	0,004	Tidak normal

Data Kelompok Kontrol	p	Keterangan
Denyut nadi <i>pretest</i> pada kelompok kontrol	0,000	Tidak normal
Sistol <i>pretest</i> pada kelompok kontrol	0,238	Normal
Diastol <i>pretest</i> pada kelompok kontrol	0,127	normal
Denyut nadi <i>posttest</i> pada kelompok kontrol	0,000	Tidak normal
Sistol <i>posttest</i> pada kelompok kontrol	0,010	Tidak Normal
Diastol <i>posttest</i> pada kelompok kontrol	0,008	Tidak normal

Berdasarkan tabel diatas, kedua belas data yang diuji normalitas berdasarkan parameter *Shapiro-wilk* disimpulkan bahwa data tidak terdistribusi normal karena ada data yang nilai kemaknaannya (p) < 0,05.

Uji Homogenitas

Analisis uji F yang dilakukan untuk mengetahui homogenitas varians data awal denyut nadi dan tekanan darah kelompok eksperimen dan kontrol. Pada uji F yang dilakukan untuk mengetahui

homogenitas varians data awal denyut nadi diperoleh nilai $p = 0,102$. Hal ini menunjukkan bahwa F hitung ($0,102$) $> 0,05$ sehingga data skor awal denyut nadi antara kelompok eksperimen dan kontrol adalah sama. Uji F dilakukan untuk mengetahui homogenitas varians data skor awal tekanan darah sistole dan hasilnya menunjukkan nilai $p = 0,766$. Hal ini menunjukkan bahwa F hitung ($0,766$) $> 0,05$ sehingga data awal tekanan darah sistole antara kelompok eksperimen dan kontrol adalah sama. Begitu pula dengan data awal tekanan darah diastol diperoleh nilai $p=0,261$, menunjukkan bahwa F hitung ($0,278$) $> 0,05$ sehingga data awal tekanan darah *diastol* antara kelompok eksperimen dan kontrol adalah sama.

Tabel 7. Hasil Uji Homogenitas

Kelompok data	P	keterangan
Denyut nadi <i>pretest</i> pada kelompok eksperimen - Denyut nadi <i>pretest</i> pada kelompok kontrol	0,213	Homogen
Sistol <i>pretest</i> pada kelompok eksperimen - Sistol <i>pretest</i> pada kelompok kontrol	0,973	Homogen
Diastol <i>pretest</i> pada kelompok eksperimen - Diastol <i>pretest</i> pada kelompok kontrol	0,261	Homogen
Denyut nadi <i>posttest</i> pada kelompok eksperimen - Denyut nadi <i>posttest</i> pada kelompok kontrol	0,909	Homogen
Sistol <i>posttest</i> pada kelompok eksperimen- Sistol <i>posttest</i> pada kelompok kontrol	0,206	Homogen
Diastol <i>posttest</i> pada kelompok eksperimen - Diastol <i>posttest</i> pada kelompok kontrol	0,528	Homogen

Hasil Analisis Data

Pengaruh *Sport Massage* Terhadap Denyut Nadi Kelompok Eksperimen dan Kontrol

Tabel 8. Data *Post Test* Denyut Nadi Kelompok Eksperimen dan Kontrol

<i>Post Test</i> Denyut Nadi Kelompok Eksperimen	<i>Post Test</i> Denyut Nadi Kelompok Kontrol
68	94
68	96
84	88
68	92
84	118
76	96
82	92
68	96
68	92
68	92
68	96

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
,336	,113	,014	7,782

The independent variable is eks.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	69,455	1	69,455	1,147	,312
Residual	545,090	9	60,566		
Total	614,545	10			

The independent variable is eks.

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
eks	,370	,346	,336	1,071	,312
(Constant)	68,648	25,311		2,712	,024

Berdasarkan uji regresi menggunakan *SPSS 18.0 for windows* diatas dapat diketahui bahwa uji pengaruh pada denyut nadi kelompok eksperimen dan kontrol nilai signifikansi adalah 0,024. Karena $0,024 < 0,05$. Nilai F hitung $1,147 > 0,391$ (F hitung > F tabel). maka H_0 ditolak dan H_a diterima.

Pengaruh *Sport Massage* Terhadap Tekanan Darah Sistol Kelompok Eksperimen dan Kontrol

Tabel 9. Data *Post Test* Tekanan Darah Sistol Kelompok Eksperimen dan Kontrol

<i>Post Test</i> Tekanan Darah Sistol Kelompok Eksperimen	<i>Post Test</i> Tekanan Darah sistol Kelompok Kontrol
100	100
100	130
100	130
110	110
100	130
100	130
100	130
100	120
100	120
110	120
120	120
100	130

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
,261	,068	-,035	6,860

The independent variable is TK_Sis_Kon.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	30,961	1	30,961	,658	,438
Residual	423,585	9	47,065		
Total	454,545	10			

The independent variable is TK_Sis_Kon.

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
TK_Sis_Kon	-,179	,221	-,261	-,811	,438
(Constant)	125,472	27,001		4,647	,001

Berdasarkan uji regresi menggunakan *SPSS 18.0 for windows* diatas dapat diketahui bahwa nilai signifikansi adalah 0,001. Karena $0,001 < 0,05$. Nilai F hitung $0,658 > 0,391$ (F hitung > F tabel). maka H_0 ditolak dan H_a diterima.

Pengaruh *Sport Massage* Terhadap Tekanan Darah Diastol Kelompok Eksperimen dan Kontrol

Tabel 10. Data *Post Test* Tekanan Darah Diastol Kelompok Eksperimen dan Kontrol

<i>Post Test</i> Tekanan Darah Diastol Kelompok Eksperimen	<i>Post Test</i> Tekanan Darah Diastol Kelompok Kontrol
70	90
60	90
70	80
70	90
80	70
70	80
70	80
60	80
60	90
70	80
70	80

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
,629	,396	,329	4,939

The independent variable is TK_Dias_Kon.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	144,071	1	144,071	5,905	,038
Residual	219,565	9	24,396		
Total	363,636	10			

The independent variable is TK_Dias_Kon.

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
TK_Dias_Kon	-,587	,242	-,629	-2,430	,038
(Constant)	116,739	20,037		5,826	,000

Berdasarkan uji regresi menggunakan *SPSS 18.0 for windows* diatas dapat diketahui bahwa nilai signifikansi adalah 0,000. Karena $0,000 < 0,05$. Nilai F hitung $5,905 > 0,391$ (F hitung > F tabel). Maka H_0 ditolak dan H_a diterima.

Uji Hipotesis

Tabel 11. Hasil Analisis Data pada Kelompok Kontrol dan Kelompok Eksperimen

Variabel	p	Keterangan
Pengaruh <i>sport massage</i> terhadap <i>post test</i> denyut Nadi kelompok eksperimen dan kontrol	0,024	<ul style="list-style-type: none"> • Signifikan ($p < 0,05$) • H_0 ditolak, H_a diterima. • Ada pengaruh signifikan pada denyut nadi
Pengaruh <i>sport massage</i> terhadap <i>post test</i> tekanan darah sistol kelompok eksperimen dan kontrol	0,001	<ul style="list-style-type: none"> • Signifikan ($p < 0,05$) • H_0 ditolak, H_a diterima. • Ada pengaruh signifikan pada Tekanan Darah Sistol.
Pengaruh <i>sport massage</i> terhadap <i>post test</i> tekanan darah distol kelompok eksperimen dan kontrol	0,000	<ul style="list-style-type: none"> • signifikan ($p < 0,05$) • H_0 ditolak, H_a diterima. • ada pengaruh signifikan Tekanan Darah Diastol

PEMBAHASAN

Penelitian ini dilaksanakan pada hari jumat tanggal 29 November 2013 pukul 06.30 WIB di lapangan atletik FIK UNNES dan perlakuan *sport massage* dilakukan di Laboratorium PKLO FIK UNNES. Pelaku dalam pengukuran tekanan darah melibatkan anggota KSR PMI Unit UNNES berjumlah 11 mahasiswa dan pelaku *sport massage* oleh *masseur/masseus* anggota tim *massage* PKLO FIK UNNES. Pembahasan dalam penelitian ini dibagi menjadi dua sub sub bab yaitu pengaruh

pemberian *sport massage* terhadap tekan darah dan pengaruh pemberian *sport massage* terhadap denyut nadi.

Pengaruh Pemberian *Sport Massage* Terhadap Tekanan Darah

Berdasarkan hasil analisis data yang diperoleh dapat dilihat bahwa pemberian *sport massage* berpengaruh pada percepatan penurunan tekanan darah. Adanya pengaruh ini ditunjukkan oleh perbedaan yang signifikan hasil *pre test* dan *post test* tekanan darah sistol maupun diastol pada kelompok eksperimen dengan kelompok kontrol. Namun bila dibandingkan dengan kelompok kontrol penurunan tekanan darah tidak berbeda jauh. Dalam jangka waktu 45 menit penurunan tekanan darah pada kelompok kontrol belum bisa kembali dalam keadaan awal. Bila dilihat perbedaan dari hasil uji statistik *Wilcoxon* pada *pre test* dan *post test* tekanan darah sistol maupun diastol kelompok kontrol menunjukkan perbedaan yang tidak signifikan. Hal ini menunjukkan bahwa istirahat atau pemulihan tubuh aktif pada kelompok kontrol berpengaruh pada tingkat percepatan pemulihan tekanan darah agar kembali seperti keadaan awal.

Massage baik untuk memperlancar sistem peredaran darah, sistem metabolisme tubuh, dan merangsang daya kerja otot dan jaringan otot serta pada bagian tubuh tertentu maupun seluruh anggota bagian tubuh dengan intensitas tertentu akan merangsang sistem kerja tubuh. Waktu *massage* yang diberikan pada orang yang sehat dan manipulasinya dilakukan dengan teratur dalam intensitas sedang dalam waktu yang pendek, kira-kira 10-20 menit. Manipulasi *sport massage* membantu pengosongan *vena* dan *kapiler*, pembuluh *limphe* dan ruang antara sel-sel, mengurangi ketidak lancarannya dan tekanan jaringan, mempermudah sirkulasi dalam arteri dan menurunkan kerja jantung. *Massage* ikut serta dalam aktivitas sirkulasi seluruh tubuh. Darah dalam pembuluh ditekan kearah jantung oleh tekanan. *Limphe* dan jaringan adalah yang dimobilisasi dalam hal ini. Dengan kecepatan sirkulasi balik kerja jantung menjadi ringan, penuncupannya menjadi jarang, denyutannya menjadi makin kuat dan baik. Perbedaan tekanan dalam arteri naik, indikasi pembesaran dalam *miocardium*. Aksi mekanis dari *massage* adalah sama pentingnya bagi sirkulasi *limphe*. Manipulasi *massage* menyebarkan suatu seri reaksi dalam sistem pengaturan kimiawi dan saraf dari sirkulasi. Reaksi ini tidak terbatas pada efek hiperemi setempat, tetapi dapat mengikuti efek *derifatif*, pada respirasi dan pengaturan sirkulasi darah dalam organisme.

Tekanan darah pada manusia juga dapat dipengaruhi oleh bermacam-macam faktor dan penyebab. Diantaranya faktor yang tidak bisa dikendalikan dan faktor yang bisa dikendalikan. Untuk faktor yang tidak bisa dikendalikan; misalnya gen (keturunan) dan faktor usia. Biasanya untuk usia orang yang lebih tua atau lansia mayoritas tekanan darah tinggi. Namun, untuk tekanan darah manusia yang dalam keadaan normal rata-rata yaitu 120/80 mmHg. Untuk faktor tekanan darah pada tubuh yang bisa dikendalikan dapat bervariasi dan bermacam-macam diantaranya kondisi pernafasan, emosi, makanan, minuman, olahraga, tekanan/psikis, dan tidur.

Pengaruh Pemberian *Sport Massage* Terhadap Denyut Nadi

Hasil penelitian dan analisis uji *Mann-Whitney* melihat adanya pengaruh yang sama-sama signifikan antara kelompok kontrol dan kelompok eksperimen. Akan tetapi selisih antara denyut nadi *pre test* dan *post test* pada kelompok eksperimen lebih besar dibanding dengan kelompok kontrol. Hal ini terjadi karena pemberian *sport massage* pada seluruh anggota tubuh maupun bagian tubuh tertentu akan meningkatkan sistem kerja tubuh. Walaupun pada dasarnya tubuh manusia selalu

berusaha dalam keadaan seimbang, namun dengan adanya pemberian *sport massage* pada bagian tubuh, khususnya pada bagian yang terdapat otot besar, akan membantu tubuh untuk kembali dalam keadaan seimbang dan menyembuhkan dirinya sendiri.

Denyut nadi menunjukkan banyaknya pompaan jantung untuk mengalirkan darah ke seluruh tubuh. Makin kuat otot jantung dan makin besar volume jantung, daya kerja jantung akan makin kuat. *Massage* dapat ikut serta dalam mekanisme keseimbangan antara sirkulasi periferis dan sirkulasi dalam tubuh. Penyelidikan darah sebelum dan sesudah melakukan *massage general*, memperlihatkan beberapa perubahan dalam komposisinya. Pemberian *massage* jumlah butir-butir darah merah dan putih bertambah dan jumlah *hemoglobin* pun naik. Pemberian *sport massage* akan memperlancar aliran darah, merilekskan otot, dan merangsang sistem kerja tubuh, sehingga ketegangan tubuh akan berkurang, kerja organ-organ akan kembali normal, dan suplai darah pun akan kembali normal. Keadaan ini akan menyebabkan denyut nadi akan menurun lebih cepat bila dibandingkan dengan tanpa adanya perlakuan *sport massage*.

Kelemahan dalam penelitian ini adalah keterbatasan jumlah alat *sphygmomanometer* yang seharusnya berjumlah sama dengan jumlah sampel hanya tersedia separuh dari jumlah sampel. Tentunya ini akan berpengaruh terhadap hasil pengukuran tensi dan sumber daya manusia untuk melakukan *sport massage* dilakukan lebih dari satu orang. Sehingga pasti akan perbedaan dalam tekanan dan irama saat melakukan *sport massage*. Selain itu jarak antara lapangan atletik menuju ruang *massage* diperlukan waktu tempuh ± 3 menit. Dalam keadaan tersebut tentu denyut nadi maupun tekanan darah akan mengalami penurunan.

PENUTUP

Denyut nadi menunjukkan banyaknya pompaan jantung untuk mengalirkan darah ke seluruh tubuh. Makin kuat otot jantung dan makin besar volume jantung, daya kerja jantung akan makin kuat. *Massage* dapat ikut serta dalam mekanisme keseimbangan antara sirkulasi periferis dan sirkulasi dalam tubuh. Penyelidikan darah sebelum dan sesudah melakukan *massage general*, memperlihatkan beberapa perubahan dalam komposisinya. Pemberian *massage* jumlah butir-butir darah merah dan putih bertambah dan jumlah *hemoglobin* pun naik. Pemberian *sport massage* akan memperlancar aliran darah, merilekskan otot, dan merangsang sistem kerja tubuh, sehingga ketegangan tubuh akan berkurang, kerja organ-organ akan kembali normal, dan suplai darah pun akan kembali normal. Keadaan ini akan menyebabkan denyut nadi akan menurun lebih cepat bila dibandingkan dengan tanpa adanya perlakuan *sport massage*

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THE CONTRIBUTION OF CHEST SIZE, ARM LENGTH, VITAL CAPACITY AND ARM STRENGTH TO THE SWIMMING ACHIEVEMENT IN THE 50M BREASTSTROKE (A Correlational Study of 15-17 Years Old Male Swimmers in East Java)

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Abstract

Swimming is a competitive sport assessing the speed of the swimmers who attempt to gain an achievement. One of the important aspects in increasing the speed is having ideal body proportions for the swimmers. Chest size has a significant part in measuring the length of body movement in pushing against the water and in taking breath. Arm length is important in determining the length of arm pull thus the glide can be developed further. Better respiratory system delivers more amount of oxygen. The arm strength plays important part in determining the force of arm pulling in making quick stroke to move forward. This research applies quantitative approach with correlational research method in which it takes male teenagers (15-17 years old) of a swimming club in East Java as the population. There are 40 samples within. This study has 5 variables in which 4 variables are independent consisted of chest size, arm length, vital capacity and arm muscular strength, and 1 dependent variable which is the swimming achievement in the 50m breaststroke. The data analysis technique uses regression and correlation analysis by doing experiment of preconditions for normality and linearity testing. The hypothetical examination employs regression and correlation analysis, for each are predictor and multiple regression analysis along with double correlation. The result shows that chest size, arm length, vital capacity and arm muscular strength are related both partially and simultaneously. They create a regression equation for the swimming achievement in the 50m breaststroke, in which chest size contributes for 9,3 %, the arm length contributes for 18,5 %, the vital capacity contributes for 15 %, and arm muscular strength contributes for 15,8 %. The 4 independent variables contribute for 78,3%. This research concludes that chest size, arm length, vital capacity and arm muscular strength has partial contribution to the swimming achievement in the 50m breaststroke.

Keywords: *chest size, arm length, vital capacity, arm strength, swimming achievement*

INTRODUCTION

Breaststroke has high steady state which only requires less power and energy. Some people prefer this swimming style to the others since the coordination of the movement is very easy. Moreover, many of water sport lovers choose this stroke than others. This matter becomes an indication that breaststroke does not have high difficulty in term of movement learning, especially in swimming.

The physical activity or training done by swimmers affects the growth and development. A physical activity with adequate intensity is needed for normal growth. In this context, the bone density increases with exercise and decreases when there is no physical activity. Regular physical activity involves to the increase in muscle density and the decrease in body fat. Here, the increase in muscle density or the enlargement of muscle sectional area as the effect of physical activity is created by the enlargement of muscle fibers.

One of the most important aspects to increase the speed of swimmers is by having ideal body proportions. Muscle power comes from movement speed and force. In this case, if there are

two swimmers with equal strength and one of them needs less time in moving identical weight within the same distance, it means that the person has more power.

Giriwijoyo and Sidik (2012: 196) say that regular exercise can increase the ATP-PC reserves in muscle, yet the effect is not significant compared with muscle fiber enlargement and the whole muscles. It means that this kind of sport makes the anatomical change more dominant than the physiological change. Achievement is the result of hard work and honesty in gaining the optimal potency of athletes with correct training process. The physical activity or training of the swimmers involves the growth and development. A physical activity with adequate intensity is needed for normal growth in which it affects the bone and muscles.

From the explanation above, I want to use male athletes who have trained at least for 5 years as the samples. This research entitled "The Contribution of Chest Size, Arm Length, Vital Capacity and Arm Strength to the Swimming Achievement in the 50m Breaststroke" is conducted to develop the analysis. It belongs to correlational study on male swimmers around **15-17** years old in East Java.

Breaststroke is the most unique style of swimming. Between four swimming strokes, this technique is the slowest yet the easiest and the quickest to be learned. It comes from strong push and width of arms. The kicking movement which is similar like a frog moving in the water also has significant impact for the swimmers to move forward (Dewayani, 50).

Gaining achievement in swimming is not easy since there are many factors involved, such as anatomical (arm length, chest size, height, and leg length), physiological (breathing ability, liveliness, balance, coordination, strength, power, and flexibility), biomechanical (movement speed and stroke frequency), and psychological (personality, attribution, motivation for achievement, aggression, arousal, anxiety, stress, activation, leadership, communication, commitment, imagery, concentration, self-concept, and confidence) factors.

Ganong (2005) mentions that lungs and chest walls have elastic structures in which the pressure of the air inside and outside of the lungs makes the air comes in and out. The difference of pressure is caused by the change of thoracic, abdominal, and alveolar volumes. The change happens due to the respiratory muscles work which involves the muscles between ribs and the muscles of respiration (Kus Irianto, 2008).

According to Hogg (1977:54), the arm pulling in breaststroke has three functions. First, it helps the swimmers to keep being steady and in horizontal position near the water surface; second, it helps the body pushing forward; and the last is it helps the swimmers to have good body position for exhalation. Here, longer arm length of the athletes makes further arm reach.

Body movement can increase the ability of respiratory system including the vital capacity and ventilation like the gas exchange efficiency within the lungs (Hardjana, 2000). A person with bigger breathing ability to store air reserve within the lungs can have bigger flotation ability (Hay, 1985).

The arm and leg movements of the swimmers make forward-moving which pushes the water backward. Arm muscular strength is important to pull the arms in the water and to be the locomotion in competitive swimming strokes (Soejoko, 1992: 15).

METHOD

This research was conducted for 4 days in February 2017. There are 40 samples consisted of athletes in 15-17 years old (KU I) who have trained at least for 5 years.

In accordance with the research purpose, this study applies correlational descriptive method. In this case, the method can be defined as a research done by a researcher to analyze the correlational level of two or more variables without change, add, or manipulate the existed data.

This research employs multiple regression model in analyzing the data. The model is used to examine the effect of independent variable towards dependent variable which is the swimming achievement in the 50m breaststroke. Based on the written framework, this model can be formulated mathematically as:

$$KP = \alpha + \beta_1KL + \beta_2KR + \beta_3KK + \beta_4KO + e$$

- α : Constanta
- β_1 - β_5 : Coefficient
- KP : Achievement in 50m Breaststroke
- KL : Chest Size
- KR : Arm Length
- KK : Vital Capacity
- KO : Arm Muscular Length

RESULT AND DISCUSSION

This research examines 4 independent variables which are consisted of chest size, arm length, vital capacity and arm muscular strength towards 1 dependent variable which is the swimming achievement in the 50m breaststroke. The chest size and arm length are measured with tape measure, the vital capacity is measured with spirometry, and the arm muscular length is measured by Push-Pull Dynamometer device. The dependent variable uses the best time of 50m Breaststroke. The correlational relationship of those variables can be seen from the table below:

Table 1. The correlation of chest size, arm length, vital capacity, arm muscular strength, and the achievement in 50m breaststroke

Variable	r	Sig. p	Conclusion
Chest Size	-.679	0.001	Significant Negative Correlation
Arm Length	-.687	0.001	Significant Negative Correlation
Vital Capacity	-.428	0.006	Significant Negative Correlation
Arm Muscular Length	-.607	0.001	Significant Negative Correlation

Table 2. Test Result of Multiple Regression Hypothesis

Variable	Unstandardized Coefficients Beta
Constant	81.795
Chest Size	-0,93
Arm Length	-0,185
Vital Capacity	-0,150
Arm Muscular Length	-0,158

The regression equation is written as:

$$KP = 81.795 - 0,93 KL - 0,185 KR - 0,150 KK - 0,158 KO + e$$

Based on the data analysis, the hypothetical tests can be done as:

1. Hypothetical Test I

Based on the analysis above, the (-) value comes from the measurement of the achievement in the 50m breaststroke as the result of the time. Thus, higher free variable causes smaller bound variable. The correlation coefficient values (r) of the variables towards the achievement in the 50m breaststroke have -0,679 for the chest size; -0,687 for the arm length; -0,428 for the vital capacity; and -0,607 for the arm muscular length variable. This means that those 5 variables have positive correlation towards the swimming achievement.

2. Hypothetical Test II

The analysis of Multiple Regression Hypothesis in Table 2 shows that the achievement in the 50m breaststroke will be increased by the chest size for 0,09; arm length for 0,18; vital capacity for 0,15; and arm muscular length for 0,15. The R^2 value is 0,783 which shows that the contribution of chest size, arm length, vital capacity, and arm muscular strength variables towards the swimming achievement in 50m breaststroke is 78, 3%.

CONCLUSION AND SUGGESTION

1. There is a significant correlation between chest size and the achievement in 50m breaststroke with p value = 0,001 ($p < 0,05$) and the correlation coefficient value (r) for 0,679. The contribution is 9, 3%.
2. There is a significant correlation between arm length and the achievement in 50m breaststroke with p value = 0,001 ($p < 0,05$), the correlation coefficient value (r) for 0,687, and the contribution is 18,5%.
3. There is a significant correlation between vital capacity and the achievement in 50m breaststroke with p value = 0,006 ($p < 0,05$), the correlation coefficient value (r) for 0,428, and the contribution is 15%.
4. There is a significant correlation between arm muscular length and the achievement in 50m breaststroke with p value = 0,001 ($p < 0,05$). The correlation coefficient value (r) is 0,607 and the contribution is 15,8%.
5. The R^2 value is 0,783 showing that the contribution of chest size, arm length, vital capacity and arm muscular strength variables towards the swimming achievement in 50m breaststroke is 78, 3%. Here, those 4 variables contribute for 78,3% while the remaining 21,7% is contributed by other variables which is not included within this
6. linear regression model.

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ACUTE EFFECTS OF SHUTTLE REPEATED SPRINTS EXERCISE BETWEEN NORMOBARIC HYPOXIA AND NORMOXIA IN VARSITY FUTSAL PLAYERS: A PILOT STUDY

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Abstract

This study was to investigate the acute effects of shuttle repeated sprints exercise between normoxia (NN) and normobaric hypoxia (NH). Using a crossover design, sixteen male varsity futsal players performed shuttle repeated sprints (6 × 10 s) in 5m distance. Recovery time between repetitions was 20s. Participants completed 2 trials in a random order and were not informed about hypoxia, each trial separated by one week with different inspired oxygen fraction (FiO₂ = 20.9% in NN and FiO₂ = 14.5% in NH). Peak of Root Mean Square (RMS) from Electromyography (EMG) data were recorded from muscle vastus lateralis in each repetition. Moreover, blood lactate concentration (BL), pulse oxygen saturation (SpO₂), heart rate (HR), and **rating of perceived exertion (RPE)** were recorded before and after exercise. The results showed that Peak RMS from EMG were significantly in repetition number 5 and 6 in NN and NH (p<.05) but significant found in all reps (p<.05) when compared between two conditions. Furthermore, BL increasing and SpO₂ decreasing were significantly (p<.05) before and after exercise. Whereas, HR and RPE were not significantly from before and after exercise between NN and NH (p<.05). In conclusion, this study showed that fatigue may exceedingly increase when exercise in normobaric hypoxia. However, extended study by comparing more different oxygen levels, increasing number of sets and analyzing from other variables are recommended to clarify the suitable condition of normobaric hypoxia for developing performance in athletes.

Keywords: hypoxic training, fatigue, acute effect, repeated sprints

CONSTRUCTIVIST MODEL IN SECOND NUTRITION SCIENCE

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Abstract

Research on the constructivist model of second nutrition science aims to improve the learning outcomes of the course student of nutritional science 2 physical education semesters 5 through constructivist models. The method used in this research is a classroom action research conducted 2 cycles. The result of this research is successful college student who obtained preliminary data 3 students (8.57%) were ≥ 75 , while 32 students (91.43%) score below 75, the first cycle increased to 11 students (31.43%) ≥ 75 and 24 students (68.57%) under 75 and a significant increase in the implementation of the second cycle there were 29 students (82.56%) above 75 and 6 students (17.14%) under 75, finding in this research is the result of learning the science of nutrition 2 students in second cycle is better because it uses a constructivist models. The implication of this study is a constructivist model of improving student learning outcomes in second nutrition science subjects

Keywords: constructivist model, learning, nutrition science

THE BODY COMPOSITION AND SOMATOTYPE CHARACTERISTICS OF UNITS ACTIVITY OF SPORTS COLLEGE MALE AT UNY

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Abstract

This study aimed to get an overview of the shape of body composition and characteristics somatotype of Activity of Sports College Male at Yogyakarta State University (UNY). This type of this research is descriptive quantitative. With a total population / study subjects were 71 people with nine sports that fostered by Activity of Sports College at UNY. The sampling technique is consecutive sampling, the samples that have found the criteria in this regard are actively involved in sports UKM activities UNY and disposed to be present when the measurements carried out. Data analysis using ANOVA with a significance level of $P < 0.05$. The results obtained from this study is found in body composition of Activity of Sports College Male at UNY, the percentage of body fat (13.6 ± 11) and body mass index (BMI) (18.2 ± 1.6), while for the characteristics of Somatotype is 3, 7 - 3.7 to 2.7, which means between the endo-mesomorphs have the same numbers so they have a tendency in the center (center). Moreover, the characteristic of Activity of Sports College Male athletes of Somatotype at UNY has great body lean and muscular and a little short. The conclusion of this study is type of somatotype endo-mesomorph. Activity of Sports College Male athletes need to be given strength training, especially to reduce fat deposits as well as exercises increase muscle mass.

Keywords: Body Competition, Somatotype Characteristic

INTRODUCTION

The search for, develop, and improve the performance of athletes Indonesia today has been done in various ways, including performing searches gifted athlete (talent scouting) by using tests and measurements made by experts that are tailored to the sport to students who are considered potentially at branches certain sports.

Many tests and measurements that have been carried out by the experts of sports, but when seen from the results that can be monitored in a championship regional, national, or international, is still a little athlete results talent scouting (UKM sport) to show in the championship level, it is among others due by athletes observed many are not appropriate, especially in terms of anthropometry and somatotype, so that the desired results can not be achieved and, in addition, due to the demands of the target number of athletes, regardless of the quality / potential of the athletes themselves, so much money wasted.

Sport expert still reluctant to cooperate in the use and application of science and technology, especially in the field of medical science biomedical researching prospective athletes, athletes and former athletes. It can be seen from the journals of sports in Indonesia is still very little existing research in the field of biomedical especially in view and acquire characteristics of anthropometry and somatotype prospective athletes, athletes and former athletes in both the review of scientific anatomy (somatotype), molecular biology, genetics, and others, in other words the sport in Indonesia has been no record of anthropometric characteristics and somatotypenya.

Results of research conducted at the University of New South Wales, showed anatomy-profile athletes somatotype Australia for several sports, including the women's basketball sports (3.7 - 4.0 - 2.9) or also called endo-mesomorphy. Arthur D Stewart. et al (2003) reported the results of his research sports need strength for men is 2.8 - 6.4 - 1.6 Endo-mesomorphy, for sports that require endurance son is 2.5 - 4.7 - 2.9 (ecto-mesomorphy), while for team sports son is 3.1 - 5.7 - 1.7 (endo-mesomorphy), while for the daughter to sports that require strength is 3.6 - 5.0 - 1.3 (endo-mesomorphy) and for sports that require durability is 3.1 - 3.6 - 3.0 (endo-mesomorphy).

As to whether the description of body composition (body composition) and the characteristics of SMEs sport male athlete somatotype public university UNY Yogyakarta are always represented in a race or a match at national or Asia and Asean?

Experts currently is not able to answer it clearly, this is because there has been no or still limited research leading to somatotype especially in the field of sports medicine and biomedical medicine. Therefore, researchers wanted to examine to get a picture of body composition and characteristics somatotype male athlete who fostered through UKM sport UNY with biomedical medicine approach.

MATERIALS AND METHODS

Subject

This study, conducted in the laboratory of anatomy-physiology of the Faculty of Sport Sciences with the survey method, and then performed anthropometric and skinfold measurement in all study subjects. The subjects used in this study all male students were recorded in the membership of SMEs active in the sport UNY and present when the measurement is held until the completion of the measurement. The number of subject that are present in this study as well as a sample of 71 people with 9 sport.

Data Collection

How to determine somatotype by performing anthropometric measurements with steps a) recording of personal data and answer achievement data on a form that has been provided, b) Determination of height and weight, c) Determination of thick fat by using a skinfold, d) determining Landmark 1) Acromiale, 2) Radiale, 3) Subscapulare, 4) Xipoidale, 5) Illioaxilla line, 6) Illia cristale, 7) Illio Spinale. Furthermore, the measurement of the thickness of fat is to make measurements in a) Triceps, b) Subscapulae, c) iliaca Cres, d) Supra Spinale, e) Abdominale, f) Front thigh and mengukukur circumference and width a) of the humerus, b) calf, c) femur, and d) biceps. All data from the measurement results, then analyzed using the method of Heath and Carter (Kevin Norton: 1996) either manually or program life.

To determine the Fat Free Mass (FFM)% body fat using the formula of Siri % Fat = $(495 / D - 450)\%$. Furthermore, from the formula required amount of density of the body (D) with a formula that takes two locations skinfold measurements, ie $D = 1.0764 - (0.00081 \times \text{suprailliaca} + 0.000088 \times \text{triceps})$. Furthermore, to determine the characteristics of somatotype there are several formulas used, which is to determine the type of Mesomorpi use the formula = $[0.858 (\text{HB}) + 0.601 (\text{FB}) + 0.188 (\text{CAG}) + 0.161 (\text{CCG})] - [0.131 (\text{H})] + 4$, 5. Somatotype Ektomorpi and to determine, using the formula $\text{HWR} (\text{Height -Weight Ration}) > 40.75$, then the formula = $0.732 (\text{HWR}) - 28.58$, and if $\text{HWR} < 40.75$, then when $\text{HWR} > 38.25$ then the formula is = $0.463 (\text{HWR}) - 17.63$, the next when $\text{HWR} < 38.25$, then

Ectomorpi = 0.1 or written 1/10. Furthermore, to determine the form somatotype endomorpi, the formula used is $X = (\text{sum of triceps, subscapular and supraspinale skinfolds}) \times (170.18 / \text{height in cm})$. The meaning of the abbreviation formula is HB = humerus breadth; CAG = Arm girth (corrected), FB = Femur breadth CCG = Calf girth (corrected), H = Height, and HWR = height / cube root of weight.

Statistical analysis

The purpose of this study is to describe body composition and characteristics somatotype male students SMEs sports UNY, as well as to find a picture of whether there are differences in body composition and characteristics somatotype meaningful Among the nine sports that have been raised in SMEs UNY with ANOVA analysis with a level significance 0.05.

Result

The results of anthropometric measurements, body composition and characteristics somatotype for all athletes sons who are members of the nine branches of sports (table tennis, basketball, tennis, badminton, karate, athletics, martial arts, football and taekwondo) UKM UNY, presented in tables 1 and 2 and illustrated in Figures 1 and 2.

Tabel 1. Rata-Rata Pengukuran Antropometri Atlet Putra UKM Olahraga UNY

Antropometri	UKM SD	± n=5	TM n=5	Basket n=6	Tenis n=10	B.T n=5	Karate n=6	Atletik n=11	Silat n=10	S.Bol n=10	T.W	F	P <.05
TB	169 ± 6		170	165	177	170	164	166	167	169	171	2.35 ^{ns}	> .05
BB	62 ± 7		62	59	66	66	58	57	60	64	61	5.64*	< .05
P.Tungkai	88 ± 4		88	86	91	86	86	88	88	88	88	2.2 ^{ns}	> .05
Knee	9 ± 0,4		9	9	9	9	9	9	9	9	9	0.75 ^{ns}	> .05
Diameter													
Elbow	7.2 ± 7		6	6	7	6	7	6	7	6	6	2.67 ^{ns}	> .05
diameter													
Lebar bahu	42 ± 2		42	42	43	44	41	41	41	43	43	1.34 ^{ns}	> .05
Linkar	26 ± 2		25	25	27	27	26	26	27	26	25	0.86 ^{ns}	> .05
lengan													
Lingkar	51 ± 3		51	52	51	53	49	50	48	52	51	2.31 ^{ns}	> .05
tungkai													
Lingkar betis	36 ± 2		36	35	35	37	36	36	36	36	35	0.75 ^{ns}	> .05
Lingkar	70 ± 5		71	70	73	73	66	68	68	70	71	0.95 ^{ns}	> .05
perut													

Presentation of Table 1, can be explained or concluded that it was not statistically significant difference except in body weight (BW) on anthropometric measurements male athlete UKM sports at UNY, but as a descriptive or view of the difference in average there are differences in their respective Sports.

When seen from the results of anthropometric measurements, it appears that the shoulder width measurement badminton athletes (BT) has an average width of shoulders than other branches, such as athletics and martial arts (PS). The same thing can also be seen that the abdominal circumference for the sport of tennis and badminton has a large size that is 73 centimeters compared

to other sports, which means athletes still fat so need to exercise for the reduction of fat in the abdomen. For more details can be seen in figure 1.

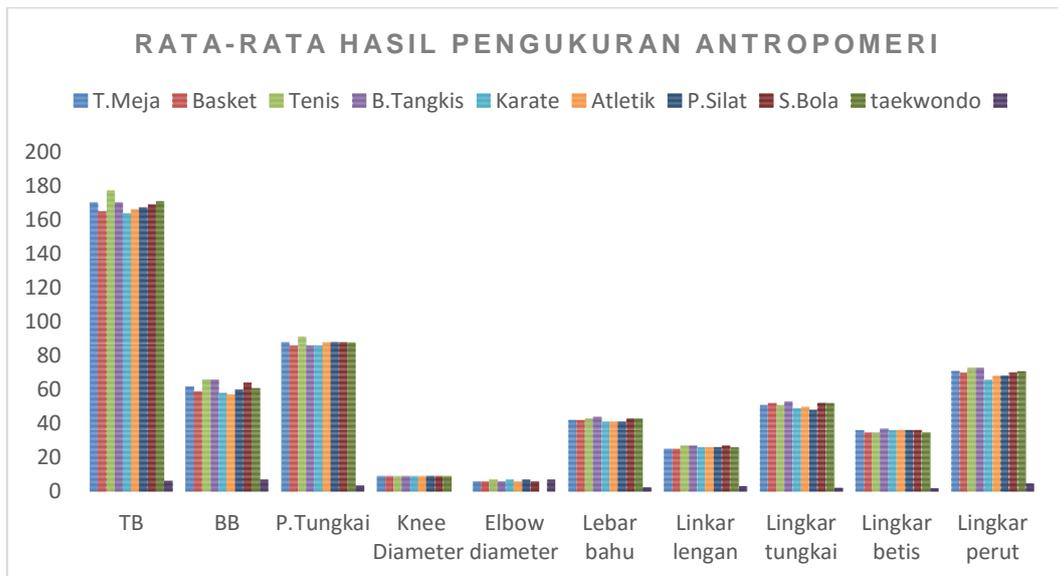


Figure 1. Mean Difference Measurement Results Antropomeri On 9 Branch Sports

Furthermore, when seen from the results in some places skinfold measurement for nine UKM sport UNY presented in Table 2.

Tabel 2. Rata-Rata hasil 12 Pengukuran Skinfold

Skinfold	UKM ±SD	TM n=5	BSKT n=6	Tenis n=10	B.Tangkis n=5	Karate n=6	ATL n=11	Silat n=10	S.Bola n=10	T.Wondo n=8	F	P < .05
Subscapular	10,2 ±1.7	10,1	10,5	12,25	10,4	9,2	9,6	9,6	11	9,1	0.85 ^{ns}	>
Bicep	4,1 ± 0,9	4,7	4,2	4,375	4,4	3,3	3,7	3,9	4,7	3,9	0,93 ^{ns}	>.05
Tricep	9,5 ± 3	9,9	8,8	13,875	9,4	7,2	8,3	7,6	10,9	9	4.65*	<.05
Thigh	12,5 ± 4	14,1	12,5	16,75	13,6	8,8	11,6	10	13,9	11,2	4.75*	<.05
Chest	9,9 ± 7,8	9,1	7,2	12,5	9,4	7,3	12,4	7,6	8,4	13,1	6.63*	<.05
Calf	7,3 ± 1,9	8,7	8	8,25	8	5,5	6,5	5,9	8,9	6,7	6.56*	<.05
Mid axilla	7,6 ± 2	8,7	7,2	9,625	7,4	6,2	6,8	6,6	8,5	7,2	6.67*	<.05
Illiaccrest	13,3 ± 5	14,6	12,7	18,25	12,4	10,3	12,3	11,1	14,7	12,6	4.78*	<.05
Supra illiac	9,7 ± 2,9	11,5	9,5	12,875	9	7,5	8,6	8,6	10,8	9	3.54*	<.05
Abdomen	13,5 ± 5	16,1	13,8	18,375	13,2	9,3	11,7	11,4	15,1	13	4.73*	<.05
Sum 7 skinfold	70,1 ± 4	87,1	79	98,7	80	63,5	73,2	68,9	87,2	75,5	5.52*	<.05

The results can be inferred from Table 2 is that there are significant differences in fat thickness measurement results by means of skinfold measurements at eight places, and there are two places that are not fat measurements are significant differences are in the subscapular and biceps. For more details, description of the results of measurements of the average thickness of fat can be seen in Figure 2.

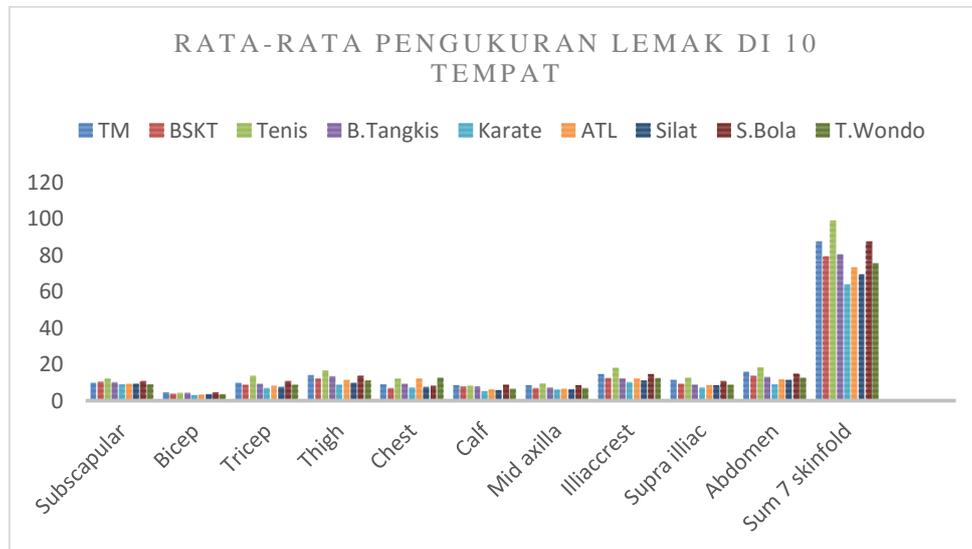


Figure 2. Difference Average fat thickness measurement

Furthermore, to get an idea about the composition of the body is the body mass index (BMI) and body fat percentage of male students who are members of UKM sport at UNY presented in Table 3.

Table 3. Results Mean BMI and fat percentage measurement
Student Men Sports SMEs UNY

Komponen	UKM ±SD	TM n=5	BSKT n=6	Tenis n=10	B.Tangkis n=5	Karate n=6	ATL n=11	Silat n=10	S.Bola n=10	T.Wondo n=8	F	P < .05
Tinggi Badan	169 ± 6	170	165	177	170	164	166	167	169	171	2.35 ^{ns}	> .05
Berat Badan	62 ± 7	62	59	66	66	58	57	60	64	61	5.64*	> .05
% Lemak	14 ± 11	14,2	13,5	14,9	13,4	12,8	13,2	13,2	14	13,3	1.78 ^{ns}	< .05
BMI	18 ± 2	17,9	17,9	18,6	19,3	17,5	17,9	18	18,9	17,9	2.82 ^{ns}	> .05

Table 3 it can be concluded that there is a significant difference between the weight of students who follow the UKM sport at UNY for nine sports, while the component height, body fat percentage and BMI students who follow the UKM sport at UNY no significant difference. Furthermore, to clarify the results in the table depicted in chart 3.

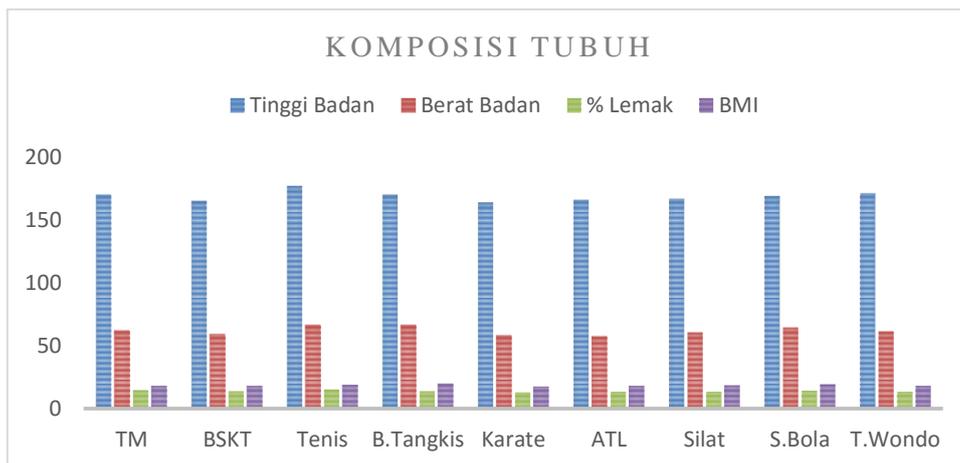


Figure 3. Overview of UKM Sports Body Composition at UNY

Furthermore, to describe the characteristics of the students in the somatotype UKM sport at UNY as presented in Table 4.

Table 4. Characteristics of Student Somatotype UKM Sports at UNY.

Somatotipe	UKM ±SD	TM n=5	BSKT n=6	Tenis n=10	B.Tangkis n=5	Karate n=6	ATL n=11	Silat n=10	S.Bola n=10	T.Wondo n=8	F	P < .05
Endomorpi	4,4 ± 0,6	4,7	4,4	5,2	4,3	3,9	4,1	4,1	4,7	4,1	0,86 ^{ns}	> .05
Mesomorpi	4,4 ± 5,8	3,4	3,7	2,8	3,8	4,5	3,9	4,4	3,6	3,4	0,75 ^{ns}	> .05
Ektomorpi	2,8 ± 0,9	2,7	2,5	3,6	2,3	2,6	2,6	2,7	2,4	3,1	1,75 ^{ns}	> .05

Table 4 it can be explained that, there are no significant differences between somatotype characteristics (endo-meso and ektomorpi) for each of the sports that fostered UKM sport at UNY, but provide a general description for SMEs UNY sport that is 4.4 to 4.4 - 2.8 thus concluded get into groups of meso-endomorpi or endo-mesomorpi which means muscular fat. For more details, again illustrated in Figure 4

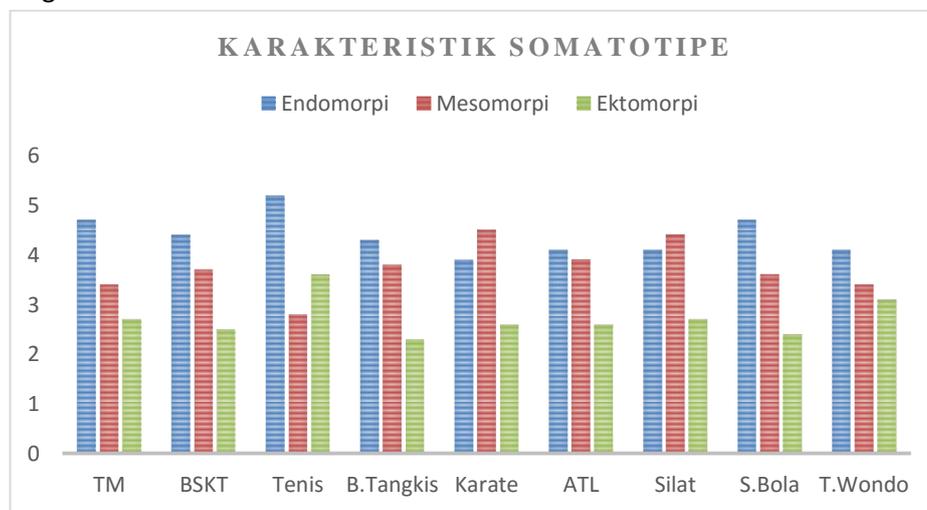


Figure 4. Difference Characteristics Somatotype UKM Student Sports UNY

From Figure 4, it was concluded that the characteristics somatotype all students UKM sports UNY are in a state of fat and muscular with meaning that the percentage of muscle and fat together so that students exercise involved in UKM sport UNY in a state of obesity even though they have the muscle (hypertrophy) it will be input for coaches to be more emphasis again on exercise aimed at the process of burning fat in other words should increase aerobic exercise. Therefore, in Figure 5 is the layout characteristic of UKM sports somatotype UNY students with the position (4.4 -4.4 - 2.8).

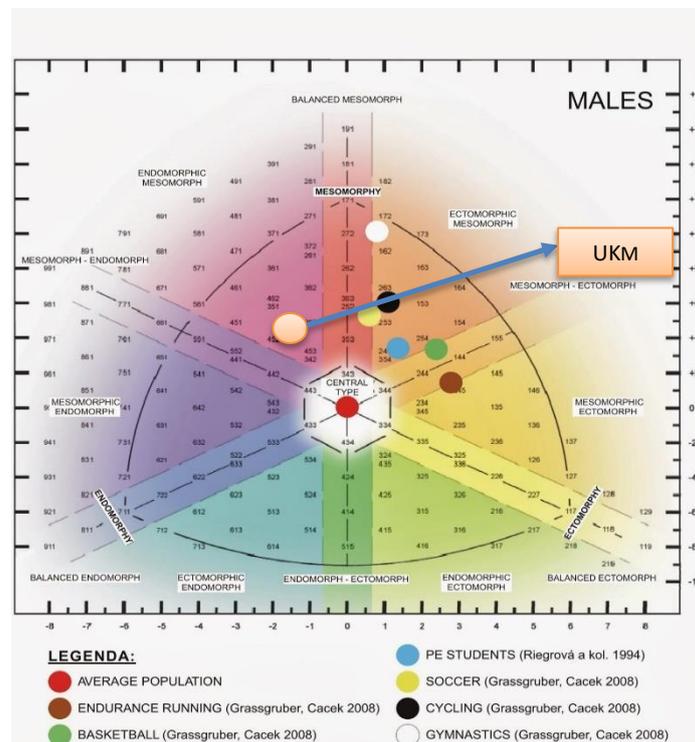


Figure 4. Somatochart UKM Student Sports UNY

DISCUSSION

Based on analysis of statistical and descriptive data is visible, that the composition of the student body of the UKM sport at UNY for fat percentage included in either group by the standards of the Department of Health of the Republic of Indonesia in 2005 (MOH, 2005: 19). Further to the BMI (body mass index) UKM student sport of tennis, badminton, and football is still classified as normal by BMI standards Ministry of Health in 2005, namely 18.5 sd 24.9. As for the 6 other sports such as table tennis, basketball, karate, martial arts, taekwondo and athletics is still in the category of the take because it is still below normal standards.

Abnormalities BMI many factors, among others, UKM sport UNY not provide extra food after class, the meal eaten by the students possessed nutrition less able in terms of quantity and quality, and the other thing is the training load that is too heavy and is not accompanied by sufficient food intake.

When viewed from karakteristik somatotype sports SMEs UNY students included in the category of endo-mesomorpi, it appears from the calculation of (4.4 -4.4 - 2.8). The conclusion was that the body is not too high because the ekto value was 2.8 and included fatty foods because the value of endo 4.4 and muscular with a value of 4.4 but still not high.

CONCLUSION

Students who are members of UKM sport at UNY consisting of nine sports have a body composition is relatively normal but there are three sports categorized as normal and 6 sports are classified as abnormally thin alias.

When viewed from the calculation somatotype characteristics, student sports included in the group of SMEs UNY ando-mesomorph, which means that students exercise SMEs still in state of lean and muscular but a little short.

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THE DIFFERENCES OF THE EFFECTS ON VO₂MAX-BASED RECOVERYMETHOD OF POST-ANAEROBIC INTERVAL TRAINING TO LACTICACID LEVELS
(Experimental Study of Recovery of Contrast Bath and Pre Neuromuscular FacilitationMethod in Male Students of Basketball Extracurricular SMAN 4 Surakarta)

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Abstract

This study aims to find out: (1) The differences of effects between recovery of contrast bath and pre neuromuscular facilitation methods of post-anaerobic interval training to lactic acid levels, (2) The differences in lactic acid levels between high VO₂max and low VO₂max, and (3) The effects on the interactions between recovery method and VO₂max to lactic acid levels. The sample was male students of basketball extracurricular SMAN 4 Surakarta collected using purposive random sampling techniques. The data were then analyzed using Two-way ANOVA at a significance level of 5%, as data obtained previously must meet the required tests which include normality test and homogeneity test. It can be concluded that (1) there are differences in the effect of recovery contrast bath method and PNF to the lactic acid levels. Recovery of contrast bath method has an average value of decreased lactic acid levels of 4.58, while stretching pre neuromuscular facilitation (PNF) method is 3.91. The hypothesis test indicates that H₀ is rejected in which the value of $P < \alpha$ (0.00 > 0.05) with $F_{\text{observation}}$ of 25.74. (2) There are differences in lactic acid levels between students who have high VO₂max and low VO₂max. The group with high VO₂max has an average value of 4.48, while the group with low VO₂max has an average value of 4.01. The hypothesis test of H₀ is rejected in which the value of $P < \alpha$ (0.001 > 0.05) with $F_{\text{observation}}$ of 12.74. (3) There is no interaction effects between recovery method using contrast bath and PNF with VO₂max in lactic acid levels, in which the hypothesis test of H₀ is accepted with $P \text{ value} > \alpha$ (0.57 > 0.05) with $F_{\text{observation}}$ of 0.31.

Keywords: recovery, contrast bath, PNF, VO₂Max, anaerobic interval, lactic acid

INTRODUCTION

Physical training performed by a person has many benefits for body health. Everyone who perform the training correctly will get the benefits, such as the body becomes healthy, fit, and can improve performances. Astrand (1986) states that the regular, systematic, and continuous training, and is performed in a training program will improve physical capability significantly. In addition to the positive benefits, it also has negative impacts, e.g., lactic acid and free radical formation because training is a stressor for the body that can affect all systems (Costill, 2008).

The human body normally metabolizes to produce energy. One of the source of human body movements is ATP, used for muscle movement (Guyton, 1986). The energy used during the activities in anaerobic conditions will produce side-products, such as lactic acid. It is normally present in the body and describes the condition of anaerobic glycolysis. It is also closely related to the ability of muscles to contract. The body has a number of limitations to tolerate lactic acid. Lactic acid levels will increase during the activities where the source of energy is derived from anaerobic glycolysis system.

Lactic acid formation is the results of the activity of high intensity and long-term training. The presence of high activities without considering sufficient recovery time, can cause a buildup of lactic acid in blood that leads to the obstruction of the energy intake of the aerobic system in muscle cells and the onset of fatigue. Physical activity performed with maximum intensity can lead to the increased lactic acid levels in the blood and muscles (Fox, 1993).

The hoarding of lactate in blood becomes fundamental problems in physical performances since it causes chronic fatigue and decreases the physical performances. In competitive sports, such as basketball, athletes are sometimes faced with dense schedule of competition that will also result in the dense schedule of training. In such conditions the trainer should be able to restore the condition of the athletes back to the state before the training or match to face the next match without experiencing significant fatigue. Observations made by the researchers show that the 30 male basketball athletes have an average lactic acid levels of 13.64 mmol / L after performing training. All the athletes have lactic acid levels at above 4 mmol/L (normal). Whereas in volleyball athletes, particularly 12 athletes after the match, have lactic acid levels at above 4 mmol / L with an average value of 13.2 mmol / L. Of the 12 athletes who have lactic acid levels above the normal point, all athletes are undergoing fatigue. We can, thus, conclude that almost 100% of the athletes have above-normal lactic acid levels and fatigue after the match. Therefore, they need to have proper recovery to restore the lactic acid levels into the normal conditions after performing match or training.

VO₂max is body ability levels expressed in liters per minute or milliliters/kg/min weight. Every single cell needs oxygen to convert food energy into ATP (Adenosine Triphosphate) which is ready to be used for work. Most small cells consume oxygen is in a state of resting muscle, while the contracting muscle cells require a lot of ATP. As a result, the muscles used in training requires more oxygen. Muscle cells need a lot of oxygen and produces CO₂. The need for oxygen and CO₂ production can be measured by a person's breathing. By measuring the amount of oxygen consumed during exercise, it can be seen the amount of oxygen used by the working muscles. The higher the amount of muscle used, the higher the needs for oxygen. Lactic acid is formed due to lack of oxygen in the muscle activity required. It can be concluded that the VO₂max affects the formation of one's lactic acid levels.

Fitness levels may be measured by the volume in consuming oxygen during maximum training. As commonly known, oxygen is the human main fuel needed by muscles in doing any heavy or light activities. The fatigue perceived by athletes will cause a decrease in levels so they will perform without prime level to a game, then it can closely be ensured that they will be fail. The fast or slow fatigue by an athlete can be estimated from their aerobic capacity. Aerobic capacity indicates the maximum capacity of oxygen used by the body (VO₂max).

Fatigue highly affects the decline in of athletes' performances so that the achievements earned can also be decreased. Therefore, doing recovery becomes an appropriate way after performing training or match. This recovery phase is needed by the body to restore the body back to its initial state before performing training or match. There are many ways of recovery have been made to reduce fatigue, such as using static stretching, dynamic stretching and pre-neuromuscular facilitation (PNF). Post-exercise stretching will help to reduce muscle fatigue and pain associated with DOMS (Delayed Onset Muscle Soreness), but it also helps in the process of waste products including lactic acid. In the study conducted by Eskawida (2013), the results showed that there are significant

differences between the type of dynamic stretching, static stretching, and PNF to the decreased lactic acid levels. PNF stretching has a change or a decrease in the lactic acid levels faster than dynamic and static stretching. This proves that the PNF stretching is more effective in reducing lactic acid levels compared to other types of stretching.

In addition to stretching, there are several methods that can be applied for the athletes to recover from fatigue as soon as possible so that they can re-show the best performances. A therapy using hot and cold water as the medium is known as contrast bath. Hot and cold water immersion will alternately cause vasoconstriction and vasodilatation that will make local blood circulation work better, improve the elasticity of the muscles and reduce muscle spasms (Cochrane, 2004). The increase of circulation will affect the smooth supply of oxygen and help the recycling of lactic acid into energy sources. The availability of energy back from the lactic acid will restore fatigue impacting on the prominent as the previous performances. Contrast bath has been used since long time ago in sports medicine to cope edema and the swelling due to injury, and this method is often used for recovery after performing training. Football medical team U-23 uses contrast bath method for the national team before competing with Morocco in Islamic Solidarity Match on September 22, 2013 in Palembang. This therapy is expected to help in accelerating the recovery of up to 80% of the of players' body fitness. It is an action taken to anticipate the dense schedule of medical team match, especially after competing in the semi-finals with Saudi Arabia (*Kompas*). Indonesian National Team (*Timnas*) U-19 also uses this hydrotherapy to restore fatigue after the match in the last few years. In fact, according to Aditya Prameswara (Physiotherapist League U-19), Frank Ribery also had to do it when defending French National Team at Euro 2008. It can be concluded that the contrast bath method is already popular in Indonesia, which is used as an alternative method of accelerating the recovery of a person's fitness in preparation for the training or next match.

Based on the background mentioned above, the researchers is aimed to examine "The Differences of the Effects on Recovery Method of Post-Anaerobic Interval Training to Lactic Acid Levels based on VO_2max "

RESEARCH METHOD

This study was conducted in basketball field of SMAN 4 Surakarta, Jl. LU Adisucipto 1, Manahan, Surakarta, Central Java. The time was conducted in December 2016. This study used an experimental method with 2x2 factorial design. The sampling technique uses purposive random sampling. The sampling technique is determined by the criteria of VO_2max as well as certain inclusion and exclusion criteria. The data were collected by using MFT test for VO_2max and Accutrend plus for lactic acid levels. The data analysis used Two-way ANOVA at a significance level of 5%. The data obtained previously must meet pre-requisite test including normality test and homogeneity test.

The data were obtained from the measurement results to the attributive independent variables of the two groups, i.e., students who have high VO_2max of the number of 16 samples was divided by 2 and each student was given recovery of contrast bath treatment and PNF method. The group of students who have low VO_2max of the number of 16 samples was divided by 2 and each student was given recovery of contrast bath treatment and PNF method, respectively. Each group was given the test twice, i.e., once for pre-test once and the other for post-test. The test items on the pre test and post test were the same, i.e., lactic acid levels in blood.

FINDING AND DISCUSSION

Finding

The data description of the analysis results on lactic acid level measurements in blood were conducted in accordance with the compared groups is presented as follows:

Table 1. The data description of measurement results on lactic acid levels in students who have high and low VO₂max based on recovery method.

VO ₂ Max	Treatment (Recovery)	Statistik	Pasca Latihan	Pasca Treatment	Penurunan Kadar Asam Laktat
Tinggi	Contrast Bath	Jumlah	113.8	74.9	38.9
		Mean	14.22	9.36	4.86
		SD	0.95	0.87	0.36
	PNF	Jumlah	114.40	81.50	32.90
		Mean	14.30	10.18	4.11
		SD	1.03	1.38	0.45
Rendah	Contrast Bath	Jumlah	123.90	89.40	34.50
		Mean	15.48	11.17	4.31
		SD	0.80	0.65	0.39
	PNF	Jumlah	122.50	92.80	29.70
		Mean	15.31	11.60	3.71
		SD	0.87	0.83	0.26

1. Group of recovery of contrast bath method has the average value of post-training at 14.58 and post-treatment at 10.26 with the average value at 4.58 in the changes of blood lactic acid levels. In group of PNF recovery method has the average value of post-training at 14.80 and post-treatment at 10.89 with the average value at 3.91 in the changes of blood lactic acid levels. When the two treatments were compared to the average changes in levels of lactic acid in the blood with recovery methods contrast bath has a change or a decrease in lactic acid levels greater than PNF recovery methods.
2. The group of students with high VO₂max has the average value of post-training at 14.26 and post-treatment at 9.77 with the average value at 4.48 in the changes of blood lactic acid levels. Whereas the group of students with low VO₂max has the average value of post-training at 15.39 and post-treatment at 11.38 with the average value at 4.01 in the changes of blood lactic acid levels. If the two treatments are compared, then the group of students with high VO₂max has the change or decrease in lactic acid levels greater than the group of students with low VO₂max.

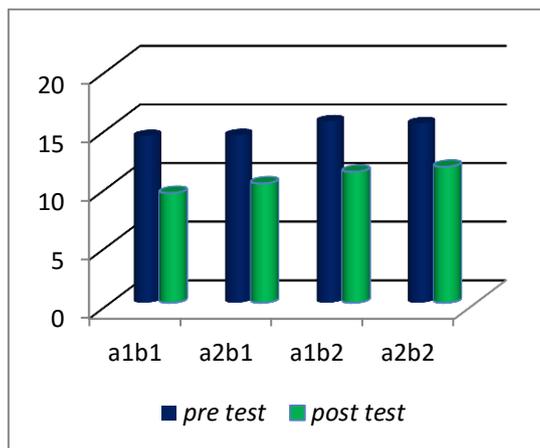


Figure 1. Comparative Histogram of the Average of Lactic Acid Levels in *pre test* and *post test*

Note:

a1b1 :High VO₂Max with contrast bath method

a2b1 :High VO₂Max with PNF method

a1b2 :Low VO₂Max with contrast bath method

a2b2 :Low VO₂Max with PNF method

Hypothesis test was conducted by Two-way ANOVA with significance level about 5%. Before the hypothesis test data obtained must meet the prerequisite test first, the test of normality and homogeneity test. Normality test results showed that the samples in this study with normal distribution and homogeneity of the results of the test showed that variants in samples in this study are homogeneous. Once the prerequisites are met analysis, then proceed with the research hypothesis testing. Summary results of normality test, homogeneity, and hypothesis testing are as follows:

a. Normality Test

Tabel 2. One-Sample Kolmogorov-Smirnov Test

N		penurunan	32
Normal Parameters ^{a,b}	Mean		4.2500
	Std. Deviation		.55241
Most Extreme Differences	Absolute		.099
	Positive		.081
	Negative		-.099
Test Statistic			.099
Asymp. Sig. (2-tailed)			.200 ^{c,d}

From the previous table the normality test shows that the statistical value of Kolmogorov-Smirnov is 0.099 and sig. / P-value at 0.200. $P > 0.05$, therefore, means that the data reduction in lactic acid levels have normal distribution.

b. Homogeneity Test

Tabel 3. Levene's Test of Equality of Error Variances^a

F	df1	df2	Sig.
.626	3	28	.604

From the previous table the homogeneity shows that the statistical value of sig. / P-value = 0604 is greater than 0.05, so that the data are homogeneous ($P > 0.05$)

c. Hypothesis Test

Hypothesis test is done to see if the null hypothesis (H_0) is accepted or rejected. It uses Two-way ANOVA techniques. This techniques is used to determine the differences in overall treatment effects including (1) the differences of recovery of contrast bath and PNF methods, (2) the differences in high and low VO_{2max} , and (3) the interaction between both methods (recovery and VO_{2max})

Tabel 4. Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5.495 ^a	3	1.832	12.935	.000
Intercept	578.000	1	578.000	4081.715	.000
Metoderecovery (A)	3.645	1	3.645	25.740	.000
vo2max (B)	1.805	1	1.805	12.747	.001
metoderecovery * vo2max (A*B)	.045	1	.045	.318	.577
Error	3.965	28	.142		
Total	587.460	32			
Corrected Total	9.460	31			

Based on the previous table, it can be concluded as follows:

- 1) $F_0(A) = 25.74$ with sig. = 00:00 < 0:05. Thus the null hypothesis (H_0) is rejected. It means that there is significant differences between recovery of contrast bath and PNF methodsto the changes in blood lactic acid levels.
- 2) $F_0(B) = 12.74$ with sig. = 0.001 > 0.05. Thus the null hypothesis (H_0) is rejected. It means that there is significant differences between high VO_{2max} and low VO_{2max} to the changes in lactic acid levels.
- 3) $F_0(AB) = 0:31$ with sig. 0:57 => 0.05. Thus the null hypothesis (H_0) is accepted. It means that there is no significant interaction effects between recovery method and VO_{2max} in lactic acidlevels.

DISCUSSION

- a. There is differences in the effect of recovery of contrast bath and PNF methodto lactic acid levels after anaerobic interval training.

Recovery performed by contrast bath method can reduce lactic acid levels faster in post-anaerobic interval training. This method uses cold and warm water as the medium. The water exerts pressure on the body called hydrostatic pressure when it is being immersed. This pressure can cause the displacement of streams in the body from the extremities to the central cavity. Besides, the hydrostatic pressure also causes fluid from the intravascular to the extravascular move through the process of diffusion. Diffusion is the movement of molecules through the pores. Basically, fluid in the body will move from high levels to low levels. This fluid displacement can increase the substrate translocation of muscles, increase blood volume and is distributed to the central cavity, which in turn will increase the preload of the heart, stroke volume, cardiac output and blood flow throughout the body. These improvements will lead to increase of metabolism without expending additional energy.

Cold and warm water immersion will alternately cause the vasoconstriction and vasodilatation process. At the time of cold immersion, there is a process of vasoconstriction in the immersed area. It can decrease the cells for local metabolism, so as to assist in halting the metabolic waste in the form of lactic acid so that it will not be over accumulated. The immersion in cold temperature also causes the muscle temperature quickly back to the normal point and reduce muscle spasms.

During the warm water immersion, vasodilatation process will occur and launch the local blood flow, improves the elasticity of the muscles and reduce muscle spasms. Increased blood flow will also increase the amount of oxygen bound by hemoglobin in the blood. This process ensures the availability of oxygen, so the reduction of lactic acid as the waste products can be faster due to the presence of oxygen that will turn the lactic acid into pyruvic acid which then the pyruvate acid will enter the Krebs cycle and converted into energy.

From the figures generated in the data analysis, it shows that the ratio of the average change/reduction in blood lactic acid levels produced by recovery of contrast bath method is 4.58 greater than the PNF stretching.

b. There are differences in lactic acid levels between high and low $VO_2\max$

$VO_2\max$ is one of the factors that can determine a person's capacity to perform intense exercise and is linked to aerobic endurance. $VO_2\max$ refers to the maximum amount of oxygen a person can take advantage of the training process with maximum stamina. At the time of physical activity, there is increased need for oxygen by the muscles being worked. Oxygen is used by the body to metabolize, the more oxygen is absorbed by the body showed the better performance of the muscles in the works so that substances which cause the remnants of exhaustion amount will be less. So the higher the $VO_2\max$ values a person, the less lactic acid levels were formed. The higher the $VO_2\max$ one has, the better the endurance / stamina then so that fatigue does not quickly occur.

$VO_2\max$ is one factor that is so dominant in the ability of the athlete's body. Aerobic capacity is essentially a big picture of the process of aerobic movement abilities of a person. Thus, a person will be a greater capacity to carry a heavy workload and a faster recovery after physical work if it has a high $VO_2\max$. The use of maximal oxygen is a factor that determines the success of the appearance of resistance, namely the transportation and use of maximal oxygen carried by the muscles.

Also, $VO_2\text{max}$ is a good indicator of aerobic endurance performance. Individuals who trained with a higher $VO_2\text{max}$ will tend to execute better in endurance activities compared with those who had lower $VO_2\text{max}$ for the aerobic endurance activity. In 1970, Kenneth Cooper examines the relationship between sport with physical fitness he found that people who mempunyai high endurance for exercise, it turns out their lungs have the ability to accommodate 1.5 more air than ordinary people.

From the figures generated in the data analysis, it shows that the ratio of the average change/reduction in blood lactic acid levels in students with high $VO_2\text{max}$ at 4.48 is greater than the group of students with low $VO_2\text{max}$.

- c. There is no effects on the interaction between recovery method and $VO_2\text{max}$ method in lactic acid levels.

The results show that the interaction between the recovery method and $VO_2\text{max}$ method is not meaningful. This is evidenced from the sig. value received at $\alpha = 0.05$ by Two-way ANOVA calculation results is sig. = 0.57 > 0.5 (P-value > 0.05). In this study, the comparison of the two methods, both the students with high $VO_2\text{max}$ and low $VO_2\text{max}$ show the same value (both are best when being treated with contrast bath method).

CONCLUSION

Based on analysis of the data and the outline that has been done, it could be concluded that:

- There are differences in the effect of recovery contrast bath method and pre neuromuscular facilitation (PNF) after intervals anaerobic exercise to lactic acid levels. recovery contrast bath method was faster to decline lactic acid levels than pre neuromuscular facilitation (PNF)
- There are differences in lactic acid levels between students who have high $VO_2\text{max}$ and low $VO_2\text{max}$. The decline of lactic acid levels to the students who has high $VO_2\text{Max}$ was faster than the students who has low $VO_2\text{Max}$.
- There is no interaction effects between recovery method and $VO_2\text{Max}$ to lactic acid levels.

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THE EFFECT OF STARFRUIT (*AVERRHOA CARAMBOLA*) JUICE THERAPY TO A DECREASE IN BLOOD PRESSURE FOR THE ELDERLY HYPERTENSION IN DESA KEDUNGSUREN KECAMATAN KALIWUNGU SELATAN KABUPATEN KENDAL

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Abstract

Elderly is a high risk aged to degenerative diseases which one is hypertension. Hypertension is classified as the silent killer, because it runs constantly a lifetime without any typical complaints before the complications. One of the efforts to cope with this problem is using non-pharmacological treatment by consuming starfruit (*Averrhoa carambola*) juice to decrease blood pressure. The purpose of this research was acknowledging the effect of starfruit (*Averrhoa carambola*) juice therapy to a decrease in blood pressure for the elderly hypertension in Desa Kedungsuren Kecamatan Kaliwungu Selatan Kabupaten Kendal. The quantitative research used a type of pre-experimental research, research design *One Group Pretest-Posttest Without Control Design* to 57 elderlies with hypertension. Statistical test was using *Wilcoxon Signed Rank Test*. From the result of Wilcoxon test obtained *p value* of systolic blood pressure 0,000 and *p value* of diastolic blood pressure 0,000. So the *p value* $0,000 \leq 0,05$ (H_a was accepted, H_0 was rejected) meant there was an effect of starfruit (*Averrhoa carambola*) juice therapy to the decrease in blood pressure for the elderly hypertension in Desa Kedungsuren Kecamatan Kaliwungu Selatan Kabupaten Kendal. According to the result, researcher suggested that starfruit (*Averrhoa carambola*) juice could be used as a self-help intervention primarily for the elderly hypertension.

Keywords: Starfruit Juice (*Averrhoa carambola*), Decrease in Blood Pressure, Elderly, Hypertension.

INTRODUCTION

Aging is a process of the disappearance of body tissues slowly to improve/replace itself and maintain its normal structure and function so it can't stand against from infection and mend suffered (Darmojo, 2010).

The changes that occurred to elderly according to Nugroho (2008), one of which were the changes of cardiovascular system were heart valve thicken and became stiff, the elasticity of aorta wall decreased, the capability of heart for pumping the blood decreased, the decreasing of blood vessels elasticity, blood pressure increased caused the resistention of perifer blood vessels.

Hypertension in elderly was defined as systolic blood pressure above 160 mmHg and diastolic blood pressure above 90 mmHg (Fatimah, 2009). There were many factors that could cause hypertension, those were gender, age, genetic, less physical activities, smoking habit, eating habit, contraception piles, stress (Elsanti, 2009).

The data from *World Health Organization* (WHO), in 2012 at least 839 million hypertension cases were predicted to be 1,15 billion in 2025 or about 29% of total population in the world, where the sufferer was mostly woman than man.

The prevalence of hypertension in Indonesia reached 65,4% in elderly (≥ 60 year-old) of that, 60% had stroke complication, while the rest had heart disease, kidney failure, and blindness.

Hypertension causes the death at third after stroke and tuberculosis, it reached 6,8% of the death's causes proportion in all ages in Indonesia (Riskesdas, 2010).

The prevalence of primary/ essential hypertension in central java province in 2012 of 1,67% had decreased compared to 2011 of 1,96% (Dinkes Jawa Tengah, 2013). Hypertension case was at the highest percentage on non-communable disease in clinic and Kabupaten Kendal hospitals in 2013 of 8.769 patients with essential hypertension (Dinkes Kendal, 2014).

As time goes on, hypertension can lead to various complications such as stroke, kidney failure, encephalopathy, myocard infarc (Ardiansyah, 2012). To prevent that complications need a special management for patients with hypertension. Hypertension treatment was divided into 2, those were pharmacological and non pharmacological treatment (Ardiansyah, 2012).

Treatment with drugs or pharmacological such as diuretic, beta blocker, vasolidator, calcium antagonist, sympathetic inhibitors, angiotensin II receptor blocker, angiotensin converting enzyme inhibitors (Saraswati, 2009). However, from the types of drugs included in that type have its different side effect for each drugs (Palmer & Williams, 2007). For example, in angiotensin converting enzyme inhibitor drugs have side effects: dry cough, dizziness, headache, malaise. And in calcium antagonist drugs have side effects: constipation, dizziness, headache, nausea (Saraswati, 2009). With the side effects caused by pharmacological treatment can cause patient with hypertension stop consuming the drug and sense of boredom so this therapy is not effective.

Alongside pharmacological treatment, non pharmacological treatment is needed. According to Widharto (2007), non pharmacological treatment could be an alternative treatment and also could be used as a complementary therapy which for quickened healing. The used of medicine from common plant referred as medicinal herbs or traditonal increased as more people noticed benefits of medicinal herbs beside people's consciousness or alleged of chemical medicine had no benefits because of the long period would be dependence on body.

Dietary approaches to stop hypertension recommended for patient with hypertension to consume a lot of fruits and vegetables to decrease blood pressure. One of fruits that can decrease blood pressure is starfruit (*Averrhoa carambola*) because it contains fibers, potassium, phosphor, and vitamin C (Nisa, 2013). Starfruit is easy to get and the price is relatively cheap, it can be eaten or juiced. However, it's more effective to make it into juice because the nutrients dissolve in juice can be easy to digest and absorb by the body (Swastika, 2014).

The previous research had conducted by Aryani Puji Lestari (2012) about the effect of giving starfruit juice on blood pressure for postmenopause women with hypertension, juice had given 200 ml once a day for 7 days. The result has effect on systolic and diastolic blood pressure.

Referring to the problems above, therefore this research had done to knew the effect of starfruit juice (*Averrhoa carambola*) therapy in decreasing blood pressure on elderly with hypertension.

METHODE

This research was a *pre-experimental* research, the research design was *one group pretest-posttest without control*. The population of this research was all elderlies with hypertension around 67 whom being recorded in Puskesmas Pembantu Desa Kedungsuren Kecamatan Kaliwungu Selatan Kabupaten Kendal. The sample collection with proportional sampling gained from the number of samples from 57 elderlies with hypertension. The researcher measured blood pressure as a

preliminary data (pretest) before starfruit therapy had done, then researcher provided starfruit (*Averrhoa carambola*) juice therapy about 200 ml once a day for 7 days. After that, researcher measured blood pressure as posttest data.

The blood pressure measuring result being analyzed. However, before that the data had a normality test with *One-Sample Kolmogorov-Smirnov* test, to know whether the data had a normal distribution or not. The result was the data had not normal distribution so it used non-parametric test was *Wilcoxon Signed Rank* test (Aris Santjaka, 2011)

RESULT

The research result was done to elderly with hypertension Desa Kedungsuren Kecamatan Kaliwungu Selatan Kabupaten Kendal. It explained about the related data with generally description of research location, respondent characteristic, systolic and diastolic blood pressure.

Respondent Characteristic Based On Age

Table 1. Respondent Characteristic Description Based On Respondent's Age

Age	Mean	Median	Modus	SD	Min-Max
Elderly	65,19	64	60	4,21	60-70

The result showed from 57 respondents with hypertension, the highest number of the respondents were 60 years old, the youngest was 60 years old and the oldest was 74 years old.

Respondent Characteristic Based On Gender

Table 2. Frequency Distribution of The Respondent Based on Gender with Hypertension

Gender	Frequency (f)	Percentage(s) %
Female	34	59,6
Male	23	40,4
Total	57	100

Blood Pressure Description

1. Respondents Blood Pressure Before Given Starfruit Therapy

Tabel 3. The Description of Respondents Blood Pressure Before Given Starfruit Therapy on Elderlies with Hypertension

Blood Pressure	Mean	Median	Modus	SD	Min-Max
Systolic	176	175	170	8,33	160-190
Diastolic	110,52	110	110	7,88	100-120

The result had known the average of the systolic blood pressure before intervention was 176 mmHg with deviation standard 8,33, the highest systolic blood pressure was 190 mmHg and the lowest was 160 mmHg, meanwhile on diastolic blood pressure before intervention was 110,5 mmHg with deviation standard 7,88, the highest diastolic blood pressure was 120 mmHg and the lowest was 100 mmHg.

2. Respondents Blood Pressure After Given Starfruit Therapy

Table 4. The Description of Respondents Blood Pressure After Given Starfruit Therapy on Elderlies with Hypertension

Blood Pressure	Mean	Median	Modus	SD	Min - Max
Systolic	157	160	160	8,67	140-170
Diastolic	98,68	100	100	3,6	95 - 100

The result had known the average of the systolic blood pressure after intervention was 157,1 mmHg with deviation standard 6,87, the highest systolic blood pressure was 170 mmHg and the lowest was 140 mmHg, meanwhile on diastolic blood pressure after intervention was 98,68 mmHg with deviation standard 3,60, the highest diastolic blood pressure was 110 mmHg and the lowest was 95 mmHg.

The Effect of Starfruit (*Averrhoa carambola*) Juice Therapy on Blood Pressure Decreased

Table 5. The Effect of Starfruit (*Averrhoa carambola*) Juice Therapy on Blood Pressure Decreased in Elderly with Hypertension

	Blood Pressure Changes	F	Z _{hitung}	p value
Systolic	Negative rank	57	-6,737	0,000
	Positif rank	0		
	Ties	0		
Diastolic	Negative rank	55	-6,514	0,000
	Positif rank	0		
	Ties	2		
Total		57		

The table above showed that there was an effect of starfruit (*Averrhoa carambola*) juice therapy on blood pressure decreased in elderly with hypertension in Desa Kedungsuren Kecamatan Kaliwungu Selatan Kabupaten Kendal. it showed by p value 0,000.

EXPLANATION

Age Description

Most of the respondents were 60 years old, the youngest was 60 years old and the oldest was 74 years old. According to Elsanti (2009) said that hypertension case was often found in woman after 55 years old. This research was in line with Aryanti's research (2012) said that most of the elderly with hypertension was 60-64 years old around 73%.

Hypertension in elderly because of aging process which usually the person has a regression of physiological function of body organ. According to Nugroho (2008), the changes that happen in elderly especially on cardiovascular system is heart's valve thicken and become stiff, the elasticity of aorta wall decreased, the capability of heart for pumping the blood decreased, the decreasing of blood vessels elasticity, blood pressure increased caused the resistention of perifer blood vessels.

The more people get older then the blood vessels get elasticity decrease, enlargement, and tend to be stiff. The elasticity decrease of perifer blood vessels because of aging process will increase perifer blood vessels which cause hypertension (Darmojo, 2010). According to Saraswati (2009), the occuring of thickening and stiffness on arterial wall in elderly because the big artery loss its elasticity and become stiff so it can't expand when heart is pumping blood through it, because of that, the blood in every heart beat has forced passed through the narrow blood vessels and caused blood pressure increased.

From the analysis above, it can summed up that age can affect the elderly health and hypertension.

Gender Description

Based on the result of 57 respondents, most of them were women was 34 respondents (59,6%) while men was 23 respondents (40,4%). From the same research raised by Lailatul Muniroh

(2010) said that most of the respondents with hypertension was women (85,7%) compared to men (14,3%).

Most of hypertension happen to women after 55 years old, it's because a hormonal changes after menopause, according to Elsanti (2009) said that woman who entered the age of menopause where it happened a decreased of estrogen hormone which caused hypertension. on menopause, estrogen levels decreased, it caused HDL (High Density Lipoprotein) decreased, LDL (Low Density Lipoprotein) increased and affected the blood vessels elasticity, the decreased of HDL levels and LDL levels would cause increased of the number of plaque in blood vessels and brought up thrombus, at the same time increasing of thrombus and decreasing of blood vessels elasticity would cause high blood pressure.

From the analysis above, it could summed up that women more risky had hypertension than men.

The Effect of Starfruit (*Averrhoa carambola*) Juice Therapy on Blood Pressure Decreased in Elderly with Hypertension

Based on the result before given the starfruit juice therapy, the average of blood pressure on elderly with hypertension was 176/110,52 mmHg. According to JNC-VI classification, most of elderly in Desa Kedungsuren had stage II of hypertension. According to *National Kidney Foundation* (2013), if the blood pressure of the patient with hypertension different with classification, then the degree of hypertension was determined on systolic blood pressure because it was pressure when heart contracted.

Elderly in Desa Kedungsuren who had hypertension most of them caused by various factors. such as, lack of physical activities, obesity, lack of good eating habit, lack of the stress management because high workload and smoking habit of men had. According to Saraswati (2009) explained that hypertension at first depended on genetical factor, yet it could be affected by various factors such as eating habit, doing exercises or physical activities, and rest. Smoking habit could also included as one of factors that should control by patient with hypertension. Cigarette contained dangerous chemicals for body such as tar and nicotine. Tar is a substance that can increase blood viscosity in blood which cause heart pumps blood more powerful (Elsanti, 2009). Nicotine in cigarette can stimulate the releasing of catecholamine, the releasing of catecholamine can cause myocardial irritability, decreased of heart pulse and also cause vasoconstriction that increase blood pressure (Elsanti, 2009).

After given starfruit juice therapy on elderly with hypertension everyday once for a week had been a decreased in blood pressure into 157/98,68 mmHg. According to JNC-VI classification that blood pressure 157/98,68 mmHg included in stage I of hypertension.

The occurring of blood pressure decreased might because of starfruit juice therapy which given for a week to elderly with hypertension because the content of potassium of starfruit was effective to decreased blood pressure (Swastika, 2014). The content of starfruit such as sodium, fibers, protein, vitamin A, B, and C, folic acid, potassium, phosphor, magnesium, calcium, energy, niacin, pectine (Nisa, 2013).

The effect of starfruit (*Averrhoa carambola*) on blood pressure decreased could be seen on the role of potassium and calcium to the pump of potassium-sodium, lack of potassium levels would intrude potassium-sodium ratio so the levels of potassium increased could cause potassium

sedimentation on body joints and spine that increased water levels in body then increased workload of heart and sodium aggregation in blood, eroded and chipped blood vessels in the end it could close up the blood flow so it increased the risk of hypertension, by giving starfruit juice therapy could decrease blood pressure because inside the starfruit contained potassium which kept the body electrolytes stability through the pump of potassium-sodium, decreased amount of water and salt in body also loosening blood vessels (Wiryowidigdo,2008). Beside, starfruit also contained diuretic which could decrease blood pressure, Saraswati (2009) explained that diuretic worked by exporting body fluids through urine so fluids volume in body decreased which caused the effort of heart pumped become lighter. If heart pumping activity decrease then the artery having an enlargement and more fluids come out from the circulation so blood pressure decrease (Saraswati, 2009).

The effect of starfruit (*Averrhoa carambola*) juice therapy on blood pressure decreased in elderly with hypertension, based on the research conducted on 57 respondents showed that there was blood pressure decreased before and after given starfruit juice therapy.

It was in line with Lailatul Muniroh *et al's* research (2007) the effect of starfruit and cucumber on systolic and diastolic blood pressure decreased on hypertension in The Indonesian Journal Of Public Health said that there was an effect in giving starfruit and cucumber juice on systolic and diastolic blood pressure on hypertension.

The result showed that a decreased in blood pressure happend after given starfruit juice therapy on systolic blood pressure on 57 respondents of 57 elderlies with hypertension, which meant all of them had a decreased in systolic blood pressure and diastolic on 55 respondents of 57 elderlies with hypertension, which meant there were 2 respondents hadn't had diastolic blood pressure decreased.

CONCLUSIONS

Based on the result had known that :

1. Most of the respondents were women, they were majority 60 years old.
2. Blood pressure before given the starfruit juice therapy was 176/110,52 mmHg on hypertension stage II.
3. Blood pressure after given the starfruit juice therapy had a decrease in blood pressure into 157/98,68 mmHg on hypertension stage I.
4. There was an effect starfruit (*Averrhoa carambola*) juice therapy on blood pressure decreased in elderly with hypertension in Desa Kedungsuren Kecamatan Kaliwungu Selata Kabupaten Kendal.

SUGGESTIONS

1. For public, particulary with hypertension expected to gain knowledge and apply starfruit juice therapy for decreasing blood pressure.
2. For institution is expected to give starfruit juice therapy for hypertension intervention.
3. For nurses is expected to use this therapy as nursing intervencion to decreasing blood pressure.
4. For researcher is expected to be use as reference to the next study.

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RESISTANCE TEST OF AEDES AEGYPTI TO CYPERMETHRIN BY SUSCEPTIBILITY METHOD IN DISTRICT TEMBALANG

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Abstract

Aedes aegypti is Dengue Hemorrhagic Fever (DHF) vector. DHF is disease in tropical and subtropical countries, including Indonesia. Cypermethrin is one of insecticide. The use of cypermethrin continuously can reduce the susceptibility level of the mosquito to this insecticides. The research aim to determine the susceptibility status of *Aedes aegypti* to cypermethrin insecticide in Tembalang district. The research was experiment with cross sectional approach. Population was *Aedes aegypti* mosquitoes that located in Tembalang district. Samples was *Aedes aegypti* mosquitoes in endemic villages (Tandang village, Sendangguwo village, and Kramas village). *Aedes aegypti* mosquitoes were tested with susceptibility test and impregnated paper cypermethrin 0.05%. This study resulted that *Aedes aegypti* mosquitoes in endemic villages were resistant to cypermethrin with a mortality rate of 19%.

Keywords: *Aedes aegypti*, Susceptibility, Cypermethrin

INTRODUCTION

Aedes aegypti is the main vector of Dengue Hemorrhagic Fever (DHF) in various parts of the world, including Indonesia (Ahmad et al. 2007) Dengue fever is a vector borne disease that often causes epidemics in an area (Soenjono, Steven J., 2011). Dengue Hemorrhagic Fever (DHF) are found in tropical and subtropical regions. National incidence rate in 2008 reached 60 / 100,000 inhabitants, with the infected area reaches more than 78% of districts/cities. In Central Java, proved 35 districts/cities have ever been infected by dengue.

Morbidity/Incidence Rate (IR) of dengue in Central Java province in 2012 amounted to 19.29/100,000 population for 2015 reached 48.53% per 100,000 population. Semarang City is a city in Central Java, which is endemic dengue. In Semarang, dengue cases has increased from 1,303 cases in the year 2011 to 2,364 cases in 2013, but in 2014 decreased to 1,262 cases. Then in 2015 the number of dengue cases increased again with the number of cases as many as 1,729.

Ae. aegypti resistance to insecticides have been reported in many countries, including Indonesia. *Ae. Aegypti* was reported resistant to pyrethroid insecticides in Thailand and Martinique island, French. Vector borne disease is an infectious disease, that its control use insecticides, environmental management, the use of predator, and preventing the contact person with the vector in order to avoid transmission of the disease. Control is an effort that aims to reduce contact between mosquitoes and man. Vector control aims to reduce or suppress the vector population as low as possible, so it does not matter anymore as disease transmission and avoid contact between vectors and humans (Sutanto, 2008).

Eradication of *Ae. aegypti* as the vector-borne dengue fever have been doing in Tembalang District. Fogging is one effort to eradicate *Ae. Aegypti*. The frequency of fogging in Tembalang district is 1-6 times per year according to public health center's (puskesmas) DHF case data. Although fogging

often done, density figure of larva in Tembalang still low (87%). Larva Free Value (LFV) is still below of Ministry of Health and WHO's standard, ie 95%. The DHF incidence in Tembalang are 227 cases in 2014, and 457 cases in 2015. It is in high category. If every case given fogging by government, the resistance to cypermethrin may occurred in Tembalang.

This study's aim to determine the vulnerability status of *Aedes aegypti* to cypermethrin in Tembalang District with susceptibility method. It's standard method of WHO to insecticide test. The results of this study can be advice to stakeholders (policy makers in environment and public health) in determining which insecticides will used for DHF vector control.

RESEARCH METHODS

The type of research is experimental research with cross sectional approach. In this design, randomization is done either the experimental group or the control group. Treatment using insecticides cypermethrin 0.05% is only given in the experimental group. The control group was not treated. Measurements on samples carried out at the beginning of treatment, and after 24 hours of treatment by counting the number of dead mosquitoes. Researchers measured the effect of treatment (intervention) in the experimental group by comparing the group with the control group. Treatment using insecticides cypermethrin 0.05% is only given in the experimental group, the control group was not treated. Measurements on samples carried out at the beginning of treatment, and after 24 hours of treatment by counting the number of dead mosquitoes. Researchers measured the effect of treatment (intervention) in the experimental group by comparing the group with the control group.

The population in this study is the *Aedes aegypti* in 3 villages of Tembalang district which is endemic and often given fogging by government. They are Tandang village, Sendangguwo village, and Kramas village. The sample in this study is the number of *Aedes aegypti* eggs were taken at random from 3 endemic villages in Tembalang district. They are 100 houses in Sendangguwo village, 100 homes in Tandang village, and 100 houses in Kramas village. Implementation of susceptibility testing did in the Laboratory Research and Development Center for Disease Animal Sourced (BP2B2) Banjarnegara using WHO's standard test. It use impregnated paper. Mosquitoes used F1 that taken from mosquito colonization results from research area. Research give blood and sugar to make mosquito have full stomach conditions of blood or sugar. Put 4-5 WHO standard test tube and give 0.05% cypermethrin insecticide-treated paper in a circle in tube with red marks. 25 mosquitoes with full blood or sugar condition put into a red mark tube test and exposed to insecticides for 15, 30, 45, and 60 minutes. 25 mosquitos as control put into green marked tube and exposed with paper without insecticides (solvent) only water as control. After mosquito exposed to insecticide, then transferred into a holding tube with a wet towel and wait until 24 hours.

Criteria: if the mortality of mosquito <80% is resistant, if the mortality of mosquito 80-98% is tolerant, and if the mortality of mosquito 99-100% is vulnerable. The test should be repeated if there were deaths in the control group more than 20%. Death mosquitoes test corrected by Abbot formula (WHO). The ratio of the resistance value obtained from the calculation of the percentage of testing mosquitoes mortality with treatment compared with the mosquitoes that still susceptible (control). The primer data collected from the calculation of the number of *Aedes aegypti* mortality during the study. The data was analyzed descriptively according to WHO standard used to describe the status of

Aedes aegypti susceptibility to insecticides cypermethrin based on the percentage of dead mosquitoes after contact with the insecticide cypermethrin 0.05%.

RESULTS AND DISCUSSION

Kramas Village, Tandang Village, and Sendangguwo Village included in Tembalang District. They are dengue endemic area. The spread of houses in the three villages are unequal in all regions. Building houses is generally permanent and located near from the street or alley and some of them near from the river. Temperatures in the three villages ranged between 25-34° Celsius with humidity ranging between 55-90 percent. The third area are flat area, so all areas receive sunlight evenly. However, the lighting conditions of each home is different. Some houses have close to each other, so they can have some rooms get only a few or don't get the sunlight. It makes some rooms being damp and dim (Hamzah, Achmad. 2011).

Application of 100 ovitrap done at Tandang Village, Kramas Village, and Sendangguwo Village. Ovitrap application within 7 days. Just 1 ovitrap of 100 ovitrap that applicate contained *Aedes aegypti* eggs, amounted 55 eggs. It's insufficient for research's sample. So, researcher use larvae that take from water reservoirs in 100 houses in three villages.

Table 1. Frequency of Home Examined and Home Which Found Larvae

No	Observate Location	Number of Observated House	Number of Larvae Positive House	Percentage of Larvae Positive House (%)
1	Tandang Village	100	25	25
2	Kramas Village	100	32	32
3	Sendangguwo Village	100	30	30

Table 2. Number of Containers Found Larvae

No	Container Type	Number of Container	Percentage of Container Type (%)	Positive Container	Percentage of Positive Container (%)
1	Bath tube	222	46,25	68	30,63
2	Bucket	160	33,33	36	22,50
3	Drum	98	20,41	34	34,69

Calculations on figures of House Index (HI), Container Index (CI), and Breteu Index (BI) and Larvae Free Figures (LFF). The calculation is done to determine the density of *Ae. aegypti* larvae.

Table 3. Indicators Figures of Larvae in Tandang, Kramas, and Sendangguwo Village in 2016

Village	Number of Observated House	Number of Larvae Positive House	Number of Observated Container	Number of Larvae Positive Container	Score of Larvae Indicator (%)			
					HI	CI	BI	ABJ
Tandang	100	25	163	27	25	21,87	27	75
Sendangguwo	100	30	160	35	30	21,01	35	70
Kramas	100	32	157	33	32	16,56	33	68

Table 4. Percentage of Aedes aegypti Mortality After Contact with Cypermethrin 0.05% Insecticide

Mosquito Test	Number of Mosquito	Number of Mosquito that Knock Down After Contact With Cypermethrin Insecticide												Number of Mosquito that Death After 60 minutes	
		5 Minutes		10 Minutes		15 Minutes		20 Minutes		25 Minutes		30 Minutes		Mati / Ping-san	%
		KD	%	KD	%	KD	%	KD	%	KD	%	KD	%		
Experment KDS.CPT .1.1	25	0	0	0	0	1	4	1	4	2	8	2	8	6	24
KDS.CPT .1.2	25	0	0	0	0	0	0	0	0	0	0	0	0	1	4
KDS.CPT .1.3	25	0	0	0	0	0	0	0	0	0	0	0	0	2	8
KDS.CPT .1.4	25	0	0	0	0	0	0	1	4	1	4	3	12	7	28
Total	100	0	0%	0	0%	1	1%	2	2%	3	3%	5	5%	16	16%
Control KDS.OP.1	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	25	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%

Susceptibility test performed in Balai Litbang P2B2 Banjarnegara on March 30, 2016 with room temperature of 26°Celsius and relative humidity in testing room of 79%. Aedes aegypti is obtained from three villages in Tembalang District which DBD endemic . They are Tandang, Kramas, and Sedangguwo village. Samples obtained by ovitrap and larvae survey.

Table 4 shows that susceptibility test of Aedes aegypti to insecticides cypermethrin 0.05% indicates that 60 mosquitoes are dead after contact with cypermethrin in 60 minutes in the first repetition, 1 mosquitos in the second repetition, 2 mosquitos in third repetition, and 7 mosquitos in fourth repetition. So, there are 16 mosquitos that die after 60 minutes of contact with cypermethrin (16%). Mosquito mortality rate after contact with the insecticide cypermethrin in 24 hours are 19%. In control, the death rate after 24 hours is 0% (no deaths). If mortality in controls below 5%, it is not necessary corrections using Abbot formula.

Table 5. Percentage of Aedes aegypti Mortality after Contact with Insecticide in 60 Minutes and 24 Hours After Storage (Holding)

Mosquito Test	Number of Mosquito	Number of Mosquito that Death After 24 Hours	
		Death	%
Experiment KDS.CPT.1.1	25	8	32
KDS.CPT.1.2	25	3	12
KDS.CPT.1.3	25	6	24
KDS.CPT.1.4	25	2	8
Total	100	19	76
Control KDS.OP.1	25	0	0
Total	25	0	0

Sampling through by larvae survey to determine the density of *Aedes aegypti* larvae and collect larvae as samples. Analysis of the larvae figures indicators needs to determine the density of mosquito larvae and the spread of dengue in endemic areas. Entomology parameter are HI, CI, and BI have direct relevance to the dynamics transmission of dengue disease. Percentage of houses that found larvae in the three villages are not much different. This indicates the presence of the vector of dengue in these three regions is high relatively (Yudhastuti et al 2005). Use of water reservoirs in residential areas for daily water requirements, most of them managed by Government Company by pipe system, often cause problems. Many residents use water container to hold water in some places, and it can be *Aedes* breeding place, so it can extend the transmission of dengue virus (Lusiyana, 2014).

The numbers of House Index (HI), Container Index (CI), and the Breteau Index (BI) in three study area are almost the same. House Index value in three locations are 25%, 30%, and 32%. Area with HI greater than 5% and BI greater than 20% is generally an sensitive or prone to dengue fever (Hamzah, et al, 2011). Larvae Free Figures (LFF) that obtained from three area average of 71% (68%, 70%, and 75%). In order to prevented transmission of dengue, government have target in each region have LFF least from 95%. If LFF value is relatively low (less than 95%), it means increase the chances of transmission of dengue virus (Krisnawati, 2013).

From the results of susceptibility tests performed, the mosquito death after 24 hours in storage at 19% only. It can be said that the mosquito *Ae. aegypti* in three villages in Tembalang district Tembalang are resistant to cypermethrin insecticides. Tandang, Sedangguwo, and Kramas village were endemic area, so for some years this area exposed by cypermethrin as fogging. The high frequency of fumigation or fogging, and no replacement of insecticides for some years causing *Aedes aegypti* to become resistant to cypermethrin. Resistance type can be passed down from generation to generation, so it will be a problem in breaking the chain of transmission of dengue disease in endemic areas.

The occurrence of *Aedes aegypti* resistance to cypermethrin also affected by the habits of people using household insecticides that have same targeted with cypermethrin. The household insecticides cause mosquitoes to become resistant when using insecticides that have same of mode action or same mode of entry (Mukhopadhyay et al 2006). The previous studies concluded that the population of *Aedes aegypti* in Semarang (Sendangguwo Village) still tolerant to pyrethroid class insecticides, Cypermethrin type with 90-96% of deaths.

The reduced of *Ae. aegypti* susceptibility status to become resistant in Tembalang district because the use of cypermethrin insecticide in dengue control efforts have been going on long time. Every occurrence of dengue cases will be fogging, so it causing *Ae. aegypti* resistance.

The occurrence of resistant can also caused by the use of insecticides with a particular concentration continuously for a long time and no replacement (Ponlawat, 2005). This happens because the *Ae. aegypti* able to develop immune system against insecticides that often used (Sutanto, 2008).

CONCLUSION

Conclusions from this research is the susceptibility status of *Ae. aegypti* from Tandang Village, Village Kramas, and Sendangguwo Village in Tembalang District are resistant.

SUGGESTION

Replace and rotate the use of insecticide with other insecticides type in dengue vector control programs and monitoring the level of vector vulnerability to insecticides periodically to prevent the occurrence of vector resistance.

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DEVELOPMENT OF “NUTRIATLET” SMARTPHONE APPS-BASED NUTRITIONAL SURVEILLANCE MODEL AND SURVIVAL ANALYSIS OF NUTRITIONAL STATUS IMPROVEMENT THROUGH MEAL PLAN AMONG TAEKWONDO ATHLETES IN PPLP CENTRAL JAVA

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Abstract

One of the pillars of sports achievements is the nutritional status among athletes. Preliminary study on Taekwondo athletes PPLP Central Java showed 33% of athletes experiencing malnutrition. This situation showed the lack of nutritional surveillance to detect the occurrence of nutritional problems earlier among them. Therefore, it is necessary to develop a comprehensive model that serves as an instrument for improving the nutritional status and as nutritional surveillance instruments among athletes. A quasi-experimental study was done with pre and post-test with control group design approach to examine the effectiveness of “Nutriatlet” smartphone application to help energy-intake improvement among athletes. Data was analyzed with Cox proportional-hazard test. Output statistics obtained in this analysis was p-value, median post-intervention duration, and hazard ratio (HR). The analysis was performed with STATA 12.1. The results proved that athletes who performed meal planning and nutritional surveillance monitoring with “Nutriatlet” was four times more likely to achieve the target of increasing the adequacy of energy intake $\geq 10\%$ per unit of time than athletes who do not use “Nutriatlet”. “Nutriatlet” smartphone apps is recommended for monitoring and evaluating nutritional status improvement among athletes, so that stakeholders can obtain evidence-based information in real time and then do the appropriate treatment.

Keywords: nutriatlet, surveillance, nutritional status, taekwondo

INTRODUCTION

Sports development is an integral part of national development. An optimum sports development is expected to contribute in achieving national development goals. One of the important things of sports development is the role of sports itself in the formation of national character building. Sports as media of character development means that sports development can be a strategic way to build confidence, national identity, and national pride. Including efforts to improve national pride that is achieved optimally in international wide (Kemendikpora, 2010).

National sports development in order to gain international achievements need the sports training both in the national and regional levels. Therefore, The Ministry of Youth and Sports of Republic of Indonesia keeps supporting the implementation of sports training programs both in the national and regional levels, especially for the most leading sports branch. Through this program, each region is expected to build adviser program for those leading sports branch. Central Java Province is also taking part to actively develop several branches of some region leading sports. One of the most leading sports branch in Central Java is taekwondo. The leading side of taekwondo guidance in Central Java Province can be viewed from the number of athlete who joined in a National Training Program (Pelatnas) (Toho Cholik Mutohir dan Ali Maksum. 2007).

Same as other sports, achievement of a taekwondo athlete is determined by many factors, one of them is nutrition. An adequate nutritional intake will help athletes reaching best performance

.An athlete needed more energy supply than those who is not athlete. An athlete also need meal planning before, during, and after game. The unbalance intake of energy, the myths about food supplements, the availability of meals in the training center often become obstacles in maintaining nutrition of taekwondo athletes. The unbalance nutritional requirements, which especially caused by lack of carbohydrates causes the destruction of structural protein in the body to be material formation of energy. This situation will eventually cause malnutrition on an athlete (Sukintaka, 2003; Dadang Priamana, 2000).

A preliminary study on taekwondo athletes PPLP Central Java showed that there are malnutrition problems on some athletes. From 9 taekwondo athletes, there are 3 athletes who suffered from malnutrition (BMI < 18,5). The preliminary study also showed the absence of nutritional planning requirements on athletes. This situation becomes a problem because the energy needs and nutrient between each athlete are different. In addition, there were also fact that most of athletes' energy needs could not be properly fulfilled.

A preliminary study also showed some factors that cause the unbalancing of input energy and output energy : unwanted meals, lack of meals (usually occurs at night), and less knowledge about nutrition intake.

Malnutrition situation that occurs in taekwondo athletes indicates the absence of a surveillance system of sports nutrition. With a good system of surveillanc, the malnutrition case in an athlete can be detected earlier so that it can be repaired. Based on those problems, then we want to do quasi-experiment research named "the effectiveness of the increasing athletes' energy intake through meal plan based on smartphone application "nutriatlet".

METHOD

The research is a quantitative research with quasi-experiment design, and one group pre and post test design. Dependent variable in this research was meal plan on athletes based on smartphone application "nutriatlet ", while the independent variable is %age improvement of athletes' energy intake.

The population in this research was all of taekwondo athletes in PPLP Central Java. The sample collection technique was purposive sampling-criterion of sampling . 15 experiment sample athletes are taekwondo athlete in PPLP Central Java who were given the intervention in the form of meal plan and monitoring the nutrition surveillance with on smartphone application "nutriatlet ". Bivariat analysis was done by cox proportional-hazard model if the researched variable meet the assumption of proportional hazard. Output statistics obtained in this analysis is p-value, median postintervention duration , and hazard ratio(HR). Effectiveness test of the meal planning by the smartphone application "nutriatlet" was done with cox regression time independent. Statistics output obtained in this analysis is the p-value and adjusted hazard ratio (HRadj) .Analysis was done with STATA 12.1 program.

RESULTS ANS DISCUSSION

This research was done in PPLP Central Java. Sample range for each intervention group of nutriatlet device and control groups of sheets are 15 athletes. According to sex and family income, the characteristic of the subject of this study served as follows.

Table1. Respondent characteristics by sex and family income variables

Variable	Intervention		Control		Total	
	n	%	n	%	n	%
Sex						
1. Male	11	64,7	6	35,3	17	100
2. Female	4	30,8	9	69,2	13	100
Total	15	50,0	15	50	30	100
Family income						
1. Good	8	57,1	6	42,9	14	100
2. Less	7	43,8	9	56,2	16	100
Jumlah	15	50	15	50	30	100

Based on the table above, the proportion of male athletes in the intervention group (64.7 %) is higher than the control group (35.3 %). Meanwhile, the proportion of female athletes in the control group (69.2 %) is higher than the intervention group (30.8 %). On the variable of family income, the proportion of athletes who comes from good family income in the intervention groups is larger than the control group. On the contrary, the proportion of athletes who came from less family income in the intervention group is smaller than the control group. Both variables are important to be further analyzed because that were variables that might affect the effectiveness of meal planning and monitoring surveillance of athletes' nutrition with a nutriatlet device among the nutritional status that can be seen from the increasing %age of energy intake.

Tabel 2. *Person time* (week) in the intervention and control group

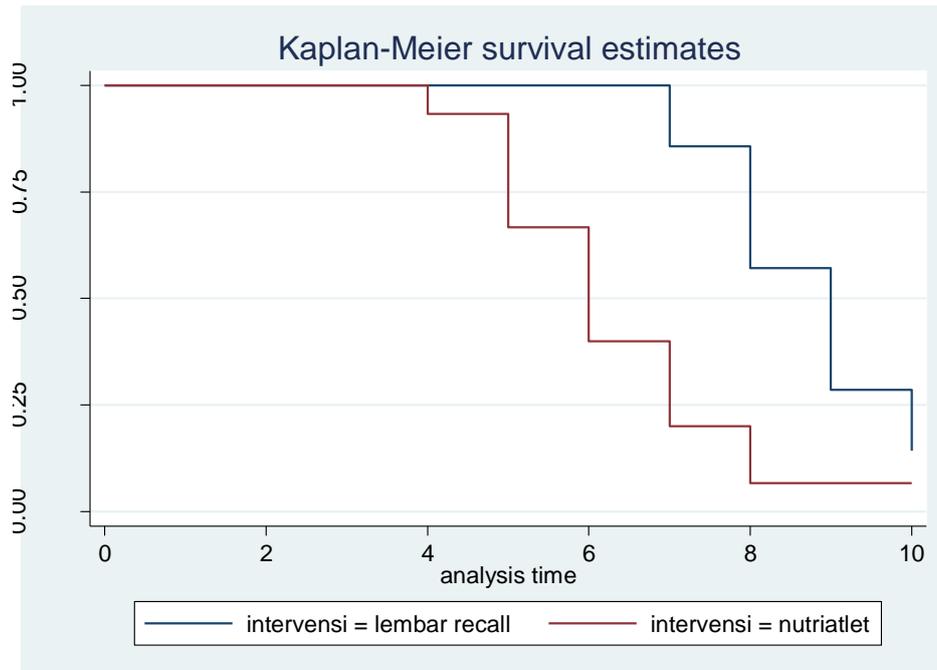
<i>Person time</i>	N	Average	Standard Deviation	Min	Max
Control	15	8,3	1,25	6	10
Intervention	15	6,3	1,54	4	10

The table above shows the person time in the intervention and control group. Person time was observation time started from the beginning of observation until the end of observation. Event in this research was the achievement of the researchers' target, which is %age of energy sufficiency intake increases ≥ 10 % from the baseline data on the first week, while the sensor is athletes have not yet reached the target that observation was decide to be ended on the 10th week or athletes would be experienced lost to follow up.

Observation time in this study began from the 1st week until the 10th week. It observed wheter athletes reached the target on the 10th week or not. The average time in the control group was 8,3 weeks, while in the intervention group is 6.3 weeks.

BIVARIABLE ANALYSIS

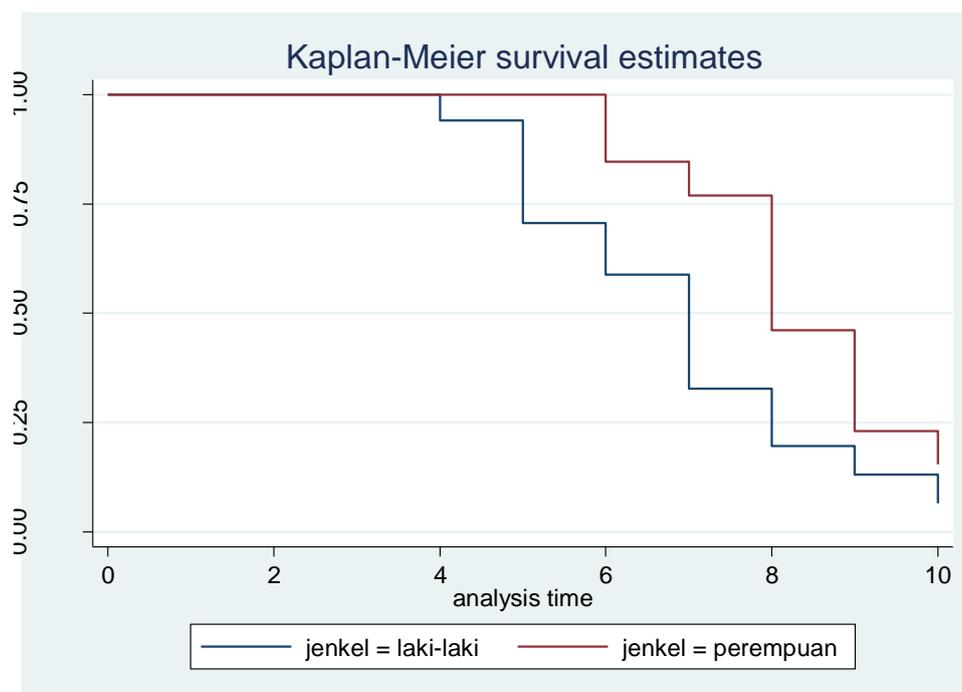
Before a cox analysis, we need to do an analysis in order to know the assumption proportional hazard (PH). The PH assumption was done on the variables of meal planning and monitoring surveillance of athletes' nutrition with increasing duration in the %age of intake energy, sex variable with increasing duration in the %age of intake energy, and family income variable with increasing duration in the %age of intake energy. This assumption can be seen through this kaplan-meier curve as follows.



Picture 1. Kaplan-meier curve based on intervention group (nutriatlet and recall sheets)

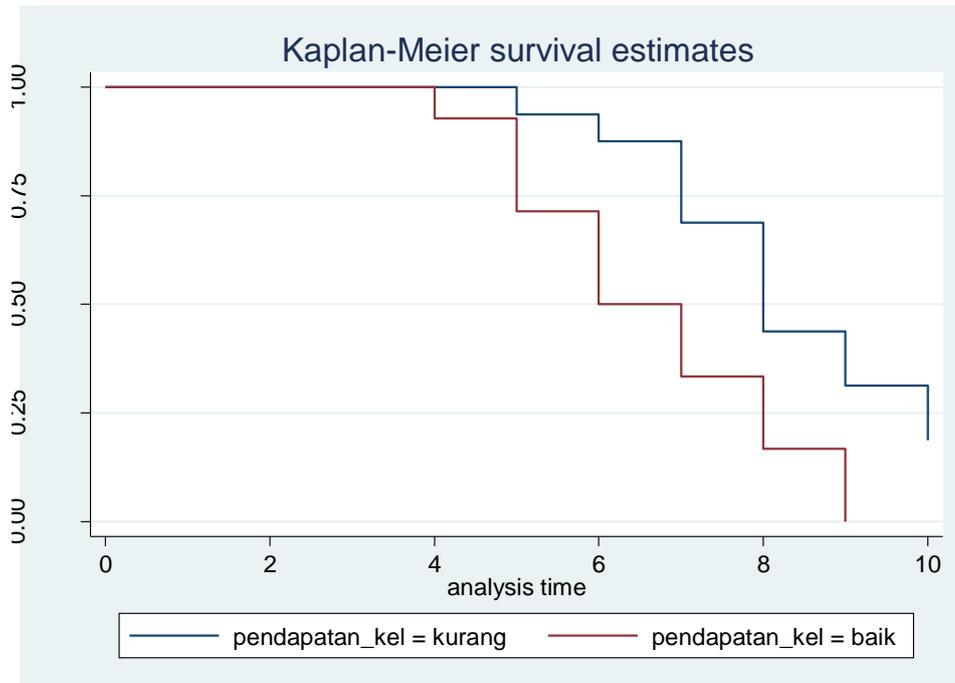
The picture above explains that while PH assumption was accomplished, which shown by the absence of a kaplan line on nutriatlet and a recall paper that intersect each other. The picture above also shows the proportion of an athlete who reach the target on week 2 , 4 , 6 , 8 , and 10 on a group of nutriatlet and a recall sheets in a row as follows 100% and 100%, 100% and 100%, 70% and 100%, 20% and 60% , and 10% and 30%. This shows that the proportion of athletes who reach the target group of nutriatlet is higher than the control group on week 6 , 8 , and 10. Other information that can be taken from the picture above is the median duration of the achievement of the target at nutriatlet group was 6 weeks, while in the control group was 9 weeks .This value is indicating a time where 50 % of athletes reached the target .In the intervention group, 50% of athletes reached the target after six weeks, while in the control group, 50% of athletes reached the target after 9 weeks.

A second assumption done on the sex variable with the duration of increasing sufficiency intake energy.The PH assumption was also met, because of the absence of intersected kaplan line on men and women.This assumption will be described in the next picture.



Picture 2 Kaplan-meier curve based on sex

The picture above also shows the proportion of athletes who reach the target on week 2, 4, 6, 8, and 10 on male and female can be described as follows 100% and 100%, 100% and 100%, 70% and 100%, 35% and 78%, and 18% and 24%. This shows that the proportion of athletes who reach the target on male athletes is higher than female athletes on week 6, 8, and 10. Other information that can be taken from the picture is median duration of the target of male athletes is 7 weeks, while in female's group is 8 weeks. This value represents time at which 50% athletes reached the target. In male athletes, 50% athletes reached the target after 7 weeks, while in female's group, 50% athletes reached the target after 8 weeks.



Picture 3. Kaplan-meier curve based on family income

Third assumption which is done on the variables of family income with the duration of the increasing of energy intake. PH assumption in this was also accomplished, because there is no kaplan line of the distribution of good and less income that intersect each other, as displayed on the picture above.

The picture above also describes athletes proportion who reach the target on week 2, 4, 6, 8, and 10 on athletes with good and less family income as follows 100% and 100%, 100% and 100%, 70% and 90%, 30% and 70%, and 0% and 30% .This shows that the proportion of athletes who reach the target, on the athletes with good family income is higher than less family income on week 6, 8, and 10.

Other information that can be taken of the picture above is median duration of the target achievement on an athlete with good family income is 6 weeks, while in the less family income is 8 weeks. This value represents the time at which 50% athletes reached the target. On athletes with good family income, 50% athletes reached the target after 6 weeks, while on the less family income, 50% athletes reached the target after 8 week.

Because of those three variables meet the PH assumption, it can be done bivariabel analysis by cox test. The results of the bivariabel analysis is served as follows.

Table 3. Bivariabel analysis on meal planning variable and monitoring surveillance of athletes nutrition, sex, and family income with achievement duration of intake energy sufficiency

Variable	HR	CI 95%	Z-value
Intervention	3,2	1,40-7,12	2,78
Sex	0,5	0,24-1,18	-1,56
Family income	2,5	1,11-5,68	2,21

From the table above, intervention variable and family income show the significant connection with achievement duration of the intake energy sufficiency. However, sex variable did not indicate the presence of a significant relation. HR value of each intervention variable, sex, and income of families were 3.2; 0,53; and 2.5 . This can be concluded as follows: 1) all the time, those athletes who make the meal planning and monitoring surveillance nutrition are having the possibility of 3.2 times higher to reach the target of adequacy intake energy $\geq 10\%$ per time unit than those with monitoring recall sheets, 2) all the time, male athletes have the possibility of twice higher to reach the target the adequacy intake energy $\geq 10\%$ per time unit than male athletes, and 3) all the time, athletes from the good family income is having 2.5 times possibility to reach the target of adequacy intake energy $\geq 10\%$ per time unit than those with less family income.

To know the effectivity of meal planning and monitoring surveillance of athlete nutrition to reach the target of energy intake based on sex and family income variable, the analysis which can be done is cox regression time independent. With the showing results as follows.

Table 4. Multivariable analysis of meal planning and monitoring surveillance athletes nutrition, sex, and family income in reaching the target of sufficiency energy intake

Variable	Model 1	Model 2
	HR (95% CI)	HR (95% CI)
Meal planning and monitoring surveillance of nutrition among athletes	3,97 (1,64-9,63)	4,06 (1,69-9,75)
Sex	0,74 (0,32-1,76)	-
Family income	3,02 (1,21-7,49)	3,29 (1,37-7,89)
N	30	30
Log likelihood	-65,37	-65,59

Based on picture above, there are model equation survival that explains hazard ratio (HR) of each variable. On the model 1, all variables were put in the model, but sex variable did not show a significant relation, so that this variable was issued on the model 2. Model 2 shows the best model that only covers the variables which relate significantly. Based on the model 2, it can be concluded that every time, athletes who make the meal planning and monitoring surveillance of athletes' nutrition with nutriatlet are having the possibility of 4 times higher to reach the target of adequacy intake energy $\geq 10\%$ per time unit than an athlete with monitoring recall sheets, after controlling the family income variable.

Taekwondo is a sport with combination type of aërobic and anaërobic metabolism. Taekwondo athletes need the energy for a long term, either when they are in the excercise or competition period. Therefore, the ability of endurance is needed among taekwondo athletes. To fulfill the needs of energy from that activity, an athlete has to mantain their intake energy. The determination of energy needs is exactly not simple and very difficult. The development of science now only can calculate the energy needs based on the energy which has been issued (Kushartanti, 2008).

The amount of energy needs depends on the used energy every day. Energy needs can be counted by considering several components of energy use. Those components are basal metabolic rate (BMR) , dynamic specific action (SDA) , physical activity and growth factors.

Energy needs becomes the main priority for athletes. Balance of energy to keep the body membranes, immune response and function of reproduction, and also optimal appearance among

athletes. Balance of energy is defined as a revenue energy (energy which produced from food, liquid, and supplement products) times the expenditure of energy (expenditure of energy, basal metabolism, effect from the food, and physical activity). With revenue of the energy, fat and the muscles can be used by the body as energy sources. Expenditure of energy can be influenced by age, sex, body mass, heavy body fat, intensity, the frequency and duration of exercise. For athletes, recommendations that can be used to evaluate the various exercise to intensity, frequency, and duration, also then to calculate the energy to do normal activity. Many athletes needs enough consumption of energy to keep their weight and body composition for activity or sports.

According to the basic principle of “nutrition balanced” which contains carbohydrates, fat, protein, mineral, water, and fibers. Needs of the energy is different for every people, it depends on a various factors, such as: age, sex, height and weight and daily activities. To support his/her achievement on sports, athletes need good nutrients both in quality and quantity. Basically, nutrients divided into 2 types : Macro Nutrients, which is needed by the body in a big portion including; carbohydrates, fat and protein that grow and improve body tissues, such as the skin, muscle, and hair. The second is Micro Nutrients, which is needed by the body in a small portion including: vitamins and minerals that take part in some process of the body.

Nutrition improvement program in the society, including nutrition for athletes will be very effective if it can be supported by effective surveillance system too. Because the main functions of surveillance system is to provide epidemiology information that is sensitive of any changes that occurred in the implementation program of nutritional supplements among community which supports the development program (Dirjen P2PL Depkes RI, 2003). One of those indicators is always follow the development of technology which used by the community, it is the use of smartphone based on android operating systems to support all the activity, started from communication media until excavation information, including monitoring of nutrition athletes.

In line with the explanation above, the continuous, routine , and sustainable monitoring or called surveillance were also part of athletes’ achievement. Basically, surveillance is classified into active and passive. Passive surveillance defined as a surveillance system that provides data to interested parties based on a pattern or rules that has been set. In other words, observation cases done indirectly, that is through report. Generally, the most used surveillance is passive, because it is cheaper and easy to be performed by stakeholders. But, the quantification data is lower than the real condition.

Active surveillance defined as a surveillance system that active doing the observation cases in the field directly. Ideally, a surveillance system which has been developed is adopting the passive and active system, so that the collected data could be more complex, but still valid and reliable. The basic concept of the surveillance includes: collection, processing, analysis and interpretation data, feedback and dissemination, and also quick response.

The purpose of the nutrition surveillance among athletes are 1) monitoring the nutritional needs for athletes based on daily expended energy or after the event; 2) making preparation and provision of appropriate meals (before, during, and after event); 3) monitoring fitness and endurance of athletes (before, during, and after exercise/event; and 4) conducting an evaluation of practice course which has been running.

CONCLUSION

Based on the analysis of the results and discussion, meal planning and monitoring surveillance on nutrition athletes using the Nutriatlet devices is effective to accelerate the adequacy of energy intake among athletes. The analysis showed that an athlete who make the meal planning and monitoring surveillance on nutrition athletes with Nutriatlet has the possibility of 4 times more to achieve the adequacy of energy intake $\geq 10\%$ per time unit than an athlete who do not use Nutriatlet.

SUGGESTIONS

1. The use of nutrition application technology Nutriatlet in a smartphone for monitoring and evaluation of energy intake and energy expenditure, during the competitions and the exercises of athletes, so they will be able to obtain information based evidence in real time to do the treatment appropriately.
2. The need of advanced research to measure surveillance attribute on the model which has been developed in this research.

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APPLICATION OF CONTINUOUS EXERCISE, SPEED PLAY AND RECOVERY TO IMPROVEMENT VO2 MAX IN BADMINTON ATHLETES PPLP CENTRAL JAVA 2015

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Abstract

This study aims to improve VO₂max in badminton athletes of Central Java PPLP through the implementation of continuous exercise, play speed and recovery in an integrated manner by the trainer. This research uses a method Action Research. The design of the study or research procedures is through planning, an action, observation, and reflecting. The subject of the study was 8 athletes PPLP Central Java in 2015 comprised four daughters and four sons. Data collection techniques by observation and measurement of durability tests using Multistage Fitness Test (MFT). Data analysis techniques with quantitative descriptive. Based on the results of action and discussion that: (1) Coaches can apply continuous exercise, play speed and recovery well to increase generating capacity Maximum Oxygen Volume PPLP athlete Badminton Central Java. (2) Capacity Maximum Oxygen Volume capability badminton athletes PPLP Central Java, can be improved through program implementation of continuous exercise, play and recovery speed by trainers.

Keywords: VO₂max, Continuous exercise, play and recovery speed.

INTRODUCTION

A good exercise program is successful key for performance in sports. Exercise is essentially a provision granting capabilities required by athletes to face the competition. Capabilities required by athletes to face the match and the competition includes physical ability, technique, tactics, and mental. Every athlete must have the physical ability, technique, tactics, and mental adequate to win a competition.

Exercise should be organized and planned well in order to generate maximum performance. The aim of the program is well planned and organized to improve the athlete's performance to the maximum. In order for the program a more effective exercise is necessary to analyze comprehensively on the conditions and the athlete's ability. Coaches need to analyze the capabilities and conditions of the athlete in order to provide effective workout. The results of the analysis can be used as a basis to develop an exercise program.

Based on the analysis performed on one of the weaknesses that occurred in Central Java PPLP badminton players are physical abilities, often in a long match event (rubber set) athletes experiencing fatigue. Physical condition is an absolute requirement in sports achievements. The ability of athletes to display their skills and tactics good technique when playing it would be optimal if supported by a good physical condition. To support the achievement of sports, every athlete must have adequate physical.

In the game of badminton, VO₂max is a very important component to support the achievement of the highest possible. VO₂max is a component that is required to be able to do muscle work continuously at high intensity in a relatively long time. Davis et al (2002: 82) states that, aerobic capacity is very important for the work done on an ongoing basis. VO₂max can help take oxygen indispensable to solving energy and channel it into the muscles working.

Increased physical work ability is determined by systematic exercises and progressive. Programs, ways, strategies and approaches proper exercise must be conceived and designed carefully in order to improve the physical abilities of athletes. Coaches need to do a methodical and systematic assessment of appropriate exercises, so that the ability of Maximum Oxygen Volume (VO₂max), which owned the athlete can be increased in line with expectations. Exercises to develop the ability to refer to the characteristics VO₂max. Training methods can be used, among others, long-distance running, exercise continues (continuous training), cross country, play speed, interval training, circuit training or other forms of exercise that forces the body to work in a long time. The method is quite practically applied to badminton players among which, continuous training, speed of play and recovery. Implementation of the exercise should be a systematic and integrated in order to achieve more effective results.

Based on the above, then it's important to research for badminton coach PPLP Central Java to improve VO₂max in athletes badminton PPLP Central Java in 2015 by implementing a continuous exercise, play speed and recovery in an integrated manner by Coach.

DETERMINANTS OF ACHIEVEMENT

The athlete's ability is a key element in the achievement. The guidance that should develop the elements of the athlete, namely the capability of engineering, physical, tactical and mental. Achievement is the guidance system of interaction between the components of engineering, physical, mental, tactics and strategy.

According to Paul exposure Pasurney, sporting achievements depend on external and internal factors of the athletes described by Schoroeter and Bauersfeld, as shown below:

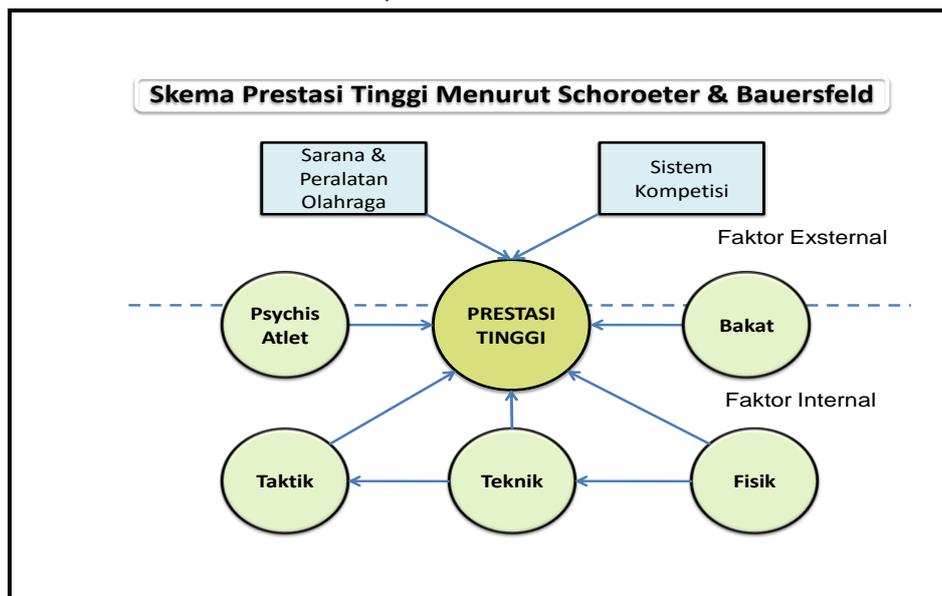


Figure 1. Factors Affecting Sports Performance
(Paulus Pasurney, Exposure Workshop for Coach PAL, Gunung Geulis, October 28, 2008)

High achievement needed exercise to develop the physical, technical, tactical, and psychological, supported athlete talent, facilities and infrastructure, as well as a good competition system. Furthermore Pesurney points out that increased physical ability is determined by the

directional exercises, in addition to the age of the athlete, the talent, the nature of organs, muscle size, the level of coordination and control of psychic ability.

From the foregoing it can be explained that the achievement of a process control practices and games. In the process required the implementation of targeted, including profile analysis of the sport and all the data the athlete's ability, aptitude for every sport, especially motor skills.

Good physical condition is a fundamental factor for developing other factors, so it will support the achievement of optimal performance. According to Andi Suhendro (2004: 4.1) that, "The physical condition is one important requirement to improve the performance of an athlete, and even as a very fundamental purposes for sporting achievement". The importance of the role of the physical conditions to support sports achievements, it must be trained properly.

Physical exercise generally provides the physical burden on the body on a regular basis, systematic, sustainable manner that will increase their ability to do work. Regular physical exercise, systematic and continuous and contained in an exercise program would improve physical capability significantly. Physical exercise is a physical activity according to how and specific rules that are targeted increase the efficiency of physiology and the end result is physical fitness. The same thing was stated Andi Suhendro (2004: 3.7) that, "Physical exercise is an exercise that is intended to develop and improve the condition of a person. This exercise includes all the components of physical conditions including muscular strength, cardiovascular endurance, muscular endurance, agility, speed, power, stamina, flexibility and others ".

Physical exercise is one part of the overall exercises, to improve performance in sports as well as to improve physical fitness. In the implementation of physical exercise can be emphasized in one of the components of certain physical conditions relevant to its purpose. This means that physical exercise should be done is specific to the characteristics of the physical components required for a particular purpose.

Basic motion in a badminton game is clearly visible when observed movements such as sprinting, jumping, walking, running back and forth, moving to the right and left, winds up and make a step width (split). All movement and activity is needed so that players can hit a cock in the attitude and posture remained well controlled. Movements in badminton often take place within a long and repetitive, consequently impacting the process of tired (fatigue) on the player. The emergence of "fatigue", must be understood relate to the work of the heart, circulation, lungs, system requirements and system energy use.

Many experts think about badminton, Tahir Djide (2007) says "badminton is a game that requires power, strength, endurance, courage, reasoning, mental, and agility". It is important that badminton is associated with the inherent characteristics of the game, namely: this game can be quick and can also last long. Players should be able to move quickly to explore the corners of the field with fast movement, explosive, capable of using a variety of techniques cock hit with various harmonious and purposeful movements (accuracy). Observing the motion of the various characteristics mentioned above, means a good badminton player must have the capability quality physical condition.

EXERCISE

Exercise is a process that must be done and undertaken to achieve sporting achievements. Exercise is a systematic activity in a long time improved progressively and individually which leads to the characteristics of human physiological and psychological functions to achieve specific targets (Bompa, TO 1999: 3). Exercise or training is a systematic process of training is done repeatedly with increasingly increase the number of training load and intensity of the exercise (Tangkudung, 2006). Exercise is a very complex process, which is organized and planned in a systematic, gradual and implemented on an ongoing basis with the aim of improving performance in sports.

a. Principles of Exercise

For the purpose of an exercise can be achieved as expected, then the implementation of the exercise should be guided by the principles of proper training. Pyke et al (1991) suggested some principles that should be considered in performing the exercise as follows: "(1) The principle of overload, (2) Principles of recoveries (3) The principle reversibility, (4) The principle of specialization, and (5) individual principle ". These principles should serve as basis for the preparation and implementation of the exercise program. The application of the principles of proper training will further enlarge the possibilities in achieving the purpose of the exercise.

Overload principle ensures the load is increasing gradually in a certain period. The ability of the athlete will be increased if the training load heavier than previously accepted. The principle of reversibility, if the athlete stops of exercise in a certain time or a long time, the quality of her organs will decrease automatically function. Because the process of adaptation that occurs as a result of the exercise will decrease, even disappear when not practiced and maintained through continuous training.

The principle of specificity, carried out in accordance with the objectives to be achieved, which involves the major muscle groups are used, the energy system and patterns of movement (skill) corresponding to the number of sports to be developed.

The principle of the individual, because in response to the training load will vary, so that the load of exercise for each person can not be equated with other people. Factors that lead to differences in the athlete's ability to respond to the training load, among which are heredity, maturity, nutrition, rest and sleep, fitness, environment, illness, injury, and motivation.

b. Components Exercise

Exercise can be effective if it contains the components required to adequately exercise. The components of the exercise include, volume, intensity and density. Bompa (2009) states that, the efficiency of an activity (exercise) is the result of the time spent, distance covered and the number of repetitions (volume); load, and velocity (power) (intensity); as well as the appearance frequency (density).

1) Volume

Training volume is the amount of work done during a workout or during the exercise phase. The volume of exercise can be expressed in units of distance, time, weight and number of repetitions form of exercise done during a training session or during this phase of the exercise. Bompa, TO (1990: 77) explains that, volume of training involves several parts integrally as follows: (1) Time or the time period used in practice, (2) distance or amount of voltage that can be done / removed per unit time, (3) the number of the repetition of shapes or elements of technique performed within a certain time.

Determination of the number of reps and sets to do in practice, should be determined appropriately. Determination of sets and repetitions in the exercise of power, according to Bompa, TO (1994: 44) that the number of repetitions "3-25, while the number of setnya is 5-15". The break between setnya is "3-5 minutes". According to Harre, D. (1982: 116), "to increase the explosive power is with a heavy load of 30% -50% or 60% -70%, repeat 6-10 times, set 4-6 times, rest 2-5 minutes, explosive rhythm ". Pyke (1990: 256) added, "The weight of the load to exercise the power increase is 30% and 50% of 1 repetition maximum, repeat 15-20 times with the rhythm as quickly as possible".

2) Intensity

The intensity of exercise is weight training and is a major factor that affects the physiological effects of exercise on the body. The intensity of the workout is solemnity dose energy expenditure athlete doing physical activity. The size of seriousness in the implementation of the exercise is a form of exercise intensity. Bompa, TO (1999: 79) states that, the intensity is a function of the strength of nerve stimulation performed in the exercise and strength of nerve impulses depends on the load, speed of movement, variation or rest interval between each of a test. Load and speed (velocity) in the motion is an important component of exercise intensity.

3) Recovery

Recovery is a very important element in the exercise. Recovery principle is often also called the principle of interval. At the time of exercise the body must be recovered origin is sufficient. Breaks must between reps and between sets is important to get the maximum workout. On the implementation of the exercise in addition to the total volume (quantity) movement are met, the quality of movement is also absolutely must be met. Quality of movement can be perfect if the break between sets and between repetisinya met.

4) The duration and frequency

Frequency is the number of times exercise is done every week. The duration of exercise that is the time it takes to train until real change occurs. Characteristics of power is a quick and explosive movements. Exercises to increase power can be classified as a movement that is anaerobic. For anaerobic exercise program, according to Fox was quoted as saying Soekarman (1987: 68), that the exercise "for 8-10 weeks".

EFFECT OF EXERCISE ON THE IMPROVEMENT OF PHYSICAL WORK ABILITY

During physical work in a relatively long time, in the body formation process occurs continuously energy aerobically. In this case the heart, circulatory and respiratory work harder to deliver oxygen to the body parts are active. According to Pate et al (1993: 248-249) that, heart-lung system through four basic adjustment of the exercise as follows: (a) an increase in cardiac output, (b) the deflection of blood flow to the working muscle, (c) increasing arterial oxygen difference, and (d) increasing air exchange.

The fourth basic heart-lung response to the exercise work in unison to meet the increased skeletal muscle oxygen. Heart-lung system responds balanced with the intensity of exercise. In general, the system only adjusts to the need to ensure sufficient oxygen delivery to the muscles, so heart-lung system maintain maximum efficiency with the smallest possible doing work to fulfill the task of gas delivery.

The efficiency and effectiveness of the heart-lung function is guaranteed by a set of factors nervous and chemical control detailed and very terpadu..Sistem heart lung which is controlled by the central heart-lung, a nerve center located in the brain. Heart-lung center combines various forms of stimulation to obtain the appropriate modifications in gas exchange and blood flow. (Pate et al, 1993: 253). Parujantung control the focal point is the nerve center of the brain called parujantung center. This center is the origin of the nerve pathways to the heart, blood vessels and muscle air exchange. By differentiating parujantung central nervous impulse discharge can increase or decrease the tempo of the heart and pulse volume, widen or contract the blood vessels, as well as a change of pace and depth of breath. Central nervous discharge is affected by various forms of chemical inputs received through the nerve channels of sensory receptors outside the body. Pate et al (1993: 252) states that, In particular, the system is sensitive to changes in; (1) The basic level of oxygen, carbon dioxide, and the acidity of the blood, (2) blood pressure, (3) the stimulation of mechanical movement of the limbs and muscles, and (4) the input of the level of awareness of the brain.

Physical exercise can encourage the work of the heart, blood circulation and lungs, so as to stimulate the ability of the heart, blood circulation and lungs into a better direction. Adequate physical exercise will be able to effect such changes in physical abilities to a better direction. Effects of exercise that include: (1) tools are growing stronger breathing to allow air flow quickly into and out of the lungs. (2) The heart grow stronger and efficient to be on every pulsation pump more oxygenated blood. (3) Voltage (tone) of the muscles throughout the body is increased, so that it becomes more powerful. Physical exercises with enough load done regularly can increase the total capacity of the lung and heart volume. This occurs as a result of the stimulus given to the body.

VO₂max is the ability of the general physical condition that must be possessed badminton athletes in performing their duties and exercise games. General physical condition is a prerequisite for the imposition toward specialization (Nosseck, 1982: 6). With the ability to VO₂max is good then badminton athletes will be able to complete the exercise task and pertandingn that well, so the results are optimal

ABILITY VO₂max

a. Definition Capability VO₂max

VO₂max ability is synonymous with maximum aerobic capacity, maximum aerobic capacity, aerobic power, aerobic fitness, endurance and cardiorespiratory (heart-lung). According to Janssen (1993: 26) that, VO₂max, or aerobic capacity is the maximum oxygen uptake during eksersi. As according to Fox et al (1992: 36) that, maximal aerobic power (aerobic capacity) can be interpreted as the maximum speed which oxygen can be consumed. VO₂max is the ability of the body's ability to utilize oxygen into work or training. Aerobic capacity is the maximal oxygen uptake ability that is used to do work continuously. aerobic capacity can be seen from the maximum amount of oxygen that can be taken, transported and used muscles working to region contribute to energy.

The ability of VO₂max concerns regarding the efficiency of the working ability of the cardiovascular system, the respiratory and circulatory systems in supplying energy to the muscles to work continuously. It can be argued that aerobic capacity is the ability to use the system of the heart, lungs, and circulatory system to effectively and efficiently run continuously work involving a number of muscle contractions with high intensity in a long time. High-low aerobic capacity

depends on the level of efficiency and the development of cardiorespiratory system. Indications high aerobic capacity by Davis et al (1992: 77) is, improve the ability of; (1) of the heart to pump blood, (2) the lungs to ventilate with a large volume and (3) the muscles in taking oxygen and convert it into carbon dioxide.

VO₂max ability can be measured with a high-intensity activity in a long time. But generally the performance at the level of aerobic capacity can only be maintained for a short period, the longest few minutes (Janssen, 1993: 26). Davis et al (1992: 77) states that the maximal aerobic tests generally lasts for 5 to 10 minutes. The unit of measure is the aerobic capacity liters / minute.

b. Kind of Exercise To Improve Ability VO₂max

Exercises to improve VO₂max should be conducted in accordance with the characteristics of cardiovascular endurance, ie it should be done with low intensity in a relatively long time. The most suitable physical exercise to improve cardiovascular endurance, of course, is with aerobic exercise program. Adisapoetra Iskandar Z. et al. (1999: 67) argues that, exercises to develop cardiorespiratory endurance component should refer to the limits of endurance, which should be done in a long time, such as long distance running, cross-country, cross-country running. Continuous training, fartlek, interval training or other forms of exercise that forces the body to work in a long time.

1). Continuous Training

Continuous training is an exercise that is conducted by the activity (eg running) continuously without stopping over long distances or in a long time. Continuous training or continuous exercise performed at a speed that remains constant, both with moderate intensity and high intensity for a certain time ". In connection with the duration of the exercise, Adisapoetra Iskandar Z. et al. (1999: 67) argues that" this continuous training took more than 30 minutes ".

Continuous training is very suitable to be applied to those who want to maintain their physical fitness or endurance athletes, which is the spearhead conduct training programs. Exercise continues to encourage the work of the heart, blood circulation and lungs, so as to stimulate the ability of the heart, blood circulation and lungs into a better direction. Exercise continuously give sufficient weight loading on the aerobic system. Continuous training are performed repeatedly can improve cardiovascular endurance. This occurs as a result of heavy stimulus given to the aerobic system in the body.

2). Exercise of Speed Play

Exercise play speed is often also called fartlek. Speed play is one form of exercise to increase endurance. This exercise combines various forms or types of running slow, fast winding, jumping or diving. Speed play can be done in the open that there are hills of scrub, ditches to jump, sandy soil, lawn soil, soft soil, and so on, not in the natural landscape is flat and boring. But the speed of play can also be done in the stadium with the environment and a variety of equipment combined.

Fartlek is started with a slow jog and then varied by sprint-intensive short sprints and middle distance running at constant speed is high enough. Run tempo variations can be played by athletes depend on the conditions. When they feel tired, they may run slowly or walk. And after

they feel strong, they should run again or sprint and so on. Therefore, this exercise system called the speed of play, which means tinkering with speed.

3). Recovery

Recovery is a very important exercise. During the training session to recover the body must get enough of origin, if the muscle will shorten the time get tired. It will hinder the body's ability to generate speed and power as well as causing a step less efficient and shorter. Stretching the muscles fixed length and improve elasticity / flexibility of body tissue, especially when istirahat between reps and between sets. This is in order to get the maximum workout. On the implementation of the exercise in addition to the quantity of motion, quality of movement must be met. Quality of movement can be perfect if the break between sets and between repetisinya enough.

Recovery can be done, during training or after a workout. And there are no restrictions when recovery to perform stretching / stretching before, during and after exercise. Stretching is performed after physical activity, such as cardio workouts, exercise kekuatan.atau sports games, can make the muscles warm and pliable, making it easier to elongate. Muscle recovery during and especially after exercise and is characterized by the breakdown of metabolic end products (eg, lactate and hydrogen ions).

During the exercise, the recovery needed to reestablish blood flow intramuscularly for the delivery of oxygen, accelerating the delivery of phosphocreatine (used to resynthesize ATP), pH recovery intramuscular (acid / alkaline balance), and regain muscle membrane potential (balance between sodium and potassium exchange in and outside the cells) (Weiss, 1991).

During the post-exercise recovery, "excess post-exercise oxygen consumption". Another physiological function recovery during this phase including the return ventilation, blood circulation and body temperature to levels before exercise (Borsheim and Bahr, 2003)

Can be concluded recovery / restoration is the ability to meet or exceed the performance of certain activities (Bishop et al. (2007). Furthermore, by Jeffreys (2005) that recovery factors include 1) the normalization of physiological functions (eg, blood pressure, cardiac cycle), 2) back to homeostasis (the cell's environment a break), 3) recovery of storing energy (blood glucose and muscle glycogen), and 4) the enzyme loading cell energy (ie, phosphofructokinase key enzyme in the metabolism of carbohydrates). Moreover, the recovery is very dependent on the particular type of training. Recovery may include active components, such as post-exercise is walking or stretching. As for passive components, such as the treatment of post-exercise hydrotherapy.

The important thing to do for a quick recovery is to listen to body signals. If you feel tired, sick or signal drop in performance. It needs more recovery time or a break from training at all. If it feels strong after a hard workout, do not be lazy to exercise, should be more active.

METHOD

In this study, the research uses Action Research. Action research is an intervention practices aimed at improving the situation of the practice. According to Admiral (2011), which begins with the action research planning, action, observation and reflection.

Implementation Research

PTK was implemented using two cycles. For the first cycle was conducted from August 3 s / d October 13, 2015. The detailed implementation of the first cycle is performed as follows:

First cycle

1) Planning actions (planning)

- a. Coach researchers designed to prepare research instruments on the model of continuous running exercises, speed play, and recovery.
- b. Coaches prepare training device in the form of an exercise program that included a model of continuous running exercises, speed of play, and recovery.

2) Implementation of the action

- a. The coach explained, giving an example of the steps of the program of physical exercise each model.
- b. All the athletes carry out a physical exercise program to fit each program that has been designed by the coach.

3) Observation of action

- a) Observer observe the athlete during training by using observation instruments
- b) Observer evaluate the response of athletes during training in the form of field notes

4) Reflection and evaluation

Reflection activities carried out each end of the meeting during the cycle I. This stage is the stage of observing in detail everything that happens on the field, either in the form of activity as well as athletes and coaches. Results of reflection during the first cycle researchers used as the basis for corrective action plan for the next cycle.

RESULTS AND DISCUSSION

A. Description Pre-Action

Before carrying out the pen poses elitian sports action, first the researchers conducting the initial survey to find out the real situation on the ground. Athletes PPLP Central Java in 2015 that sports, especially badminton training in Surakarta which is the object of this study is 8 people consisting of four sons and four daughters with the following list:

Table 1. List of Athletes PPLP Badminton Central Java in 2015

No.	Name	Age	Gender	Height	Weight
1	Diah yulia ningrum	16	p	159.6	55.3
2	Meyrien y	17	p	162.2	53.2
3	Ayuk Aprilia Sekar	16	p	155.9	55.5
4	Indah Kurnia W	17	P	164.5	64.5
5	Supreme Pangestiko	17	L	171.1	60.7
6	Kurniawan DO	17	L	174.5	64.2
7	Muhammad Gilang	17	L	164	61.6
8	Dai Muhammad Ali	17	L	165.8	65
Average				164.70	60.00

Researchers and trainers observe directly that occur when players are playing. Furthermore, researchers are recording using a video camera when the athlete to play. Researchers and coaches collectively viewed video recordings when the athlete to play. Researchers and trainers together analyzed the overall physical appearance in the match.

Based on the analysis and discussion can be concluded that, PPLP athlete badminton player Central Java has a weakness in physical ability. This can be seen when facing a player who has the

technical capability and relatively similar strategy badminton athletes PPLP Central Java defeat. At the time of the match with a tight game and force must be rubber set PPLP athlete badminton player Central Java seemed exhausted and eventually surrendered.

Before undertaking the implementation of the action then researchers conducted a baseline data collection. It is intended to determine the initial conditions of the ability of VO₂max in athletes badminton PPLP Central Java. Data taken form VO₂max test.VO ability Conditions₂Max badminton athletes PPLP Central Java in 2015 before being given the action is as follows:

Table 2. Preliminary Data Description The ability VO₂max before Granted Actions

No.	Name	Age	Gender	Height	Weight	Early	
						MFT	VO ₂ Max
1	Diah yulia ningrum	16	p	159.6	55.3	10:11	50.20
2	Meyrien y	17	p	162.2	53.2	11:12	53.70
3	Ayuk Aprilia Sekar	16	p	155.9	55.5	8:09	42.60
4	Indah Kurnia W	17	P	164.5	64.5	7:07	38.90
5	Supreme Pangestiko	17	L	171.1	60.7	12:11	56.80
6	Kurniawan DO	17	L	174.5	64.2	11:09	50.50
7	Muhammad Gilang	17	L	164	61.6	12:01	54.00
8	Dai Muhammad Ali	17	L	165.8	65	12:09	56.30
Average				164.70	60.00	50.38	

Based on the description given initial data before action can be seen that the average value of VO₂max capabilities that 50.38, from these results can be explained that the athlete's VO₂max owned still low.

Based on preliminary data that has been acquired proficiency level can be identified that the ability of low VO₂max. Furthermore, researchers and trainers will take action to address the weaknesses that occur. Implementation of the measures will be carried out by 2 cycles, each cycle consisting of four phases, namely: (1) planning, (2) the implementation of the action, (3) observation and interpretation, (4) Analysis and Reflection.

B. Description of Outcome Measures

1. first cycle

Actions taken to improve the physical abilities of athletes, especially in VO₂max in the first cycle by implementing resistance training with continuing training methods (continuous training), speed of play and recovery.

a. Implementation of the first cycle Actions

Cycle I held eight meetings, for 4 weeks ie on every Monday and Thursday, in mid-September 2015 until mid-October 2015. The exercise was held on the afternoon starting at 15:30 pm until finished.

The material on the implementation of the first cycle of action, namely: continuous training with continuous jogging with a total time of 30 minutes - 40 minutes. This continues running drills performed with 2-3 sets. Each set of distance run with a time of 15-20 minutes. Between sets recovery or rest for 5 minutes.

Exercises performed in the athletics stadium. Implementation practices are always controlled by the trainer. The coach noted the distance on each exercise. The coach also gives a target speed at each rotation. Running speed that is targeted for men 1st round (400

m) reached a maximum of 100 seconds or 1 minute 40 seconds. As for the daughter of one lap (400 m) reached a maximum of 120 seconds or 2 minutes. So for example for female athletes, one round ditempul 2 minutes then 1 set for 15 minutes to reach the 7.5 rounds or 3000 meters (3 km). Thus if the athletes do 3 sets a distance of 9 km.

b. Outcome Measures Data Description of first cycle

After the execution cycle I then researchers conducted a study of data collection. The data are taken in the form; the ability of VO₂max with multistage running test. The test results VO₂max ability badminton athletes PPLP Central Java in 2015 after being awarded the first cycle of action is as follows:

Table 3. Description Data Capabilities VO₂Max After Action Awarded First cycle

No.	Name	first cycle	
		MFT	VO ₂ max
1	Diah yulia ningrum	11:03	51.10
2	Meyrien y	12:01	54.00
3	Ayuk Aprilia Sekar	9:02	43.90
4	Indah Kurnia W	8:02	40.50
5	Supreme Pangestiko	13:01	57.40
6	Kurniawan DO	12:01	54.00
7	Muhammad Gilang	12:04	54.80
8	Dai Muhammad Ali	13:01	57.40
Average			51.64

Based on the description of the data after the first cycle above can be seen that the average value of VO₂max capability is 51.64. Average ability athlete's VO₂max badminton players bigger than before action. VO₂max ability possessed athletes had increased compared to before the given action. This allows the athlete has the capacity and performance of the well.

Implementation of the first cycle of action give rise to the ability badminton athletes VO₂max PPLP Central Java in 2015, but the increase is still not for VO₂max needs badminton players, it is necessary to proceed with the second cycle.

c. Analysis and Reflection action cycle I

Based on observations on the first actions, the researchers conducted an analysis and reflection as follows:

- 1) Implementation of the training process in accordance with the plans made what cycle Measures Implementation Plan I.
- 2) Initial tests to determine the ability of the athlete at the start before being given enough action portrait of the initial conditions before getting action.
- 3) Training methods applied by the researchers is quite varied and progressive for the athlete, so that the process can take place over a maximum workout.
- 4) Results achieved athletes after cycle I have not shown the maximum results even though it has showed significant improvement.

5) Excess and success in the implementation of the action on the first cycle, will be maintained and improved.

2. cycle II

a. Implementation of the second cycle Actions

The second cycle held 10 meetings, during the five (5) weeks which is on every Monday and Thursday, starting third week of October s / d week four November 2015. In Sriwedari Stadium, the execution time of the meeting, at 15.30 to finish. Training materials in the second cycle of this is a program that is more durability with a higher intensity. Training methods used in the second cycle, namely speed play and recovery. Implementation of the action in the second cycle, namely:

1) Speed Play

- Speed exercise play in this research was conducted for 3 weeks or 6 meeting. Speed play on this research gradually, is.
- The first stage uses a long track stadium along the 400 m by 4 meeting Its implementation is to use a 400m athletics track, each 100 m divided 30 m sprint - Jogging 40 m - 30 m road and so on. Each round consists of: 4 x 30 m sprints, 4 X 40 m jogging and 4 X 30 road. At each session performed 10 minutes X 3 sets, between set recovery / rest 5 minutes. Based on the record of the exercise, the play speed using this long trajectory that, first round 400 m distance with a time of 2 minutes 30 seconds. For 10 minutes, the average athlete taking 4X round. So as in the first set of the average athlete to sprint as much as 16 X.
- The second stage held two meetings, using a short track that made the field of 40 m X 40 meter use traditional sign of the cone. Implementation around the track 40 m X 40 m ie 20 m sprint - 30 m jogging - 30 m road and so on. Each one round athlete to sprint 20m to 2X. At each session performed 10 minutes X 3 sets, between set recovery / rest 5 minutes. Based on the record of the exercise, the speed of this play, 1 X lap average taken for 1 minute. Each set is made for 10 minutes, so that on average each set of athletes to sprint 20 meters, a total of 20 X.

b. Data Description Cycle II Outcome Measures

After the execution of the second cycle, the researchers perform data retrieval. Data taken the ability of VO2max. VO2max ability badminton athletes PPLP Central Java in 2015 after being given a second cycle action is:

Table 4. Description Data Capabilities VO₂Max After Action Cycle II

No.	Name	cycle II	
		MFT	VO ₂ Max
1	Diah yulia ningrum	12:01	54.00
2	Meyrien y	12:11	56.80
3	Ayuk Aprilia Sekar	10:03	51.10
4	Indah Kurnia W	9:01	43.60
5	Supreme Pangestiko	13:12	60.30
6	Kurniawan DO	12:07	55.70
7	Muhammad Gilang	13:01	57.40
8	Dai Muhammad Ali	13:11	60.00
Average			54.86

Based on the description of the data after the second cycle above can be seen that the average value of VO₂max capability is 54.86. VO₂max possessed ability athletes are getting better than the results in cycle I. From these results it can be concluded that an increase in the ability of the athlete badminton players PPLP VO₂max Central Java, 2015.

DISCUSSION

Based on the results of the implementation of measures in the cycle I and II can be concluded that an increase in VO₂max ability badminton athletes PPLP Central Java in 2015. Comparison of the ability of badminton athletes VO₂max PPLP Central Java in 2015 between before treatment, after the first cycle and the second cycle as follows:

Table 4.5. Results Comparison Capabilities VO₂Max Prior Given the Actions After Actions Granted Exercise In Cycle I and Cycle II

No.	Name	Early		first cycle		cycle II	
		MFT	VO ₂ Max	MFT	VO ₂ Max	MFT	VO ₂ Max
1	Diah yulia ningrum	10:11	50.20	11:03	51.10	12:01	54.00
2	Meyrien y	11:12	53.70	12:01	54.00	12:11	56.80
3	Ayuk Aprilia Sekar	8:09	42.60	9:02	43.90	10:03	51.10
4	Indah Kurnia W	7:07	38.90	8:02	40.50	9:01	43.60
5	Supreme Pangestiko	12:11	56.80	13:01	57.40	13:12	60.30
6	Kurniawan DO	11:09	50.50	12:01	54.00	12:07	55.70
7	Muhammad Gilang	12:01	54.00	12:04	54.80	13:01	57.40
8	Dai Muhammad Ali	12:09	56.30	13:01	57.40	13:11	60.00
Average			50.38		51.64		54.86

Based on these results it can be seen that there is a tendency increase in VO₂max in athletes badminton ability PPLP Central Java in 2015. The mean VO₂max ability badminton athletes PPLP Central Java in 2015 before action is 50.38, after the first cycle is 51.64, while after the second cycle is 54.86, progressively increase the ability of VO₂max. Based on these results it can be seen that the ability of badminton athletes VO₂max PPLP Central Java in 2015 increased. With the increased ability of the VO₂max the performance and capabilities athlete has competed better.

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BENEFICIAL HEALTH EFFECT OF AQUAROBICS (Role of Adiponectin On Women With Obesity)

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Abstract

Background the effects of exercise on adiponectin levels have been reported to be variable. Obesity is associated with adipose tissue inflammation and increased risk of infection. The prevalence of obesity increased in premenopausal women both in developed countries and developing countries, including Indonesia. The purpose of the study to investigate the effect of aquarobics exercise on adiponectin levels in women with obesity. Methods of the research, experimental randomized pretest-posttest control group design performed in twenty four women with obesity (Obese II BMI> 30kg/m²) aged 45-50 years, who were divided into 2 groups, aquarobic exercise group, twice days for 8 weeks (n=12), aquarobic intensity 75%HRmax, and control group (n=12). Percentage of body fat, BMI, adiponectin levels, blood glucose and lipids profile were measured before and after exercise. Data were analyzed using repeated measures and while Pearson's correlations were performed to identify possible relationship among the assessed variables. Results of the study, the percentage of body fat was higher in aquarobic exercises than control group (p<0.05). Decreased of BMI on the aquarobic exercises group compared to controls (p<0.05) and adiponectin levels in the aquarobic exercise group increase significantly (p<0.05). Conclusion: Aquarobic exercise is effective to decreased body weight and increase adiponectin levels.

Keywords: body weight, aerobic exercise, obesity

INTRODUCTION

Obesity is associated with several morbidities, for example type-2 diabetes, different cancers, cardiovascular disease like atherosclerosis,(1) Especially individuals with abdominal obesity are at risk.(2) In particular, it is the visceral part of the abdominal fat that is most dangerous and high levels in women.(3) Adipose tissue functions as an endocrine organ (4) in addition to its role in fuel storage, thermal insulation, and mechanical protection, releasing biologically active and diverse cytokines, termed adipokines.(5,6) Adiponectin is a cytokine protein released by human adipose tissue, which modulates various biological functions and its levels exhibit an inverse relationship with insulin resistance (7,8). In addition, modifications in body weight have been shown to influence the levels of adiponectin (6,9). There are studies which have reported no effect of acute exercise on adiponectin levels in healthy, normal weight individuals (10–13). The lack of exercise not only increases fat that stores surplus energy, but also decreases the function of bones and muscles. Adipose tissue is a rich source of metabolically active molecules, including tumor necrosis factor-alpha (TNF- α), leptin, and adiponectin (14). Adiponectin is a protein hormone, that is produced and secreted exclusively by adipocytes, regulates the metabolism of lipids and glucose, and exhibits anti-inflammatory properties. Adiponectin levels have been reported to rise in response to weight loss (15). Decreased plasma adiponectin has been linked to obesity (4) insulin resistance, type 2 diabetes mellitus (T2DM)), and

atherosclerosis (13). By contrast, increased plasma adiponectin is associated with reduced body weight and improved insulin sensitivity (16). Circulating adiponectin levels are modulated by diet and exercise associated with substantial weight loss (17,18) Research on the effects of acute exercise on adiponectin levels has produced conflicting results. Physical activity can be considered an effective factor in improving obesity. However, there is contradictory information on the effect of physical activity on the levels of leptin, adiponectin and inflammatory markers (CRP, IL-6 and TNF- α)(19,20). The effect of exercise on adiponectin concentrations varies among individuals. Kobayashi et al (21) observed that 50 days of walking led to an improvement in the adiponectin level in healthy men with a normal weight (8) whereas observed that two months of participating in an aerobic training program with moderate intensity increased the adiponectin level (15). The purpose of the study to investigate the effect of aquarobics exercise on adiponectin levels in women with obesity.

METHODS

Participants

Twenty-four obese women aged of 46.49 ± 1.41 years (Weight 76.41 ± 3.11 kg, Height 155.4 ± 1.5 cm, body mass index (BMI) 32.8 ± 0.92) voluntarily participated in this study in Semarang, a cut-off for obesity BMI ≥ 30 kg/m², based on Asia-Pacific guidelines (22). Fasting glucose levels and blood pressure were determined in order to exclude the patients with metabolic disease. Postmenopausal women were screened with regards to the mean age of natural menopause in Central Java Province Indonesia women. In addition, the participants filled out questionnaires containing fields such as age, last menstrual day, menopausal status (e.g., last menstrual period occurred 6 months). All participants were informed the possible risk and the testing procedure of the trial before they signed the informed consent document. Participants were informed not to perform vigorous exercise one week before and during the trial. The study was approved by the by the Ethical and Research Committee of the Kariadi Hospitals (RSDK Semarang, Indonesia) before recruitment of the participants.

Experimental Design

The purpose of the study to investigate the effect of 12 weeks aquarobics exercise program on adiponectin in women with obesity. Participants were randomly divided into two groups including control and aquarobic groups. Before and after the exercise training, anthropometric measurements were examined for all subjects. Height and body weight were recorded and body mass index (BMI) was calculated from the ratio of weight (kg)/height (m²). Body fat (%) was measured and blood pressure was measured on the right arm with the subjects in a sitting position, twice, after a 10 min rest, using a standard mercury sphygmomanometer. Adiponectin plasma were measured before and 1 hours after the aquarobics treatment, as well as immediately after exercise challenge.

Aquarobics Exercise

Before aquarobics exercises, each subject's maximal oxygen consumption (VO₂ max) was measured to establish their exercise training intensity. The subjects were then not familiarized with aquarobics exercises, after which they were told the requirements for the present experiment and their VO₂ max was determined following the Bruce Protocol. Metabolic data were collected using open circuit spirometry (Sensor Medics VO₂max, USA). Aquarobics exercises,(23) supervised by

experienced aquarobics instructors, was performed three days a week for 8 weeks. Each session consisted of a 10 min warm up session, a 40 min session of aquarobics exercises an intensity of 50-75% of the predetermined. The exercise intensity was controlled using a belt heart rate sensor (polar beat), and at the end of each session, there was a cool-down period consisting of stretching for 10 min.

Biochemical measurement

Blood sample was collected from antecubital vein using heparin contained tubes and centrifuged at 3,000 rpm for 10 minutes at 4 °C. After centrifuging, supernatant was collected and stored at -80 °C until analysis. Plasma glucose levels were measured with a commercially available kit (glucose hexokinase kit, ADVIA 1650, radioimmunoassay RIA kit, Linco Research, St. Charles, MO, USA) (CV, 1.1% and 7.8–9.3%). Serum adiponectin was measured with a human adiponectin ELISA kit (BioVender, Laboratory Medicine, Brno, Czech Republic) (CV,4.8%). Blood samples for adiponectin measurement were drawn into pre cooled glass tubes containing EDTA. The tubes were spun immediately at 2200 *g* for 15 min at 4°C. The plasma was stored at -80°C until analyses were performed.

Statistical analysis

Statistical analysis of the data was performed for each group using the means and standard deviations. Then, the Kolmogorov-Smirnov test was used to ensure that the data were normally distributed. All data shown represent the means±the standard deviation (SD). Differences in various parameters before and after aquarobics exercises were performed using the paired t-test. To demonstrate the aquarobics exercises-induced changes in adiponectin levels, we adjusted for the change in body weight. Changes in body weight were determined by calculating the difference in the body weights before and after aquarobics exercises. Differences between weight loss and weight gain were performed using independent the t-test, one-way analysis of variance (ANOVA) was performed.(24,25) To eliminate the possible influence of the baseline characteristics on the effects of exercise, adjustments for age, weight, BMI, body fat (%). All statistical analyses were performed using SPSS-PC for Windows (version 20.0, SPSS Inc., Chicago, IL, USA); $p < 0.05$ was considered statistically significant.

RESULTS

Aquarobics was performed twice day sessions of a 60-min and water immersion at 30 °C performed, control group remained at room temperature. The results of the current study showed an increase in serum adiponectin levels among subjects who underwent 8 weeks of aquarobics exercise program, with concurrent reduction in body weight, percent body fat, BMI (26) reduce blood glucose and serum levels of adiponectin in the experimental group relative to the levels in the control group after 8 weeks of aquarobics exercise program. Participant characteristics are presented in Table 1. The result shows that the adiponectin levels in aquarobics exercise was significantly highest than control group (Fig.1 $p < 0.05$)

Table 1. Physical, physiological and biochemistry variables in two group

Variabel	Aquarobics Group (n=12) (Mean ± SD)	Control group (n=12) (Mean ± SD)	p
Age (year) pretest	46.74±1.30	46.79±1.35	0.450
Height (cm)	1.55± 0.05	1.52± 0.04	0.075
Weight (kg) pre test	75.66±5.54	75.41 ±6.61	0.269
Weight (kg) post test	73.16±4.60	74.32 ± 6.61	0.185
BMI (kg/m ²) pre test	31.32±0.97	32.48± 1.56	0.040
BMI (kg/m ²) post test	30.24± 1.18	32.48± 1.56	0.000*
Fat percentage (%) pre test	31.58 ± 1.94	31.80 ± 1.57	0.031
Fat percentage (%) post test	27.67 ± 1.22	31.76 ± 1.65	0.001*
Adiponectin (µg/ml ⁻¹) pre test	5.11±0.65	4.92±0.45	0.011
Adiponectin (µg/ml ⁻¹) post test	7.72±0.65	4.99±0.46	0.000*

The results obtained from the current study showed that 8 weeks of aquarobics exercise program decreased the percent body fat (p=0.01) and decreased the body mass index (p=0.00) relative to the control group. In addition, after 8 weeks of training adiponectin level significantly increased (p=0.00) relative to the level at the pre-test stage (before doing the exercise (p>0.05)).

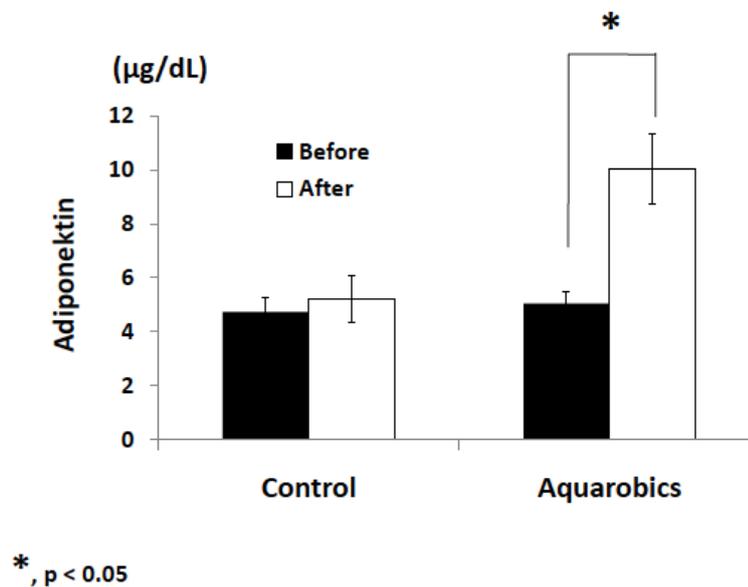


Figure 1. The effect of exercise on adiponectin level

DISCUSSION

Previous studies reported aerobic training showed variable effects on changes in adiponectin levels. Numerous studies have found that exercise could increase adiponectin concentrations during weight loss (27). The present findings that an aquarobics exercise results a significant increase in plasma adiponectin levels with weight loss and even in the presence of weight gain in obese women. On the other hand, several studies found that aerobic training showed no effect on adiponectin levels under stable body weight (28) or even mild weight reduction (8,20). These findings confirm

those of previous studies that found improvement in insulin sensitivity after exercise training in obese and healthy individuals (20). Several mechanisms have been proposed to be responsible for the increases in insulin sensitivity after exercise training (29). These include increased post-receptor insulin signaling (30), increased glucose transporter protein and mRNA (31), increased activity of glycogen synthetase and hexokinase (15), increased muscle glucose delivery and changes in muscle composition (32). Restoring insulin sensitivity by circuit weight training might be mediated mainly by mechanisms other than adiponectin, for instance, by the AMP-activated protein kinase pathway (33).

Further, three sessions of aquarobics exercise within a one-week period were sufficient to maintain this increase for 1–3 days after the final exercise session. Study occurred in the absence of any changes in weight. As such, these findings add to the growing body of evidence showing that exercise results in important health benefits irrespective of changes in body weight (34,35).

The present research demonstrated a significant increase in the plasma level of adiponectin due to 12 weeks of aquarobics exercises in the experimental group compared with the control group. Moreover, a significant difference was observed in the plasma level of adiponectin in the experimental group between the pre-test and post-test stages. The increase in the plasma level of adiponectin as a result of 12 weeks of aquarobics exercises was most likely a preventive factor for diseases related to adiponectin (32,36). In this research, the increase in the level of adiponectin after adjusting to the aquarobics exercises was similar to the results of a number of previous studies. In a previous study, eight young obese women exhibited a significant decrease in fat after participating in an aerobic training programme for seven weeks; moreover, their level of adiponectin increased (10). Other studies found that training had no effect on the level of adiponectin. This discrepancy may be due to differences in age, sex, the type of training program and the intensity and duration of the training (37).

CONCLUSION

Aquarobic it was benefits to the health, increasing adiponectin and appearance characterized by decreased body fat percentage and skin fat lipolytic is more active than the fat from other deposits. Aquarobics exercise can be used as effective non-pharmacological treatment to prevent diseases.

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**Sport Management,
Administration, and
Management**

**STATISTICS SKILLS OF MALE ATHLETE VOLLEYBALL TEAM
YOGYAKARTA REGION TOWARDS
NATIONAL EVEN (PON) 2016**

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Abstract

Statistical data to be observed or recorded by these researchers will be used as study materials with a coach to support the preparation and implementation of a championship team towards the National Even. Research results obtained and carried out the study it can be concluded that the skills ability of the athlete's volleyball Yogyakarta Special Region prepared and also competed in the National Games in 2016 have the following capabilities: The ability Recive serve volleyball team in the championship volleyball at the National Games (PON) in West Java Less shows in categories which mean: 58.33%. While ideally the skills ability receives serving volleyball team should be above 80%. Passing Ability Top or Setup athlete's volleyball team in the Yogyakarta Special Region of PON indicates which category fairly average: 65%. While ideally the ability of the athlete in the event that is above 80%. Ability Smash volleyball team Yogyakarta Special Region championships National Games in 2016 in the category of less than average: 51%. The ideal is above 80%. Block ability volleyball team Daerah Istimewa Yogyakarta in 2016 in the category of self, which is the average: 51%. While ideally to block the ability of 60% ability Serve's volleyball team Daerah Istimewa Yogyakarta show less categories, namely the average 51.81%. While ideally ideal for serving ability is above 70%. The results were describe the most important factor is the psychological factor athlete, where athletes volleyball team Yogyakarta Special Region have less hours to play or try out and try in.

Keywords: Statistics, Volleyball Skills

INTRODUCTION

Technological developments in a volleyball game today is more advanced, this is evidenced by the many media or gadgets that are used in the process of training and competition or game. Some tools or gadgets that already exist do indirectly contribute significantly to the process of training and competition. Expectations of the development of technology in the game of volleyball are expected to further advance the development also volleyball in the world. Some countries are using technology in the process of training or during a match we can observe the results, so that our country should also adopt some of the technologies that can be applied in the volleyball national team and local estuary capability makes volleyball Indonesia par with other Asian countries such as Thailand, Japan, China, Qatar and Australia. The reality at this point in the area, namely statistics team, especially in the sports world has not been significantly exploited or used. In fact, if we see tremendous benefits should though statistics team must have a team to support valid data and appropriate analysis to see the ability of the team that is prepared to face the competition, namely when practicing.

At the time of the competition or match the benefits of statistics to help the team coach to see who will face an opponent's abilities to apply the tactics in the match. Importance of statistical benefit in a volleyball game is supposed to be followed up with the assistance or the need statistics team in contingent prepared to face either event PON, or other national events. In October 2016,

this national event National Sports Week (PON) will be held in West Java, where each region would represent a contingent that qualifies for the event Pre-PON. Volleyball team Yogyakarta Special Region in this regard yesterday's men's teams that qualify for Sports Week (PON) after facing tough teams in Pre-PON including Central Java, Jakarta and Banten. Results in a Pre-PON with a runner-up, the volleyball team Yogyakarta Special Region entitled to have a ticket to the National Games in West Java. Several obstacles already faced by the men's volleyball team Yogyakarta, in addition to not be a sport in the featured category and is funded by the Indonesian National Sports Committee DIY area, in addition to follow the championship of the National Sports Week each athlete has to pay 5.6 million to administrative costs and fees for in West Java.

Need to be addressed and also realized that in theory and reality that athletes should be given an appreciation for the power struggle and hard work in practice and also indirectly bring the good name of the area, have to spend for costs represent the area in the national event. It is highly inappropriate, it is necessary to change the system of sports in Yogyakarta. Last Achievements at the National Games in Riau men's volleyball team lost a large 8, which is the material then the team Yogyakarta Special Region is still dominated by young athletes who still less experience. In the year 2016, the material is pretty good team then carried to the target in the final then hopes to be realized, the support of the parties one team stats expected by the training team can be realized.

METHOD

Statistics

1.1 Understanding Statistics

a. Etymologically

The word is derived from the statistics the states is derived from the Latin meaning of the Word equation has stats that comes from the United Kingdom or from the Netherlands state said. At first the word "statistics" is defined as a collection of material information (data), whether tangible numbers (quantitative data) and that intangible number (important data and its usefulness to a country). However, in the development of it is limited only in the collection of the information materials in the form of numbers only Recha Seprina [1]

b. In terms of terminology

The statistics are sometimes given the notion as "statistical data" that is a collection of information that is material in the form of numbers or numbers with another term, statistics is a row or a set of numbers that shows information about a specific life activities branch. For example: statistics of agricultural statistics, population and education statistics. Thus the term with stats as quantitative data is numeric data that can give you an idea about the circumstances of the events or specific symptoms. The term statistics is also often interpreted as statistical activities. The term statistics is also sometimes intended or conceived notions as statistical methods that is certain ways that need to be taken in order to collect, compile or organize, present, analyze and provide interpretation against the set of material information which is a number such that the collection of material information which is a number that "speak" or can give sense and meaning. The term statistics, adults can also be given as the science of statistics. The science of statistics is the science that studies and develops the scientific stages that exist in the activity statistics.

Categorization Statistics

a. Descriptive statistics

Is the statistics of its work include level ways conduct, compile or organize, process, present and analyze numerical data in order to provide a regular, concise and clear about a symptom or a specific event.

b. Statistics Inferential

Are the statistics that provide rules or ways that can be used as a tool in order to try to draw conclusions that are common of a group of data has been compiled and processed?

The functions and uses of Statistics

a. Statistical Functions

The statistics function is as a tool to manipulate, analyses and concluded the results that have been achieved in the activities of the assessment. Statistics as a science can be distinguished into two groups namely: descriptive statistics and inferential. Based on statistical classification, statistical functions are:

- 1) Function of descriptive statistics is to be able to understand, describe, explains the event or data collected in a study and did not arrive at generalizations or conclusions regarding the taking of a whole population investigated.
- 2) Function inferential statistics is to predict and control. Statistics inferential this study's conclusions regarding the withdrawal of the whole or of the population based on data or symptoms and events that exist in a research.

b. Use of Statistics

- 1) Getting a good picture specifically or generally about an overview of symptoms, circumstances or events.
- 2) Follow the development or UPS and downs concerning symptoms, circumstances or events from time to time.
- 3) Doing the testing, if the symptoms are one different from the other symptoms or not, if there is a difference it is a meaningful differences or differences occur only by chance alone.
- 4) find out if one has anything to do with the other symptoms.
- 5) Compiled the report in the form of quantitative data with regular, concise and clear.
- 6) Draw conclusions logically, appropriately take decisions and steady.

3. Statistical Data

a. The sense of Statistical Data

Statistical data is the data that the form number or numbers but not all numbers statistical data due to be called statistical data that figure must meet certain requirements that had to be the numeral indicating a characteristic of a research that is both aggregative and reflects an activity in a specific field or number.

b. Categorization Statistics

- 1) Classifications of statistical data based on nature.

on terms of numbers, the nature of the statistical data can be distinguished into two groups namely continue data i.e. The figures are statistical data is row numbers which connect and discrete data that is statistically impossible-shaped fragments.

2) Classifications of statistical data based on how to compose its score

a. Nominal statistical data that make up the numbers based on the specific classification or categorization. Nominal data is also called data count, is said to be so because the data was obtained by calculating.

b. Data is also called ordinal data the statistical data sequence i.e. arranging numbers based on the order of position or rank.

c. Interval's Data is statistical data where there is the same distance between things that are investigate or questioned.

3) Classifications of statistical data based on the shape of the number

a. Single Data is statistical data that each number is a unit (one unit), in other words a single data is statistical data that the figures are not grouping

b. Data group is the statistical data that each unit consists of a group of numbers.

4) Classifications of statistical data based on the source

a. The primary Data is statistical data obtained or derived from first-hand.

b. Data secondary is statistical data obtained or derived from second hand.

5) Classification based on time of the collection.

a. The Data is instantaneously statistical data that reflects the State at one time only.

b. Time in a sequence statistical data that reflects the circumstances or developments about something from one time to another time in a sequence. This data is also known as the historical data.

c. The nature of the Statistical Data

1) Relative has a value of Statistical Data or the value false. The relative value of a digit or the number value is indicated by the number or the number itself.

2) Statistical Data has the real value of a number or true value. The real value of a number is a certain area in a row number that is represented by the value of the relative.

3) Statistical Data has a relatively lower limit, upper limit; lower limit upper limit is real and tangible.

4) Statistical Data in the shape data value is the Middle group. What is meant by the middle value is located in the middle of a row of numbers.

5) Statistical Data as numerical data in the process of its calculations do not use fractional system but uses a decimal system.

6) Statistical Data as numerical data. In the process of counting cannot use certain rounding system. In this connection the need expressed that although in the rounding which is located behind the decimal sign is not always the same, but basically the rounding is done up to three digits behind the decimal numbers with a note: a. If after three digits behind the decimal sign there exists a number whose magnitude of 50 or less than 50 are considered then 0. b. If the number after the decimal sign in the back there is a number which the magnitude of 51 or more, then the number 51 or number greater than 51 are considered equal to one and the number 1 is added to the number of the number 3 which is located behind the decimal sign.

Statistics in Sports

Statistic is very usefull for sports achivement. Passing data, we can measure the performance of the team against opponents. Conversely, the opponent can measure our performance through statistics. Because of the nature of open and could be mutually made, the game becomes more

interesting. According to Jim Albert from Bowling State University and Ruud H. Sembing of the University of Groningen, between sports and statistics had a close relationship. Not only measure the performance, in fact, the statistics can also be used to make the match simulation (fantasy games). Using statistical data is a plus for the analysis of sports, TV commentator as well. Any journalists should have the ability to analyze the match with quantitative data.

Almost all of the best sports writers have the ability to play with statistics. The development of sports science makes positioning statistics higher. The role of Physiology and science of coaching are indeed important in the achievement. You will surely remember the Miami Heat, the NBA back to back champion in 2012 and 2013. The head coach of the Heat is not a great basketball in his day. However, he was a statistician at once video man. Yes, Erik Spoelstra, Heat coach who bleeds the Philippines from the mother, years into video man. As the video interpreter, Spoelstra have a lot of time studying the performance of players and opponents. He was also expert of analyzing because during college he played as point guard.

So when Pat Riley decided Spoelstra as coach replacement, Spoelstra has already had a deadly weapon that is not owned by LeBron James, Dwyane Wade, and Chris Bosh, i.e. the ability to analyze statistics. The Indiana Pacers also have a head coach who whiz read data: Frank Vogel. Don't be surprised if Vogel also became coach of the fastest rising in the 2012/13 season of the NBA with the Indiana Pacers brought to the top of the Eastern finals competition. How the use of statistics in Indonesia? In basketball a branch of the statistics already used but still in very small scale. Only a few are using statistical data to prepare for practice or games Miranda Devayani [2]

Statistics in towards 2016 PON volleyball

The role of statistics in the sport of volleyball today are very important, in which technological developments rapidly, teams that have large funds typically use help technology to support the work of coaches on the field during practice or matches or competitions. The result is maximum performance can also be expected to coach because it is supported by a team of supporters in particular about the athletes capability and statistical data are also opposed to a regular partner. Specific statistics in the sport of volleyball of which contain:

a. Training Data:

- 1) Data serve receive
- 2) Data serve
- 3) Data Spike (smash)
- 4) Data defense (blocks and defend)

b. Data matches:

- 1) Data capabilities serve receive
- 2) Data server capabilities
- 3) Data capabilities of attack or attack (smash)
- 4) Data defense (blocks and defend)

Based on the data team stats will deliver analysis results linked the ability of both the team and the opposing team, so the coach has a valid basis picture data to determine the decisions taken. This research is a quantitative descriptive study, which examines the statistical capabilities male athlete PON volleyball Training Camp Yogyakarta. According Suharsimi Arikunto [3] Descriptive research is research that is intended to investigate the circumstances, conditions, or other things that

have been mentioned, the results are presented in the form of a research report. The method used in this study is a survey and data collection techniques assisting with the assessment rubric. According Sugiyono [4] Population is the generalization region consisting of: objects / subjects that have certain characteristics quality and defined by the researchers to learn and then drawn conclusions. This study uses research subject is men's volleyball team Training Camp PON 2016 amounted to 12 players. According Suharsimi Arikunto [5] "The data is all the facts and figures that can be used as material to compile the information, while the information is the result of data processing that is used for a purpose".

Data collection techniques in this study using an instrument developed by researchers. (In Appendix) Once the necessary data is collected, we then analyze the data. According Sugiyono [6] Descriptive statistics are statistics used to analyze data in ways that describe or depict the data that has been collected as it is without making inferences or generalizations apply to the public. Data analysis techniques used in this research is by calculating the mean or mean or central tendency measurements, median, mode, and standard deviation. The explanation is as follows: 1) The mean, median, and modes; 2) Table inclination variables. According to Saifuddin Azwar [7] to determine the category score components used norms as follows:

Table 1. Category Score

$X < (\mu - 1,0\sigma)$	Less
$(\mu - 1,0\sigma) \leq X < (\mu + 1,0\sigma)$	Avarage
$(\mu + 1,0\sigma) \leq X$	Good

Meanwhile, to clarify the frequency distribution data dissemination in the presentation of the data, it can be presented in the form of a graph or diagram, which diagram is based on the frequency data that has been shown in the frequency distribution table.

RESULTS AND DISCUSSION

RESULTS

Based on the results of data collection during the process of training and competition also obtained the following data:

Table 2. Data capabilities PON DIY volleyball athletes during the process of training and try out:

Name	Spike	Serve	Receive serve	Block	Set Up
Antonius Adi	20	50	0	50	80
OkkySetia	80	60	80	60	0
OkkyPuji	50	50	60	50	0
IbnuSudrajat	30	50	0	50	0
Ryan Rochmansyah	40	60	0	70	0
RinoViagustama	60	50	60	50	0
AnggaAfrilianto	50	70	60	50	0
Tri AgungAriswanda	0	0	80	0	0
Faisal Asmi	0	50	0	0	50
RahmatAfri	40	50	0	50	0
WahyuAryanto	40	50	0	50	0
Yoga Ermanda R	70	50	50	50	0

Chart 1. The ability DIY volleyball athletes in the training process:

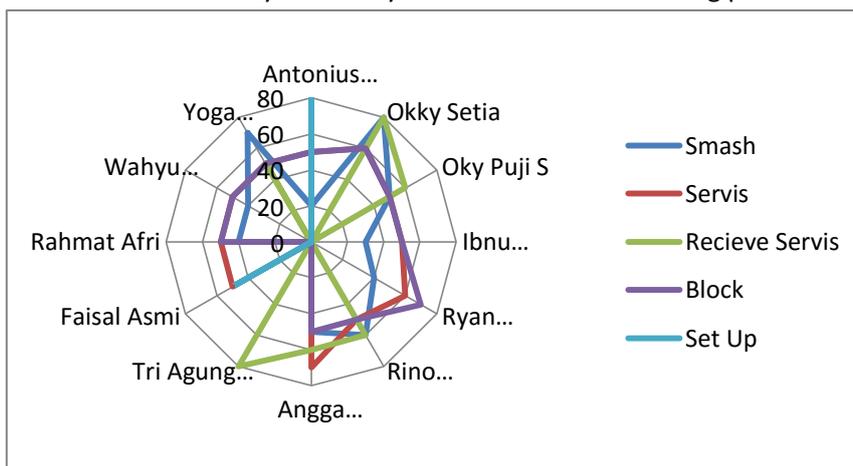
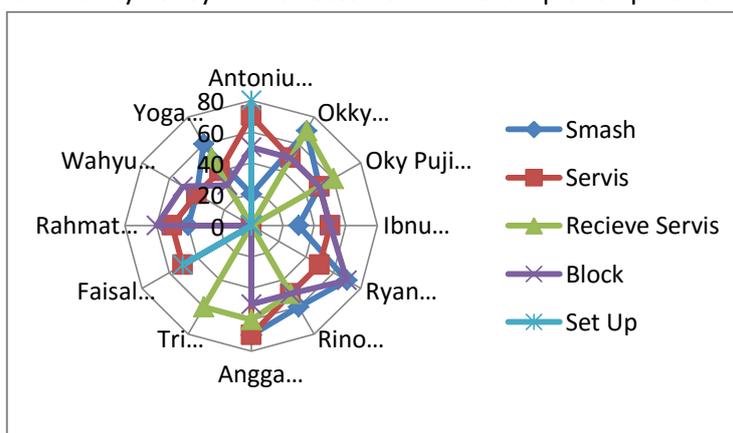


Table 3. The current data in the PON West Java Match 2016:

Name	Spike	Serve	Receive serve	Block	Set Up
Antonius AdiNugroho	20	70	0	50	80
OkkySetiaPrimadi	70	50	70	50	0
OkyPujiSetiawan	50	50	60	50	0
IbnuSudrajat	30	50	0	50	0
Ryan Rochmansyah	70	50	0	70	0
RinoViagustama	60	50	50	50	0
AnggaAfrilianto	70	70	60	50	0
Tri AgungAriswanda	0	0	60	0	0
Faisal Asmi	0	50	0	0	50
RahmatAfriBayu	40	50	0	60	0
WahyuAryanto	40	40	0	50	0
Yoga Ermanda R	60	40	50	30	0

Chart 2. Ability volleyball athletes PON DIY Championship 2016 West Java:



DISCUSSION

Based on the research results obtained and carried out the study it can be concluded that the ability of volleyball athletes are prepared Yogyakarta Special Region and also competed in the National Games in 2016 have the following capabilities:

- 1) The ability of the Service Receive volleyball team in the championship volleyball at the National Games in West Java showed that the average in the category of Less: 58.33%. While ideally the ability receives servicing volleyball team should be above 80%.
- 2) The ability Passing Up or Setup athlete's volleyball team in the Yogyakarta Special Region of Yogyakarta Special Region PON indicates which category fairly average: 65%. While ideally the ability of the athlete in the event that is above 80%.
- 3) Ability Smash volleyball team Yogyakarta Special Region championships National Games in 2016 in the category of less than average: 51%. While the ideal above 80%.
- 4) Ability to Block's volleyball team Daerah Istimewa Yogyakarta in 2016 in the category of self, which is the average: 51%. While ideally to block the ability of 60%.
- 5) Serviceability volleyball team Daerah Istimewa Yogyakarta show less categories, namely the average 51.81%. While ideally ideal for servicing ability is above 70%.

Based on the above results, the results were mostly in the poor category and quite yet nothing in either category, this is because some of the most important factor is the psychological factor athlete, where athletes volleyball team Yogyakarta Special Region have less hours to play or try out and try in, This was evidenced by the ability of the service that is affected by myself a lot of mistakes servicing. Another thing that affects the ability of the athlete is less intensive exercise is influenced by several athletes many who are already working and studying so that the training process less than the maximum.

CONCLUSION AND SUGGESTION

CONCLUSION

Description volleyball athlete's ability Yogyakarta Special Region prepared and also competed in the National Games in 2016 has the following capabilities:

- 1) The ability of the Service receives volleyball team in the championship volleyball at the National Games in West Java showed that the average in the category of less: 58.33%. While ideally the ability receives servicing volleyball team should be above 80%.
- 2) The ability Passing Up or Setup athlete's volleyball team in the Yogyakarta Special Region of Yogyakarta Special Region PON indicates which category fairly average: 65%. While ideally the ability of the athlete in the event that is above 80%.
- 3) Ability Smash volleyball team Yogyakarta Special Region championships National Games in 2016 in the category of less than average: 51%. While the ideal above 80%.
- 4) Ability to Block's volleyball team Daerah Istimewa Yogyakarta in 2016 in the category of self, which is the average: 51%. While ideally to block the ability of 60%.
- 5) Serviceability volleyball team Daerah Istimewa Yogyakarta show less categories, namely the average 51.81%. While ideally ideal for servicing ability is above 70%.

SUGGESTION

- 1) For the stakeholders in this regard KONI Special Region of Yogyakarta should give more attention to the sport that need special attention both funds and readiness towards an event.
- 2) For Athletes should keep spirit of practicing and more receptive to the sports policy conditions in Yogyakarta were significantly less able to form systems with excellent sport.

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THE OPEN SPACE AND PUBLIC PARTICIPATION PART OF SPORT DEVELOPMENT IN WONOGIRI REGENCY

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Abstract

Sport Development in a region can't be measured only based on one indicator of medal achievement in multi event competition but can be used by measuring open space and the public participation in doing sport activities. Although it's a simple thing, but it will give the right information about long term development clearly, especially in sport sector which is more relatable with other development sectors. The purpose of this research was for knowing the index of open space and the index of public participation. Technique of sampling in the research used Stratified random sampling with cluster sampling and the amount of the sample is 270 people. The research used evaluation method. The technique of collecting Data used observation, questioner, and document. The result of the research showed the amount of the index of open space was 0,711 and the index of public participation was 0,237. It means that 0,711 people in Wonogiri Regency have enough open space for sport. Meanwhile, there are only 0,237 people in Wonogiri Regency who participate in sport minimum three times a week. The conclusion of the research is public participation in wonogiri regency in doing sport is very less, although they are provided good enough open space. There are many things that should be noticed to improve people enthusiasm for doing sport so that physical's health of people in Wonogiri regency can be maintained. In addition, having good physical's health is expected can make good influence to other life sectors including in sport achievements.

Keywords: sport Development, open space, public participation

INTRODUCTION

Development is a programmed effort that is done continuously to maintain and improve human's life level, both physically and psychically. Development cannot be separated from the growth, which means that development can cause the happen of growth. In this case, the growth can be expansion, or improvement from the activities of a people community.

Systematic effort for expansion which is released in synergic power has been done in the development of all sectors, includes sport development. Although there are many achievements that have been received in sport sector, actually there are still many things lack in effort of sport development in our country, moreover it can be said that the success is not balance with the potential.

Through the systematic sport training, human resource can be directed for improving self control, responsibility, discipline, high level of sporty which contains transfer's value for other sectors. Based on the characteristics, finally it can be gotten improvement sport's achievement that can totally rises national proud and defense.

Nowadays, the focus of sport development is to civilize and improve sport achievement. If we put a relation to sport building, it means that the strengthening of sport building foundation is sport culture and the strengthening of sport achievement's seedling pattern. It has a purpose to create a huge amount of talented prospective athlete from many regions of Indonesia which is suitable with

the physical character, local culture, and the environment's condition that supports the formation of sport potentials in the regions.

Measuring the level of people sport development is not only done by one indicator, medal achievement, but it can also be done by measuring Indonesian sport development through the SDI (Sport Development Index). SDI is the instrument to measure the result of sport development in region. SDI is the new concept that released after published reports about human's development in all countries around the world that had been issued by UNDP (United National Development programme). It is a united nation's organization that works in the development sector.

SDI is expected to determine the level of sport progress in a region. Because of that, the creation of competition climate in sport development can be directed to basic nature sport development, not in an instant such as medal achievements.

According to Cholik and Maksum (2007), SDI is the combined index that reflecting the success of sport development based on four basic dimensions: (1) Open space that provided for sport, (2) Human Resource or athletes who have been involved in sport activity, (3) the society's participations to do regular sport and (4) Physical health that can be reached by the people.

The focus of the research was related to four open space's dimensions and the public participation. The open space was determined based on criteria: (1) used for sport activity, (2) purposely designed to sport activity, and (3) can be accessed by wide community. Participation dimension is based on how many community members in a region who do sport activity. Open space dimension is based on how large the place which is used to sport activity for the people in a land or building.

One of region in Indonesia which has a potential to create prospective athlete is Wonogiri regency. Several problems that should be faced in sport achievement civilizing and training in Wonogiri regency are educational sport sector, special sport school in wonogiri which is still limited, the lack of personnel in sport who understand about the system of early age sport training, and the facilities and infrastructures which is not good enough.

For that reason, the government tries to improve sport activity through the school training or sport club. It is expected to create good prospective athletes. The achievement can make national proud increased and also it can be calculated as measurement of region progress.

METHOD

This research is an evaluation study about sport development. The technique of collecting data used observation, questioner, and document. The research has been done in Wonogiri regency in September until December 2016. The technique of sampling used stratified random sampling with cluster sampling with the number of sample was 270 people which consist of the people from Wonogiri district, Bulukerto district, and pracimantoro district. The researcher took 90 people from every district who had been divided into 3 age stages, they are 30 people of children (7-12 years old), 30 people from teenagers (13-17 years old), and 30 people of adult (18-40 years old) that consist of 15 male and 15 female.

After getting the result of open space index and public participation index, then the researcher determined index level based on SDI norm table as followed:

Table 1. SDI NORM

The number of index	Norm / categories
0,800 – 1,000	High
0,500 – 0,799	Medium
0,000 – 0,499	Low

(Kristiyanto, 2012)

RESULT OF THE RESEARCH AND DISCUSSION

1. Public sport room in Wonogiri Regency

Public sport room is a space or room which can be used to sport for the public both indoor and outdoor. The number of open space that been measured based on open space ratio in a region with the number of society in age 7 years old and more. Open space standard that been adopted by Olympic committee is 3.5 m and minimum score is 0 m. The formula that can be used to get the number of open space index is:

$$\text{Open space index} = \frac{\text{Actual score} - \text{Minimum score}}{\text{Maximum score} - \text{Minimum score}}$$

(Kristiyanto, 2012)

a. The index of open space in Wonogiri district

Based on the result of field observation that been done about the amount and the area of public sport room in Wonogiri district, it can be found that the length of public sport room is 222.785 m. Meanwhile, the amount of people who is more than 7 years old is 75.296 people.

$$\text{Actual Score} = \frac{222.785}{75.296} = 2,959$$

After getting the actual Score, then the researchers counted open space index in wonogiri district as followed:

$$\text{Index of open space} = \frac{2,959 - 0}{3.5 - 0} = 0,845$$

From that score, it can be known the index of open space in wonogiri district is 0.845. It means that the amount of public sport room in Wonogiri district is in high category.

b. The index of open space in Bulukerto district

Based on the result of field observation that had been done, it can be found that the length of public sport room is 65.252 m and the amount of people who is more than 7 years old is 27.224 people. Actual score was gotten from the amount of open space area in Wonogiri district divided with the amount of people who be in age 7 years and more in Bulukerto district area.

$$\text{Actual Score} = \frac{65.252}{27.224} = 2,397$$

After getting the actual score, then the researcher counted the index of public sport room in Bulukerto district as followed:

$$\text{The index of open space} = \frac{2.397 - 0}{3.5 - 0} = 0,685$$

From the count, it can be known the index of open space in Bulukerto district is 0.685. It means that the providing of open space in bulukerto district is in medium category based on sport development index (SDI) norm.

c. The index of open space in Pracimantoro district

Based on the result of field observation that has been done about the amount and the length of public sport room in Pracimantoro district, it can be found that the length of public sport room is 118.160 m and the amount of people who be in age 7 years old and more is 55.979 people. Actual score is gotten from the amount of public sport room in Pracimantoro district divided with the amount of people who be in age 7 years old and more in Wonogiri district.

$$\text{Actual Score} = \frac{118.160}{55.979} = 2,111$$

After getting the actual score then the researchers counted the index of public sport room in Pracimantoro district as followed:

$$\text{The index of Open space} = \frac{2.111 - 0}{3.5 - 0} = 0,603$$

Based on the count, it can be known that the index of public sport room in Pracimantoro district is 0.603. It means that the providing of public sport room in Pracimantoro district is in medium category based on Sport Development Index (SDI) norm.

d. Public Sport Room in Wonogiri Regency

Based on the result of public sport room in three districts, sample that has been gotten described the index of public sport room in Wonogiri regency as followed:

Table 2. The score of index of public sport room in Wonogiri regency

Number.	Name of District	Score of the index of public sport room
1.	Wonogiri District	0,845
2.	Bulukerto district	0,685
3.	Pracimantoro district	0,603
The index of sport human resource in Wonogiri regency		0,711

The score of public sport room index in Wonogiri regency that had been got from 3 districts which has been researched is 0.711. Based on the SDI norm, Wonogiri Regency is in the medium category. There are 711 people of 1000 people in Wonogiri regency who had been provided the open space for sport. It is because there are many government's facilities which is used for sport and the people creativity to use empty land for sport room. In addition, many sports facilities and infrastructure private property that is accessible by the general society such as the pool, futsal court and fitness center.

Despite the availability of open space Wonogiri enough good, but not yet meet the standards of open space ideal adopted by the Olympic Committee was set at 3.5 m per person, if the comparison between the availability of open space with a population of over 7

years in Wonogiri The results show the index value of open space Wonogiri in the position of moderate / medium when compared to the norm Sport Developmet index (SDI).

Still need the attention of the government to expand the open space of sport for society that fulfilled the needs of physical activity that is equal to 0.299. Besides equity in the construction of sports facilities and infrastructure in each district is also worth noting that there is the potential of sports which can be developed to the fullest.

2. Public participation

To know about public participation in Wonogiri is by giving questioners. Sport participation basically divided into two kinds. They are common participation and special participation. Sport participation commonly can be done directly and indirectly. Direct sport participation means people directly doing sport involving their physical. Meanwhile indirect sport participation is a sport which been done indirectly and not involved with physical activities such as event organizer sponsor, sport industry/ sport room rental/ and sport equipments providing.

Special participation is about getting involved directly and actively as sport people. Sport can be formal such as achievement sport, and informal such as traditional sport, and also it can be recreational, competitive, and fitness sport. These kind of sport is done in family, society, and also in educational environment that usually called by physical education.

Participation score was measured based on ratio between the participant and the amount of population in age 7 years old and more when the research was done. People sport participation is based on sport frequents which has been done minimum three times a week. The formula to get the index of public participation is as followed with the maximum score is 100 and the minimum score is 0.

$$\text{The index of participation} = \frac{\text{Actual Score} - \text{Minimum Score}}{\text{Maximum Score} - \text{Minimum Score}}$$

(Kristiyanto, 2012)

The collecting data of sport participation in Wonogiri regency used three sample districts. They are Wonogiri district, Bulukerto district, and Purwantoro district. Every district was taken 90 samples to be given questioner about sport participation. The sample was categorized based on age. They are 30 Children in age 7 – 12 years old, 30 teenagers in age 13 -17 years old, and 30 people in adult category with age 18 – 40 years old. 30 adult are 15 male samples and 15 female samples. The determination of the sample is as followed:

Table 3. Public participation Sample to Sport

District	Categories		
	Children (7-12 years old)	Adolescence (13-17 years old)	Adult (18 – 40 years old)
Wonogiri distric	SDN 1 Wonogiri	SMAN 2 Wonogiri	Bulusulur Village
Bulukerto distric	SDN 2 Krandegan	SMKN 1 Bulukerto	Conto Village
Pracimantoro distric	SDN 1 Jimbar	SMKN 1 Pracimantoro	Pracimantoro Village

a. Public Participation in Wonogiri District

This is the result of questioners about public participation of sport in Wonogiri district

Table 4. The result of questioner of People sport participation in Wonogiri district

Category	Doing sport min. three times a week.		Amount
	Male	Female	
Children (SDN 1 Wonogiri)	8	5	13
Adolescence (SMAN 2 Wonogiri)	4	2	6
Adult (Bulusulur Village)	7	1	8
From the amount of 90 respondent			27

From the result of questioner which was given to 90 respondent people, they are 27 people who do sport minimum three times a week. This amount will be divided with the amount of the respondents which is 90 people. Then it will be multiplied 100 % to get actual score. The actual score is:

$$Actual\ score = \frac{27}{90} \times 100 = 30\%$$

After getting the actual score, then it will be used to count the index of participation in Wonogiri district as followed:

$$Participation\ index\ of\ Wonogiri\ district = \frac{30 - 0}{100 - 0} = 0,3$$

Score 0,3 showed that public participation of wonogiri district is still low if it is compared with the Sport Development Index (SDI) norm. There are only three of ten people in Wonogiri district doing sport three times a week.

b. Public Participation in Bulukerto district

This is the result of questioners about public participation in sport from Bulukerto district with the amount of respondents is 90 people from three age categories.

Table 5. The questioner result of people sport participation in Bulukerto district

Categories	Doing sport min three times a week		The amount
	Male	Female	
Children (SDN 2 Krandegan)	3	3	6
Adolescence (SMKN 1 Bulukerto)	3	3	6
Adult (Conto Village)	7	0	7
From the amount of 90 respondents			19

From the questioner result which was given to 90 respondents, there are only 19 people doing sport minimum three times a week. This amount will be divided with the amount of 90 respondents then it will be multiplied 100 % to get actual score. The actual score is:

$$Actual\ Score = \frac{19}{90} \times 100 = 21.11\%$$

The actual score is 21.11 % and maximum score is 100, then the minimum score is 0. The index of public participation in sport from Bulukerto district is:

$$\text{participation index of Bulukerto district} = \frac{21,11 - 0}{100 - 0} = \mathbf{0,211}$$

This 0.211 score showed that public participation in sport from Bulukerto District is still low if it is compared with the sport development index (SDI). There are only 211 people from 1000 people who have enthusiasm in doing sport three times a week.

c. Public Participation in Pracimantoro Distric

Based on the result of questioners which had been given to 90 respondents, there are 18 people doing sport minimum three times a week. This amount then will be divided with 90 total respondents then multiplied 100 % to get the actual score. The actual score is:

$$\text{Actual score} = \frac{18}{90} \times 100 = 20\%$$

Table 6. The questioners result of public participation in Pracimantoro Distric

Categories	Doing sport min. three times a week		Total
	Male	Female	
Children (SDN 1 Jimbar)	4	4	8
Adolescence (SMKN 1 Pracimantoro)	5	0	6
Adult (Pracimantoro Village)	3	1	4
From the total of 90 respondents			18

After getting the actual score, the index of public participation in Pracimantoro distric will be counted as followed:

$$\text{Participation Index of Pracimantoro district} = \frac{20 - 0}{100 - 0} = \mathbf{0,200}$$

This score 0.200 showed that public participation in sport from Pracimantoro district is Still low if it is compared with sport development index (SDI) norm.

d. Public Participation in Wonogiri Regency

Based on three sport participation index from three districts which had been used as sample, it can be known that the average which showed the index of public participation in doing sport in Wonogiri regency is as followed:

Table 7. Public participation Index of Wonogiri regency

Number	Name of districts	Participation Index
1.	Wonogiri District	0,300
2.	Bulukerto District	0,211
3.	Pracimantoro District	0,200
	Sport participation index in Wonogiri regency	0,237

Based on the table above, public participation index in Wonogiri regency showed the score 0.237. If it is seen based on Sport Development Index (SDI), this score is still far from score 0.499. It means that public participation in Wonogiri regency is in Low category. From 1000 people, there are only 237 people in Wonogiri regency doing sport minimum three times a week.

This indicates that people Wonogiri have awareness for exercise is low, not only because of internal factors of the community such as do not have time to exercise because of work, exhausted after doing daily activities, and is also caused by external factors is not yet fully in facilitating well by the availability of open space sport and also the availability of human sports.

The government should conduct public education about the benefits of exercise for health and also the effect of exercise on other areas of life. Offset by the establishment of policies that lead to make people do sport and promote sports. It is expected there will be awareness from within each community to participate in sports. Sport is expected to be a need for the people, the government stay to keep the rhythm and encourage people fond of exercise in order to create the sports culture as the foundation of achievement.

CONCLUSION

Based on the result of research above, it can be concluded that sport development in Wonogiri Regency is in low category. Although there are many achievements that have been received by the Wonogiri's athletes, but the basic thing that have been used as foundation to answer the question about how many medals that have been received in multi events competition is related to public sport room and public participation in Wonogiri regency to do sport cannot be done properly.

From the result of the research, it showed the index of open space in Wonogiri regency is 0.711. It means that from 1000 people in Wonogiri regency, there are 711 people who have been provided enough open space for doing sport. Meanwhile, the index of public participation is 0.237 which means that public participation in Wonogiri regency is in low category. From 1000 people, there are only 237 people doing sport minimum three times a week.

The provision of good open spaces cannot make people in Wonogiri regency has enthusiasm to use the facilities to do sport, even though there are many benefits that can be got from doing sport to body health and physical health in common. Physical health is a basic factor for someone to do daily activities without getting much tired.

SUGGESTION

In order to improve sport development in Wonogiri regency, the government should not rule out sport sector anymore, as sport gives big contribution to other sectors. People awareness to do sport gives contribution in individual built and they become smart, healthy, creative, strong, competitive, prosperous, and dignified people. It contains a meaning that sport position is very important and strategic because sport has high competency in giving influence to other sector's success, especially which is related to human resource quality improvement and the people life.

One of ways that can be done by the government is paying attention to sport development indicator based on open space providing and public participation. From the result of the research, it can be suggested to Wonogiri government to build sport facilities which has been planned to improve public sport room provision for the people not only indoor but also outdoor room as needed by the people to do sport in Wonogiri regency.

Besides, the government should make policies purposely to socialize sport and make people aware to do sport. The government should make sport events and make a special day to sport. It is

expected that people become more active to participate in sport activities which can improve human resource quality and the people life.

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**SPORTS HUMAN RESOURCE MANAGEMENT OF SPORT DEVELOPMENT INDEX IN PADANG,
WEST SUMATRA**

(Evaluation Studies of the Availability of Sports Human Resource Management)

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Abstract

Sport Development Index is a way to measure the improvement of sport development in a region. This research measures sport development by using sports human resource management in Padang as the indicator. The purpose is to discover the quality of sports human resource management in Padang examined from *Sport Development Index* and to analyze the availability of sports human resource. This research is conducted in Padang, West Sumatra Province, by taking data from 3 institutions as the scope of studies including the Education Authority, National Sports Committee of Indonesia (KONI), and a local non-formal institution. The research method applies qualitative and quantitative approaches. The qualitative data is collected through observation, document analysis and interview, while the quantitative data is taken by using a norm method of *Sport Development Index*. The result shows that the number of sport development in Padang based on the index of sports human resource management is 0.00082. According to the *Sport Development Index*, this number is within the range of 0.000-0.499. It means that sports human resource management belongs to low category quantitatively and qualitatively, or in the other words the quantity is deficient and the quality is low. To conclude, the sport development in Padang belongs to low category, thus the regional government needs to pay more attention and improve the sport development in the city.

Keywords: sport development, human resource

INTRODUCTION

The success of development, especially in human resource of a certain area, can be measured partially by observing how the fundamental problems on the society are resolved. The problems consist of poverty, unemployment, illiterateness, food security, and democracy uphold. Concerning this matter, the human development achievements are partially various in which the aspects have both success and fail outcomes.

The improvement in sport development is not measured from how much medals won from the national events like National Sport Week. According to National Sport System, the improvement needs to be associated with the human resource or the sport personnel participated in physical activities, the open space, the citizen participation, and the physical fitness of the citizens. All of the aspects are used to measure the sport development with SDI.

I take sports human resource since I want to discover the sport development in Padang from human resource aspect. Furthermore, the open space is widely dispersed in many areas of the city, the citizen participation is relatively high and the physical fitness is good already. From the reasons above, I write a research entitled "*Sports Human Resource Management based on the Improvement of Sport Development Index in Padang, West Sumatra*".

LITERATURE REVIEW

Manullang (2002: 3) says that management has 3 definitions, which are a process, a collectivity of people doing management activities, and an art or a knowledge. Here, management as a process also has different meanings. George R. Terry in Soewarno Handayani (1992: 20) mentions that as a process, management distinguishes planning, organizing, actuating the work administration, and controlling by using either the knowledge or art to complete the goals. In this context, management can be defined as a process comprised of those four elements.

In accordance with accumulation and globalization, the development of management knowledge creates various opinions for the functions. Untung Nugroho (2015:11) states about the main functions in management, such as planning, organizing, actuating/directing, and controlling.

This research employs a framework identifying the common functions of management, which are:

1. Planning

Charles A. Bucher and March L. Krotee (2002: 9) say that planning is a logical process to analyze the work together purposely by applying certain method and time allocated for the work. Besides, Untung Nugroho (2015: 11) defines that this element is a process to define the purpose of organization, to make strategy to achieve the goal, and to develop the work plan of organization. Terry in Harsuki (2016: 85) mentions that planning is the arrangement of the integrated and predetermined pattern of future activities.

2. Organizing

This aspect comes from *'to organize'* which means conducting and arranging the organization for certain purpose. It also derives from *'organ'*, in which *Webstre'e New Collagiale Dictionary* notifies it as *'organon'* from ancient Greek. Here, *'organ'* means as an instrument or medium used for important activity or accomplishable purpose. In short, *'to organize'* means arranging the separated parts to be a complete unity for doing activities or accomplishing the goal.

3. Actuating

According to The Liang Gie in Achmad P (2012: 78), actuating is the manager's activity in commanding, assigning, directing, guiding, and leading the employees or personnel to do the task in order to achieve the settled goal. This element involves with the activity of manager in starting and continuing the task settled within planning and organizing aspects to accomplish the goal. This element intends to actuate the members of organization to feel motivated.

4. Controlling

This aspect can be defined as a process to apply, evaluate, and correct the finished task to make sure that it is in line with the plan (Manullang, 2002: 173). Nugroho Untung (2015: 27) explains this aspect as a controlling activity to keep the organization's performance on the right track and to ensure that the goal can be achieved.

Sport Development Index is a combining index which reflects the successfulness of sport development measured from 4 basic dimensions, which are the open space, human resource or sport personnel participated in physical activities, the citizen participation to do regular physical activities, and the physical fitness level of the citizens.

Sport pillar in UU No. 3 Year 2005 about sport system mentions that it does not only involve with the achievement but also education and recreation. Regarding this matter, the successfulness is not measured merely by the medals, especially if they are worthless or won from doing improper way.

Therefore, *Sport Development Index* (SDI) emerges as an idea to represent the sport development success and to measure sport development improvement in a region.

METHOD

This research was conducted from December 2016 to January 2017. It belongs to descriptive quantitative research since the substance and the focus concern with sports development studies. The result is presented through numbers. The data collection methods are consisted of observation, interview, and documentation.

I focus on the teachers and lecturers of physical education, coaches, instructors, and the referees to observe the availability of sports human resource. I count the index after I get the numbers. First, I find the actual value by dividing the total amount of sports human resource with the citizens above 7 years old. The maximum value, which is already settled by SDI, is 2, 08 while the minimum value is 0, 00. Then, I count the result with the formula below:

$$HR\ Index = \frac{Actual\ Value - Minimum\ Value}{Maximum\ Value - Minimum\ Value}$$

After all the indexes are counted and the whole index value is obtained, the last step is to determine the category or norm of the value index for justification. The employed SDI norm is:

Table 1. SDI Norm (Kristiyanto, 2012: 49)

Number of Indeks
0.800-1.000
0.500-0.799
0.000-0.499

RESULTS AND DISCUSSION

Table 2. Sports Human Resource at the Education Authority in Padang

Professions		SEX		Certification	
		Male	Female	Certificated	Non-Certificated
PE Teacher	Elementary School	217	222	185	254
	Junior High School	64	37	85	16
	High School	84	31	77	38
	Lecturer	60	7	45	22
Total		425	297	392	330

Table 3. Sports Human Resource at KONI in Padang

Professions		SEX		Certification	
		Male	Female	Certificated	Non-Certificated
PE Teacher	Elementary School Junior High School High School				
Coaches		168	72	112	128
Instructors		33	21	3	51
Referees		278	67	345	0
Total		479	160	460	179

Table 4. Sports Human Resource at a Non Formal Institution in Padang

Professions		SEX		Certification	
		Male	Female	Certificated	Non-Certificated
PE Teacher	Elementary School Junior High School High School				
Coaches		8	0	0	8
Instructors		33	14	0	47
Referees		0	0	0	0
Total		41	14	0	55

The observation results for the sports human resource are gathered from the Education Authority, the National Sports Committee of Indonesia (KONI), and a non-formal institution. They show that the total of the sports human resource in the city is 1416 people and the total of citizens above 7 years old is 845. 915. Thus, the actual value is taken by using the formula of HR index, which is **1416 / 845. 915 = 0.0017**.

In short, the index result above concludes that the index value of the sports human resource in Padang can be described as:

Table 5. The Index Value

No.	Institutions	Index Value	Criteria
1	Education Authority	0.00041	Low
2	KONI	0.00033	Low
3	Non-formal Institution	0.00003	Low
Total of Index Value		0.00082	Low

CONCLUSION

Based on the data analysis result, it can be concluded that the value of sport development result measured by *Sport Development Index* is 0, 00082. The index value is categorized as low. The data also show specific results, such as:

1. The index of sports human resource in Padang measured by *Sport Development Index* is 0.00082. This number is within the range of 0.000-0.499, means that it belongs to low category. In this context, sports human resource is classified as deficient quantitatively and low qualitatively.
2. The number for the whole availability of sports human resource in Padang is 945 for male and 471 for female, thus the total amount is 1416 people.

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TRADITIONAL GAMES AS THE NATION'S CULTURAL HERITAGE

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Abstract

Objective: to determine the existence, amount and types of traditional games which are in the district of Semarang. Methods: This study was descriptive qualitative research with survey method. Samples from this study is the physical education teacher and elementary school students who are in the district of Semarang. Data collection techniques in this study using questionnaires, interviews and documentation. Results: The results of the study show the following: (1) There are various traditional games in Semarang District; (2) the number of traditional games contained in Semarang District of ten traditional game consists of: Bentengan, Gobak Sodor, Sunda Manda, Bakiak, Bintang Bergilir, Bola Bakar, Egrang, Rok Dodok, Kucing Tikus dan Ular Naga; (3) traditional games which are in the district of Semarang who often played the children of eight games consist of: Bentengan, Gobak Sodor, Sunda Manda, Kucing Tikus, Bintang Bergilir dan Bola Bakar. Conclusion: The traditional game contained in Semarang district as many as ten games and traditional games are often played in Semarang district as many as eight games.

Keywords: tradisional games, nation's cultural heritage

INTRODUCTION

Age of ever changing and evolving, the development of science and technology is moving forward. Along with advances of science and technology then there is also change pattern of human life. Changes that occur as a result of the rapid progress of science and technology that is so can be seen clearly from the activities conducted children. Subrahmayan (Ukasyah and Irfansyah, 2015: 125) explain that the game is already using technology make children less likely to move. Children just sit in front of the television and playing by clicking on media without use a lot of moves. This ultimately resulted that child has a tendency to be obese. Not only affects the growth and physical development of children but also have an impact on the social, emotional and mental. Further Rusli Lutan (2001: 17) explain that physical development of children is not solely dependent on the process maturity. The development was also influenced by the experience of motion of children both in terms of quality as well as many aspects of the experience. Children should acquire ample opportunities to move and play. Therefore, in line with the progress of science and technology is not merely acceptable but there should control to minimize the negative impacts that occur in life, especially for the next generation or children.

Basically, children need a lot of physical activity to stimulate growth and development of children. Physical activity will also benefit for health and fitness of children. One of physical activity that often children do are playing a game. By playing children has a lot of benefits that can be obtained, for example children become happy, can make friendship, enriching children movement and can learn new skills. One of game that can support growth and development of children is traditional game. The traditional game is one of tools for children to play. In addition to health benefits, wellness and child development, there are also positive values contained in traditional

games like honesty, cooperation, sportsmanship, mutual help, responsibility, discipline and many more where these things can build the character of children. In addition, traditional games are more effective than daily activities in order to develop object control, locomotor abilities and basic skills (Hakimeh Albari et al, 2009: 126). The traditional games are structured such that directly affect psychomotor, cognitive and emotional development of children. Traditional games can influence the increase enjoyment of players and positively affect overall children development (Tatjana Kovačević and Siniša OPIC, 2014: 100).

Most traditional games and sports are an expression of the native culture and way of life that contributes to the common identity of humanity has been disappeared and the surviving also threatened become disappear or extinct due to the influence of globalization and harmonization diversity of heritage sports world (Jogen Boro et al, 2015: 88). Now these traditional games are becoming obsolete by children even little kids who do not know what it is the traditional game. Children only do physical activity in schools as part of the educational process. William Edi (2015: 8) explain that the loss of traditional games is caused by several factors, namely: (a) facilities and playgrounds does not exist, (b) the narrowing of time, moreover more complex the demands of times against children increasingly burdensome, (c) traditional games crowded out by modern games from overseas which does not take place, is not constrained by time either during the day, morning, afternoon or evening can do and do not need to wait someone else to play, (d) the dissolution of cultural inheritance made by previous generations where they could not record, record and disseminate a culture to the next generation of products underneath. Tatjana Kovačević and Siniša OPIC (2014: 109) explain that traditional games rarely played at recess school and class meeting, it happens because some of the constraints related lack of space and time to play in the school because of the number of students in the class are many and at least room to play. Solehudin (Jose Jjoossee, 2012) explain that play is an activity tool wear or not to wear a spontaneous, flexible, fun, not forced and develop a children imagination, regardless of the final result. Thus playing can be defined as an activity carried out both wearing tools or not wear tools that fun and help the growth and development of children. According Rochjadi Hasan (Jose Jjoossee, 2012) that the children world is a world of play, where to play for them it can be said Core Actifity or main activity. Slamet Suyanto (2005: 119-121) explain playing has important role in the development of children in almost all areas of development, both physical-motor development, language, intellectual, moral, social, and emotional.

According to Mariani, "A game can give pleasure and can develop children imagination". According Roesdiyanto, "The game is a competitive activity that involves physical skill, strategy, and chance or any combination of these elements". While the game model is a procedure performed with the use or not use a device that produces understanding to provide information, give pleasure and can develop a children imagination (Saiful Hasan et al., 2013: 184). Rogers & Sawyer's (Haerani Nur, 2013: 90) argues that up to school-age children playing for children has a very important meaning. The values are important for children to play, as follows.

1. Improving the ability of problem solving in children.
2. Stimulate the development of language and verbal abilities.
3. Develop social skills.
4. Represents container emotional expression

The traditional game is a form of games and sport activities that develop from a particular people's habits. In the further development of traditional games often serve as a kind of game that has a genuine regional characteristics and tailored to local cultural traditions. The traditional game is the type of game that requires physical activity to perform that game. Physical activity in question is running, jumping, jumping, throwing and more. The physical activity provide a diverse experience of motion to enrich children motor skills and stimulate the growth and development of children. Basically the traditional game is the cultural heritage of the nation and the legacy of ancestors whose existence must be preserved. As the nation has become a liability to maintain the existence of the traditional game. The traditional game is not simply a game of course, but there are values and cultural elements inherent inside. All over appears logical, each region has a traditional game that is characteristic of the area. Therefore, the socialization of traditional games must often be done and sustainable. In other words, there should be the conservation of the traditional game itself. This is done to anticipate the loss or extinction of traditional games in Indonesia.

Based on the above, researchers intend to identify the traditional games that are in Indonesia, especially in the district of Semarang.

METHOD

The method used in this research is descriptive qualitative research method with survey approach. According Sugiyono (2007: 1) a qualitative research method is the method used to examine the condition of the object that is natural, (as his opponent was an experiment) where researcher as a key instrument, data collection techniques as triangulation (combined), data analysis is inductive, and qualitative research results further emphasize the significance of the generalization. The subjects of this research is teacher of Elementary School contained in Semarang district.

Data collection techniques in this study were interviews, questionnaires, observation and documentation. Data collection instrument in this study was developed by the researchers themselves in the form of an interview section, a section observation and questionnaires. As for the attached instrument. In this research, there are two types of data used are primary data and secondary data. Primary data in this study consisted of interviews rubric and rubric questionnaire. While secondary data that will be used as support in this study is the observation and documentation.

The process of data analysis is done by means of triangulation three primary data. Rubric interview, observation and questionnaire sections will be analyzed, looking for similarities and contradiction through color coding system. The same data will be coded the same color. Different data will be identified and placed in a separate column. According to Miles and Huberman, there are three techniques analisis qualitative data: data reduction, data presentation and conclusion. This process takes place continuously during the study, even before the data is actually collected.

1. Reduction of Data

Data reduction is one of the qualitative data analysis techniques. Data reduction is a form of analysis that sharpens, classify, direct, dispose of unnecessary and organizing data such that the final conclusions can be drawn. Reduction does not need to be defined as the quantification of data.

2. Presentation of Data

Presentation of data is one of the qualitative data analysis techniques. Presentation of data is an activity when a set of structured information, thus giving the possibility of a conclusion. Form of

presentation of qualitative data in the form of narrative text (in the form of field notes), matrices, graphs, and charts network.

3. Withdrawal Conclusion

Conclusion is one of the qualitative data analysis techniques. Conclusion is the result of analysis that can be used to take action

RESULTS AND DISCUSSION

Table 1. Questionnaires result

No.	Statement	SA	A	D	DS	SDS
1.	Traditional games play an important role in physical education process in primary school	48.65%	51.35%	-	-	-
2.	Variety types of games depending on the interests of each children	32.43%	67.57%	-	-	-
3.	There is a local moral values in every traditional games performed by children in schools	56.76%	43.24%	-	-	-
4.	The development of the basic potential of children can be affected by their involvement in traditional games	21.62%	75.68%	2.70%	-	-
5.	Traditional games can be perform anywhere	40.54%	56.76%	2.70%	-	-
6.	Each variety of traditional games have local moral cultures values	35.14%	64.86%	-	-	-
7.	Betengan is a traditional game that is popular and frequently played	59.46%	35.14%	5.40%	-	-
8.	teacher as facilitator of physical education support through traditional games	37.84%	62.16%	-	-	-
9.	traditional game is one game that can help children in learning process	40.54%	56.76%	2.70%	-	-
10.	In implementation, traditional games require extensive locations.	-	18.92%	40.54%	40.54%	-
11.	Traditional games are always present in every learning process in school	13.51%	43.24%	32.44%	10.81%	-
12.	The traditional games are often played outside of school hours	5.40%	32.44%	51.35%	10.81%	-
13.	Enthusiastic children to play traditional games is high	13.51%	59.46%	27.03%	-	-
14.	The type of traditional game contained in Semarang district more than one type	27.03%	72.97%	-	-	-
15.	Type of traditional game played in schools more than one type	43.24%	54.06%	2.70%	-	-
16.	All the traditional game in Semarang district was introduced to the students	10.81%	64.86%	24.33%	-	-
17.	The traditional game is a national heritage that must be preserved	51.35%	48.65%	-	-	-
18.	Many students do not know the variety of traditional games contained in Semarang district	5.40%	70,27%	8.11%	16.22%	-
19.	Role of Teachers to socializing traditional games is very important	37.84%	62.16%	-	-	-
20.	Teachers introduce more than one type of traditional games in physical education at school	40.54%	59.46%	-	-	-

Information:

SA: Strongly Agree

A: Agreed

D: Doubt

DS: Disagree

SDS: Strongly Disagree

Table 2. Interview form

No.	Question	Answer
1.	What type of traditional games are often played by children in school?	
2.	Are all the children involved in the game?	
3.	Is the traditional game is always played when physical education in school?	
4.	Is the traditional game played outside of physical education hours?	
5.	How often traditional games played in school?	
6.	Have the children look bored when playing traditional games?	
7.	What types of traditional games in Semarang district that Mr / Ms know?	
8.	What type of traditional games that often Mr / Ms given in physical education at school?	
9.	How often Mr / Ms use traditional games in physical education learning?	
10.	How does the popularity of traditional games at the moment?	

Playing And game is identical with the children. Playing is one physical activity that often perform by children. Through playing children gain experience of motion that are beneficial for growth and development of children. The traditional game was originally a form of games and sports activities which evolved from the particular society. In the further development of traditional games serve as a kind of game that has a genuine regional characteristics adapted to local cultures. This traditional game is often played by children start from around home environment to school environment. Thus the traditional game is crucial maintained and preserved its existence given the importance of the benefits of the game itself and the traditional cultural values contained inside.

Based on data obtained from this study, traditional games contained in Semarang district still used as an equipmentin of teaching physical education in schools, especially at primary school. The students were very enthusiastic in participating or involved in any traditional game given by the teacher. In addition, data from questionnaires and interviews conducted in the presence of the teacher can be seen that the traditional game in Semarang district is inseparable from the role of physical education teachers that almost every physical education learning always use traditional games. The teachers make the learning activities as a means to introduce and preserve the traditional games which are in the district of Semarang. Therefore the role of physical education teachers is crucial in facillitating children to recognize traditional games and participate actively in it in order to preserve the nation's cultural heritage.

The traditional games which are in the district of Semarang is quite diverse that there are ten kinds of traditional games that consist of Bentengan, Gobak Sodor, Sunda Manda, clogs, Star Trophy, Ball Grill, stilts, Rok squat, Cat Rat and the Dragon. However, traditional games are most often played is Bentengan, Gobak Sodor, Sunda Manda, kucing tikus, bintang bergilir and bola bakar. It could be argued that the existence of traditional games in Semarang district still good even though most of the games more often done when the physical education lessons in school and not infrequently also

played when the breaks time at school. Despite the presence of traditional games still felt good, but respondents in this study revealed that the popularity of the traditional game is decreased in line with the development of more modern era. With the development of science and technology, playing and play the game can be done anywhere without need to set up the tools, facilities and infrastructure, the game can be played with the computer, a laptop even be played by mobile phone.

Thus it can be said the existence of the traditional game in Semarang district is still quite good. It can be seen from the number and types of traditional games played by children. The number of traditional games which are in the district of Semarang are ten types of games and traditional games are often played by children in Semarang regency consists of Bentengan, Gobak Sodor, Sunda Manda, , kucing tikus, bintang bergilir and bola bakar. The development of traditional games in Semarang district is inseparable from the role of physical education teachers in introducing and using traditional games as an equipment of teaching physical education at school.

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**WOMEN POSITION OF GENDER ISSUES ON PHYSICAL EDUCATION
SENIOR HIGH SCHOOL IN CENTRAL JAVA**

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Abstract

Freight curriculum of Physical Educational that carries gender equity is still being debated unresolved. This discourse is increasingly implicated are expressly often creates problems between men and women both sex and existence. The purpose of this study was to explore the extent to which an understanding of the concept of gender ideology teachers, students, stakeholders and society and their implications in practice of physical education. The design of research are exploratory qualitative and reflective. Respondents from the study include teachers, students, and stakeholders on senior high school / equals in Surakarta in Central Java in particular, Surakarta, Sukoharjo, Boyolali, Klaten and Karanganyar. The results showed that the average understanding of the concept of gender is still confused with the concept of sex. Characteristics of the dominant gender ideology is patterned nature. This is influenced by the social and cultural, religious, and general outlook of society towards women. Patriarchal culture in Surakarta is still quite strong, and extended until the learning space physical education. Although the discourse of equality have emerged in many ways, but the fact the view to make the different between men and women is stronger coloring. This then implies strong in physical education teaching practices implemented. Forms of domination in learning, differences in standards, as well as differences in communication patterns and different sanctions are implicated in the learning process of physical education.

Keywords: Gender Issues, Patriarchal Culture, Physical Education.

INTRODUCTION

The definition of physical education is different one with another, but the way people look at physical education often can not be separated from how a people see exercise retained Earnings general. It should be realized together that space culture of Indonesia significantly colored by shades of patriarchy on all fronts. Women only revered as the goddess mother, gave birth to a child, and is regarded as *kanca wingking* (Purwadi and Munarsih, 2005: 4). It is not avoided also in sports and physical education . The issues of gender not only in Indonesia but an international discussions taking place in each country. Ilse hartmann-Tews and Gertrud Pfister and Women in Sport (2005: 1). "*Social issues international perspective*", said; in many countries around the world women have taken part in the sport but are often marginalized. Countries that are members of the association comparative physical education and sport "International Society for Physical Education and Sport" (ISCPES), such as Spain, Brazil, South Africa etc. Is having almost the same problems concerning women. Sport has always attached with the masculine role. Strenuous physical activity and requires maximum muscle strength has always been the sport's image of natural common perspective, like perspective about the inevitable reality of the physical education (Setiawan, 2015; 2).

Physical education when trying referenced in the beginning with a clear definition contained in the mandate as outlined in the curriculum, namely: "Inseparable part of the overall education utilizing physical activity as a means to achieve the goal of education in general". Through these definitions can be easily understood that physical education is not to educate physical, but more

physically placed as a medium/road in obtaining educational purposes. Central Java, which includes the residency of Surakarta (Solo, Boyolali, Klaten, Sukoharjo, Wonogiri, Sragen and Karanganyar) historically attached to Kingdom of Surakarta history steeped in Javanese culture and Islam.

Cultural of Java complete with hospitality and courteous still strong of natural culture Central Java, and is still maintained even though there is a shift due to globalization, which is actually when associated with gender roles quite marginalized. In this case Purwadi and Munarsih (2005: 1) says; Women who mean *wani tapa and wani ditoto*, and be positioned as an object as a subordinate (the second) in everyday life.

It is similar to that expressed by Asriyani (2010: 49), that: "..... gentry culture is a culture derived from a system of government in which the relationship *Kotaraja* people with *Keraton* or Palace by devotion. Gentry Culture widely adopted by the family of Java in Surakarta in many ways become one of the causes of violence against women, particularly violence against women. Normative standards gentry culture is sourced to two things: religion and beliefs (culture). Things cultural shows gentry is valor, dignity, and violence. While women are the softness and beauty. The shape softness women featured in the arts such as songs and dances that are identical to the domestic sector, so the women are appropriate in the domestic sector only, while men are in the public sector. In this context, women are only a complement contributing greatly to elevate the authority of men. The cultural heritage is what ultimately grow and remain entrenched until now in the family who still adopt patriarchal values or cultural values that place women gentry as a supplement and is sometimes afraid to articulate what they want to do".

Reality above shows phenomenon of gender imbalance in the culture patriarchal in Surakarta is still very strong implicated. The situation almost every joint in society life, including the physical education sector so the position is quite desperate female students. This is the main attraction for researchers to try to crawl more in the practice of understanding and implementation of gender on teaching physical education in Central Java/residency of Surakarta. Space for physical education was chosen because in this context is believed to contest a real fight for gender discourse on display, which will conduct the cultural space of the body held in a learning space that exalts the concept of emancipation.

From the preliminary data retrieval step which is a preliminary study, the data found that the composition teacher of physical education in Surakarta dominated by physical education teachers men. Number of female physical education teacher is not more than 20 percent of all teachers physical education. The results show that understanding gender interviews by students still biased and inclined at about sex, and it is believed that distinction until the implementation of learning physical education. In fact, from student data that is dominated by a number of female students with a ratio of almost 60% of female students.

Table 1. Results of Preliminary Senior High School Physical Education Teacher

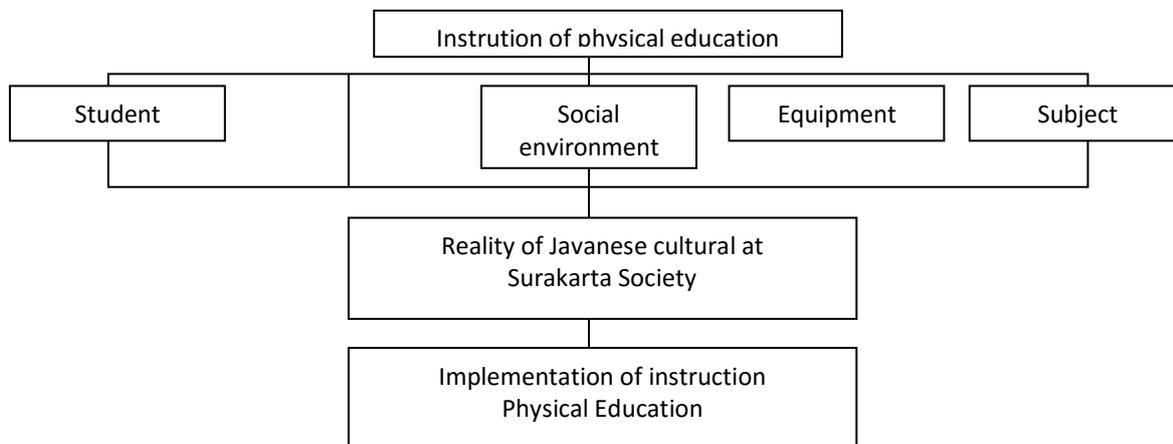
No.	Area	PE Teachers		Percentage Female / male x 100%
		Man	Woman	
1	Surakarta	96	19	19.79
2	Sukoharjo	102	16	15.68
3	Klaten	112	18	16.07
4	Boyolali	108	15	13.88
5	Karanganyar	98	17	17.34

Sources of data collected from a list of school teachers each region in 2015

Table 2. Data Number of Students meaccording to gender

No	Area	Year								
		2011			2012			2013		
		Students Tot		Teacher	students Tot		Teacher	Students Tot		Teacher
		Male	Female		Male	Female		Male	Female	
1	Surakarta	7742	9410	428	7745	9412	429	7743	9409	429
2	Sukoharjo	7942	9711	431	7944	9714	432	7941	9712	432
3	Klaten	8138	10008	433	8143	10012	434	8140	1009	434
4	Boyolali	8036	9996	432	8041	9998	433	8039	9998	433
5	Karanganyar	7983	9750	431	7985	9753	432	7985	9755	432

Source: B uku Surakarta d natural number 2014 / BPS



Formulation of the problem

The formulation of the problem in this research is how the practice of understanding and implementation of gender in physical education senior high school / equals in Central Java / Surakarta, which include: 1) How does an understanding / implementation physical education teacher by the concept of gender ideologues. 2) How do view boys and girls against ideologues gender and its implementation in physical education. 3) How do view by society and stakeholder the roles of men and women in sports and physical education?

The Aim

The purpose of this study was to conduct a comprehensive study on the practice of understanding and implementation gender in physical education space at the high school level in residency Surakarta. The investigation include: 1). Understanding physical education teachers on

concept gender ideologues thrive. 2). Perspective and trust in senior high school students/equals against ideology and implementation gender of physical education. 3). How to view the public and stakeholders in Surakarta on governance roles of men and women in sports and physical education. 4). Shape implementation of senior high school physical education/equal Surakarta residency in the perspective of gender equity.

Benefits of research

This study will provide benefits as: 1). One of the cornerstones of the development of science in the field of sports and Physical education. 2). Vehicle donations for the critical reflective practitioners of sports, priority for physical education teachers. 3). Critical discourse for students to exercise early and all beings concerned with the development of sport science and physical education. 4). The support to encourage studies sports and physical education to another, especially in a sociological perspective.

METHOD

Research design

This research are reflective qualitative exploratory. That is, in this study will try to conduct in-depth study of discourse then reflected descriptively to give meaning to objects. In qualitative research the understanding for object which are crucial, not merely to seek the absolute truth.

Respondents

Respondent research is purposive that include: Teacher that encompasses the identity of the competent standards, track record of teaching, gender and other things attached to the profession physical education teacher. 2). Student, although student research focused on the role of the daughter, but observations on boys also form source of information is closely related to the focus of the research, and at physical education learning the activity is simultaneous occurrence, so both of that was not separated and interact. 3). Society that case is related premises the school community and observers of general education and specific of physical education. 4). Stakeholder, principals and education authorities.

Data Collection Technique

Data's taken with a lot of ways, namely;1). Observation, 2). Depth Interview, 3). Focus Group discussion, 4). Study documents, 5). Triangulation.

Data Collection Instrument

Instrument in qualitative is own researcher and auxiliary instrument is; Interview guidelines, guidelines/observation sheet, FGD guides and guides triangulation.

Data Analysis Technique

Analysis data is done in succession as: 1). Reduction of Data, 2). Classification of data, 3). Display the data, 4). Interpretation of the data, 5). Presentation of results.

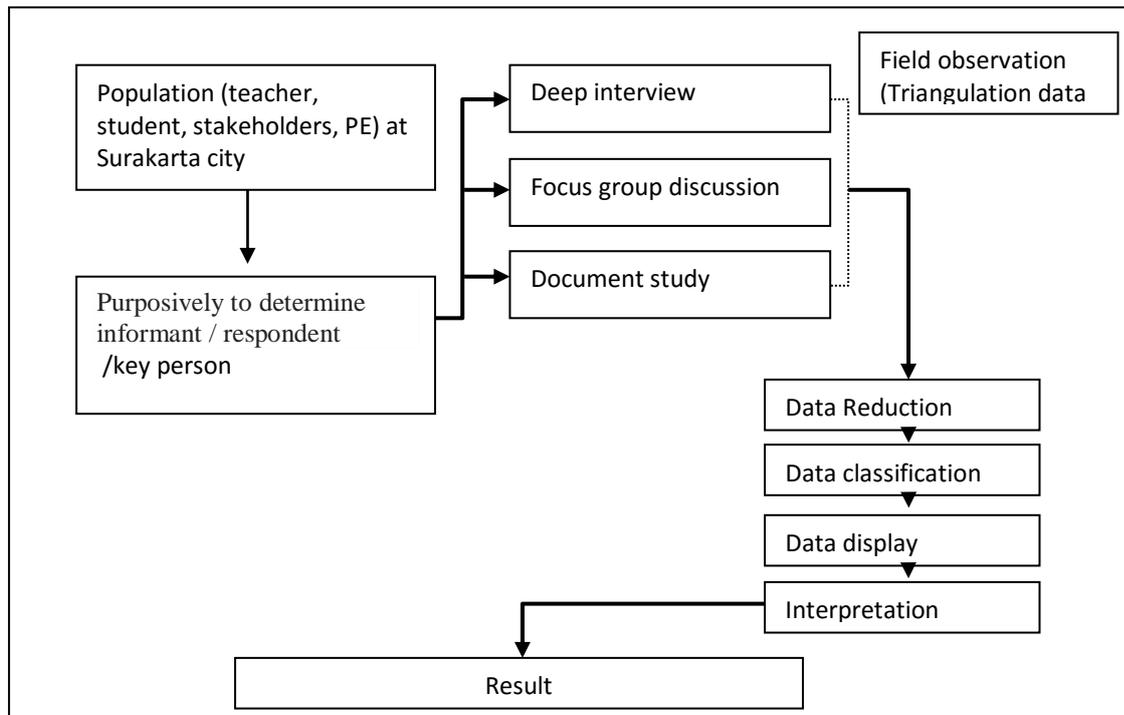


Figure 2. Lines of Research

RESULTS AND DISCUSSION

Central Java/residency of Surakarta as a cultural capital is still considered impressive, friendly and dignified, it stems from cultural heritage that is centered on the kingdom. Women only as a supplement and must follow the orders of the husband and nature of family life. Women who do weight movements, including in sports considered unusual (cypress) and damage the body. It is presented Prof. HYS Santoso Giriwoyo CS (2012: 176-177), in the "Sport Health Sciences", the *headline* "Female Athlete Triad" is reinforced from the American College of Sports Medicine (ACSM). Explicitly disorders that include; diet, menstruation and *stress fracture*. Further explained that the disruption is temporary and much greater benefits.

This sort of state is slowly changing because the impact of globalization which lead to advances in science and technology, gender roles seem more visible both in function in the family and in social function in society. Even the issue of the emancipation of women/gender in Indonesia starting from Kartini's struggle in the 1900s fighting for equal rights, including education, Armijn Pane (2008: 17). In its development has even become a competitor figure for men in strategic positions.

In the world of physical education roles of women and men are equal, this caused by a curriculum that requires students male and female to allow physical education teaching materials are the same. Its does not mean the achievement of boys and girls have the same results, explicitly men are stronger than women. So on average in physical education, student learning outcomes anaesthetized male better than female students, the role of gender in physical education are given the same opportunities and the provision of learning materials equally between male students and female students.

CONCLUSIONS AND RECOMMENDATIONS

Almost a certainty, that a mode of thinking is strongly influenced by its constituent cultural settings. Variety cultural nuances Surakarta patriarchal both historically and in the present context, can not be avoided is one role that led to the formation society perspective of the concept of gender. The results showed that, the concept of gender diversity in teachers, students, as well as stakeholders and the communities involved in high school in Central Java / Surakarta is both nature. This viewpoint is certainly an impact on the manifestation of physical education in the practice of teaching. In the context of heterogeneous normal, the male was strongly dominated in the process. Various forms of discrimination form of an opportunity as well as the communication system of sanctions and the evaluation showed strong clarity of diverse nature. Some conditions that anomalies arise precisely when the composition of the unequal social conditions (predominantly female/male). In the context of the minor and dominant, students tend to be more active daughter. This is one thing that should be a concern for a physical education teacher and other relevant stakeholders in the formulation of all forms of policy or strategy in teaching physical education. It is expected, a learning based gender justice can be expected to materialize.

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THE ENHANCEMENT OF FEATURED SPORTS PROCEDURES AND EVALUATION QUALITY IN LANDAK REGENCY

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Abstract

This study aims to determine the sport coaching which becomes priority as featured sports and to disclose any matters related to the improvement of procedures and evaluation of featured sports in Landak Regency. This research was sports action research. The population in this study was the athletes in the featured sport in Landak Regency. The subjects included two sports that became first and second featured sports in Landak Regency. The data was collected through interviews and observation. The results show that the prioritized order of the featured sports in Landak Regency is as follows: 1) Athletic, 2) Karate, 3) Boxing and 4) Judo. Although the enhancement of the featured sport in the regency has currently been prioritized, the recruitment of athletes in Athletics and Judo has not fully started at an early age. Therefore, sport coaching has not been conducted optimally by the respective local government. Based on the study, the constraints for the coaching program include inadequate sport infrastructures and limited transportation, especially for athletes who come from remote villages. Therefore, they do not get opportunity to join the selection and sport events in Landak Regency. The process of coaching has been carried out by monitoring the development of athletes through physical and performance tests of each athlete. However, the tests have not been done systematically and periodically. From the description above, the study concludes that it is necessary to improve the quality of procedure and evaluation of athletes in the featured sports through the process of sports coaching in Landak Regency.

Keywords: Featured Sports, Coaching, Landak Regency

TREKKING SPORTS DEVELOPMENT MODEL BASED LOCAL WISDOM IN SUPPORT OF SPORTS TOURISM INDUSTRY AT BULELENG BALI

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Abstract

Sports fields are now showing encouraging progress. This is evidenced by the many people who realized the importance of sports activities both for achievement, health and leisure. Modern human civilization is believed to be one of them be affected by sports fields. The development of the field of sport should be done in order to follow the development of human activity. According to Law No. 3 of 2005 Sport is all aspects related to sports that require regulation, education, training, coaching, development, and supervision. Program increased development in today's International puts the tourism sector as one of the main sources of foreign exchange earnings. Sport and tourism is the second thing that is very interesting. It is stipulated in Law No. 3 of 2005 and Law No. 10 of 2009 on the Indonesian tourism turned out to contain about the necessity of merging two of these fields is the field of sport requires the tourism sector to participate in advancing the field of sport, while the tourism sector also requires breakthroughs to advance the field of tourism Special interest one through sport. This research is the development of qualitative methods. The study population are government representatives, community leaders, experts, tourists, and organizers trekking activities. The research location in Buleleng regency Bali. The results show that the reseach trekking sports activities conducted in tourist destinations in the mix with the local knowledge is very attractive for tourists. Trekking sports model development as a supporter of sports tourism based on local wisdom in Buleleng district can serve as an example for other areas in Indonesia in the development of sports tourism. For sports institutions of Indonesia to further develop the field of development of sports tourism. For researchers sport, field research opportunities for sports tourism in Indonesia is still very much to be developed through research.

Keywords: Development trekking, local knowledge, sport tourism

CAREER ORIENTATION AND EDUCATION BADMINTON ATHLETES CENTRAL JAVA

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Abstract

Career planning is a deliberate thing where, through effort, effort, hard work planned high morale and unyielding will contribute and make ammunition within reach of his career. Not a few people who began his career through education and the world of sports especially in the sport of badminton. In Central Java one part of Indonesia there are some who do the badminton club coaching process and nurseries. Not a few parents who put their confidence to engage their children in the badminton club, and even sometimes the child is willing to leave the world of formal education by not going to school because the championship in the sport of badminton. The results of observations and the observations made in some there are a badminton club badminton athletes who do a good workout process from an early age and even into adulthood but it becomes propaganda for himself. Where because of his work to pursue the field training of athletes is often left the world of education that are not finished formal education that he traveled. On the other hand these athletes sometimes can not perform to the level he wants. The problem that arises is how the career of athletes is expected to meet their needs. Through these basic studies required an evaluation study of the actions that can provide breakthrough on career orientation and education for badminton athletes Central Java.

Keyword: Career Orientation, Education, Athlete Badminton Central Java

INTRODUCTION

A paradigm shifting in the world of sport and education is based on how each person will face a problem, which is how to get a proper job with what is expected in order to meet their needs. This problem is increasingly being experienced in line with there is no proportional job available with the population growth. Each progress achieved in the field of science and technology is not only brings advantages, but also disadvantages. One of the disadvantages caused by increasing science and technology is the decreasing number of employment opportunities, which is formerly done by human power, but now are being replaced by tools based technology. Another problem that commonly faced by some people who have been accepted in certain job are they do not suit with their talents and abilities, which makes some among them unable to carry out tasks or jobs entrusted to them well. Of course, such situation is very detrimental not only for employment is concerned but also for the individuals themselves.

In the future, these problems at least can be decreased if the young people prepare themselves as good as possible through understand theirself, environment and able to adjust with it. Along with the development and progress of era, people increasingly aware of the importance of education and sport for themselves. Even through education someone can define what the goals to be and would be pleases, so does in sport. Someone who study a certain sport in the world of sport is not only to channel their hobby alone but also to improve their living standards in the realm of sporting achievement.

Education for a nation is a very valuable asset in order to prepare the future generation who will be able to face the challenges and the progress of era. In preparing the next potential generation, it can be prepared through formal education, informal and non-formal to supply and

enrich the knowledge, skills, technology and art in the facing the progressing era. Formal education consists of primary education, secondary education, and education high implemented in stages, both held by the government or private. For non-formal education, it organized for the citizens who require educational services that act as substitutes, enhancer, and/or complement of formal education in order to support lifelong education. Meanwhile, informal education done by families and it formed in environmental learning activities independently.

Education and sport both have an important role in human life, through education a person can educate himself useful to earn a decent living while through sport someone can form a human being physically and mentally healthy and have the discipline character that will ultimately form a human quality, so people increasingly pay attention to sports activities and education in his life.

Someone's career or achievements are very desired by the majority of people both in the field of education and sports in which it is in tune with Simamora statements (2001: 505), a career is a sequence of activities associated with work and behaviors, values, and aspirations of a person during the person's life span. Career planning is a deliberate process in which the person becomes aware of attributes or requirements relating to personal's good careers and life-long series of steps that are expected to contribute to career fulfillment.

Nowadays many people are trying to pioneer his career through the world of sport as badminton is of one its example. Badminton is a sport that is very popular in Indonesia. Both in big cities and in villages, badminton game is a highly favored game by almost all-level society, old, young, male, and female. One person against one or two against two can play badminton. This game can be played indoors or outdoors and very easy to get supporting infrastructure facilities.

It obviously appeared from the number of existing badminton clubs and even not a few athletes who are good at it from an early age classification, novice, youth, teens, adults and even to veterans. Within the scope of Central Java, we can see some big clubs done the coaching and nurseries such as clubs, which are located in Kudus: Djarum Kudus, Champions, Taurus, Master and others. In Semarang: Star Perkasa, Pendowo, Healthy, Sunrise, USM Tri Star then in Kendal, there are, Hamas, SBR, Legend, achievements and so forth, and also in Tegal there are Sinar Mutiara, Guides Talent, Champions and others.

Through the number of badminton club, which undertake the process of fostering and nurturing athletes, it expected to produce the athlete who able to raise nations' reputation. Many parents hope to send their children, or to include them exercise in the badminton club. In fact, some athletes prefer to join certain badminton tournaments and willing to leave their formal education. A symptom arises to the athletes whether he persistent in formal education process or to choose badminton as pioneer to his future career. Of course, it is expected it can run together both in education or sport, but there is no doubt difficult to achieve both simultaneously because otherwise have to sacrifice or leave one of them. Moreover, if the events or tournaments were often arranged, it would pose a considerable impact.

The observations result and inspection conducted in several club of badminton, it revealed that athletes do the exercise from an early age and even progressed into adulthood but it becomes propaganda for himself. In one side, because of his persistent to pursue his career, the athletes often leave the world of education, so that is possible not finished formal education that he through. On the other hand, in badminton career, these athletes sometimes cannot perform to the level he wanted because of the intense competition that exists. The problem that arises is how the career

orientation and education that athletes expected can meet their needs. Based on this background, it is necessary to study the career orientation and education badminton athletes in Central Java.

Research Problems

Based on the background of study, it can be formulaic the research problems as follows:

- 1) How does the career orientation and education for badminton athletes in Central Java.
- 2) How does the evaluation model given to handle career orientation and education for badminton athletes in Central Java.

METHOD

Research background

This is a qualitative research, one of this type is evaluation research. Evaluation research is a part of decision process to compare a certain events, programs, and product with standards and programs that have been set. (Agung dan Sihombing, 2011: 8).

This type of research is using a program evaluation. A program evaluation is an attempt to examine the effectiveness of the program components in supporting the achievement of program objectives. Evaluation of the program refers to the gathering of information to determine the effectiveness and making recommendations for a program component. Therefore, evaluation can support a desired achievement of program objectives.

Research Fokus

This research will be held in several badminton clubs, which is located in Central java of Indonesia, the research target are badminton athletes who currently exists in the adult age categories so that the researcher can review the data taken from these athletes.

Data Resources

The data resources used in this research is athletes, coaches, and club badmintons' stakeholders who can give any information in relate to this research or as a *key person* who understand the relationship with research object to give information about situation and the background of research condition. To obtain the data research accurately and sufficiently, the researcher assign some people as resources based on the data research purposes.

Instrument and Data Collection Technique

In qualitative research, the main instrument in this study is the researcher himself. In the process of collecting data, researcher as a key instrument directly come to the field or as an observer as well as a member of the group observed. In interviews and documentation, researcher used an instrument that has been prepared for each source of data information, but he do not rule out the possibility to be flexible and reflective in obtaining complex answers taken from resources side information. Beside as the main instrument in obtaining the data, the researcher also use supporting instruments that guidelines for observation, interview, and documentation. The supporting research instruments used to obtain data accurately.

Data Test Validity

The credibility test is used to test the data validity with aims to achieve the research credibility. Mechanical examination of data credibility is done in several steps, as below:

1. Conducting observation persistently, accurately, and continuously.
2. Data triangulation
3. Colleague discussion
4. Time extension study

Analysis Techniques and Data Interpretation

An evaluation research through qualitative data obtained from various sources using data collection techniques assortment (triangulation) and carried out continuously until the data is saturated. The data analysis is through drafting and interpreting for making conclusion. Because of the connection with phenomena for being interpreted in accordance with the natural background, it must be filled with qualitative data analysis, namely naturalistic, induction and holistic analysis. Naturalistic, the data analysis should be based on real situations that change naturally, open and no manipulating control variables.

Induction analysis, that is with the fundamental thinking induction procedures, disclose specific data, details, to find categories, dimensions, relationships important and original, expressed in open-ended questions. Holistic, means the totality of the phenomenon must be understood by the researcher as a complex system, a comprehensive relationship and not be seen partially. In general, data analysis in this study can be seen in the figure below:

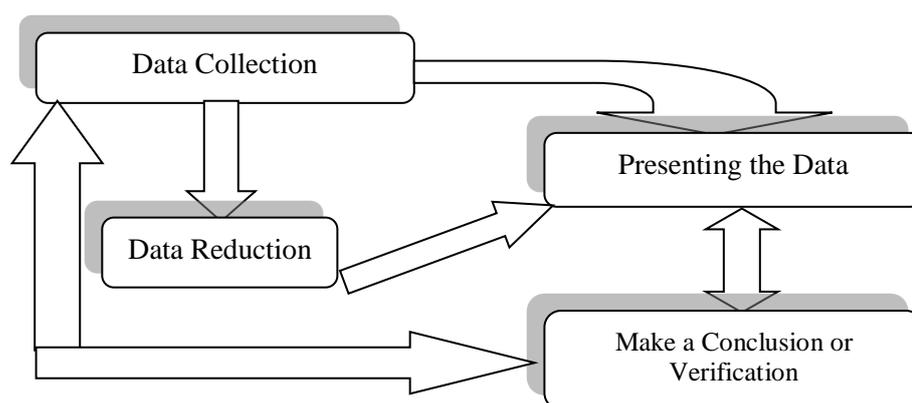


Figure of Data Analysis method (Sugiyono, 2014: 405).

Data reduction

Data reduction is defined as selecting process, focusing or simplification, and the transformation of raw data that emerged from field notes. Data reduction is a form of analysis that sharpens, classify, direct, dispose of unnecessary, and organize data to make a conclusion. Data reduction is done through make a summary, encodes the data, searching themes.

1) Data Presentation

Data presentation is compilation of a bunch of information into a matrix or a configuration that can easily understood. This configuration will allow for drawing conclusions and taking action.

Human cognitive tendency is to simplify complex information into a form of understandable unit, this is the main way to analyze the validity of qualitative data. The presentation of this data can be used through the matrix, the graph or chart, which is designed to combine the information.

2) Drawing Conclusion

Since the beginning of data collection, researcher began searching for the meaning of the data that has been collected. Furthermore, researcher will find for meaning and explanation then arrange patterns of certain relationships into a single unit of information that can easily understood and interpreted. The collected data is compiled into units, then categorized in accordance with the details of the problem. These data will be connected and compared each other to draw conclusion easily as the answer of every problem.

RESULTS AND DISCUSSION

Career Orientation and Education for Badminton Athletes in Central Java

Glueck (1997: 134) states that a sequence of individual career experience related to the job that a person experiences during his tenure. So that, an individual's career involves a wide selection of various occasions, but from the standpoint of career organization, it is the regeneration process of a new job. Ekaningrum (2002: 258) describe the career is used to explain people of their role or status. Career is all positions (jobs) that people have responsibility on it. Therefore, it can be concluded that a career is a sequence or job, which is attained by person in a certain period associated with personal attitudes, values, behaviors and motivations.

Experts in accordance with discipline of science interpret career defition. According to Simamora (2001: 505), career is "Sequence activities related to employment and behaviors, values, and aspirations of a person during the person's life span". Career planning is a deliberate process in which the person becomes aware of through the attributes associated with personal career and a series of lifelong steps, which contributes to career fulfillment.

Ekaningrum (2002: 256) stated that careers are no longer interpreted as an institutional award to improve the position in formal hierarchy that has been established within the organization. In the traditional paradigm, career development is often considered as synonym with preparation for mobility to a higher level, so that careers will support individual and organizational effectiveness in achieving its goals.

In the Javanese badminton, athletes are essentially do the intensity of routine exercise that starts at an early age to steps out achievement in his career, even in adolescence or adulthood they are still preoccupied with high exercise intensity. This real event was found in the field. Despite they steps out to reach achievement in his sport career, they do not leave the world of formal education. So that, atheletes has to be clever and careful in distribute his time efficiency and effectively. There is no doubt that in some occasion, a clash between academic process in formal education and tournament events are held together so that athletes sometimes tend to choose his sport branches.

Athletes expect for both situation can run well together, but sometimes they feel left behind in formal education so it will be difficult for them to complete the study. Sport career orientation that he concentrates also will be a problem when the athlete is not able to achieve a higher performance in sport due to the intense competition that exists, on the other hand in the formal education they also have missed.

Evaluation Model Provided to handle Career Orientation and Education badminton Athletes in Central Java

Evaluation by Orthen and Sanders in Suharsimi Arikunto and CEPI Safruddin (2009: 1-2) is searching for worthwhile activity about certain things, it includes seeking information useful in assessing the existence of a program, production, procedures, and alternative strategies proposed to achieve certain goals. *Evaluation is the process of delineating, and providing descriptive and judgmental information about the worth and merit of some object's goals, design, implementation, and impact in order to guide decision making, serve needs for accountability, and promote understanding of the Involved phenomena* (Stufflebeam 2003: 10). Evaluation is a process of providing information that can be used as consideration for determining the rates and services (worth and merit) of the objectives achieved, the design, implementation and impact to help drawing decisions, accountability and help to increase the understanding of phenomenon. The core of the evaluation is to provide information that can be used as a material of consideration in decision making.

Many recent definitions encompass this original definition of the term. We concur that evaluation is determining the worth or merit of an evaluation object (whatever is evaluated). More broadly, we define evaluation as the identification, clarification and application of defensible criteria (According to Fitzpatrick dkk, 2004: 5). Evaluation is determined as the value or worth of an object evaluation (whatever that is evaluated), and it is defined evaluation as identification, clarification and application of the maintained criteria.

In general, the terms of evaluation can be a process of considering the value and meaning of something to consider. Whether that is people, objects, events, circumstances, or an entity/group (Roswati, 2008: 65). Based on the above description, it can be concluded that the evaluation is an activity to look for information, determine the value of the existence of a program, production, procedures, as well as the proposed alternative strategies that can help improve the implementation of the policy and its progress in achieving its intended purpose.

A program is defined as the systematic application of resources guided by logic, beliefs, assumptions identify human needs and human-related factors as a resource. It is more than just the activities that consist of several components. The important components of program can be an object of evaluation (Yarbrough, Shulha, Hopson, et-al, 2011: xxiii- xxiv).

The definition of program is a unit or entity of activities, a series of activities system that done continuously. Implementing the program is always occurs in an organization that means they must involve a group of people (Suharsimi Arikunto and CEPI Safruddin, 2009: 4). Program, according to Farida (Eko, 2014: 8) is everything attempted by someone with hopes it will bring results or influence. Program has roles as a series of carefully planned activities and its implementation takes place in a continuous process and occurs in an organization that involve many people.

Based on the above statements, it can be concluded that the program is a series of activities, which is selected and prioritized in the form of systematic application. It is created as a guide of activities that have been designed in accordance with the objectives and measurable targets. The program is the first element that must exist for the creation of an activity. Implementation of the program through any kind of plan will be more organized and easier to be operated.

Evaluation Model

Evaluation has models that can be used by the evaluators. The evaluation models based on its objective, according to Endang Mulyatiningsih (2012: 116-117) identified nine models of evaluation, as in table 2 below:

Table of Evaluation Models based on its Objectives

No	Name	Objectives	Model
1	<i>Student gainby testing</i>	To measure performance and progress of student learning, widely used in the field of psychology	Ralph Tyler, Ben Bloom, Jim Popham, Mal Provus
2	<i>Instutisional self-study by staff</i>	To evaluate the employee/staff	Dressel
3	<i>Blue-Ribbon Panel</i>	To evaluate the leadership performance in providing early services	James Conant, Clark Xerr and David Henry
4	<i>Transaction observation</i>	To understand the client's activities in overcoming the conflict of values	Smith, Parlett-Hamilton, Robert Stake
5	<i>Management Analysis</i>	To improve the rationality of decision/policy by a manager	Leon Lassinger, Stufflebeam and Mary Alkin
6	<i>Instructional Research</i>	To produce the effective learning methods through experimental research	Lee Cronbach, Julian Stanley, Don Compbell
7	<i>Social Policy Analysis</i>	For the development of institutional policies by measuring the social circumstances	James Coleman, David Cohen, Carol Weiss, Mostellery
8	<i>Goal-free evaluation</i>	To assess the program impacts on consumers	Michael Scriven
9	<i>Adversary evaluation</i>	To set the best choice among several options available	Tom Owens, Murray Levine, and Bob Wolfe

Endang Mulyatiningsih (2012: 116-117)

Each of the conducted activities has a specific purpose and so did the evaluation. According to Suharsimi Arikunto and CEPI Safruddin (2009: 42-43) there are two purposes of evaluation, they are formative and summative evaluation purposes. The purpose of formative evaluation is to see how far a program designed to take place, as well as identifying barriers. The purpose of summative evaluation conducted after the program ends. The purpose of evaluation is to measure the achievement of program.

Some evaluation program practitioner who well known as an inventoe of evaluation program model are Stufflebeam, Metfessel, Michael Scriven, Stake dan Glaser (Suharsimi Arikunto and Cepi Safruddin Abdul Jabar, 2009: 40-41), where they divide the evaluation into eight models membedakan model evaluasi menjadi delapan, namely (1) *Goal Oriented Evaluation Model*, (2) *Goal Free Evaluation Model*, (3) *Formatif Summatif Evaluation Model* (4) *Countennce Evaluation Model*, (5) *Responsive Evaluation Model*, (6) *CSE-UCLA Evaluation Model*, (7) *CIPP Evaluation Model*, and (8) *Discrepancy Model*. On the other hand, according to Farida Yusuf (2008: 13-21), there are four evaluation models (1) CIPP evaluation model, (2) UCLA evaluation model, (3) *Brinkerhoff* model, and (4) *Stake or Countance* model.

Based on the above statements, it can be sum up that the evaluation models consisted of (1) *Goal Oriented Evaluation Model*, (2) *Goal Free Evaluation Model*, (3) *Formatif Summatif Evaluation Model* (4) *Countennce Evaluation Model*, (5) *Responsive Evaluation Model*, (6) *CSE-UCLA Evaluation Model*, (7) *CIPP Evaluation Model*, and (8) *Discrepancy Model*.

Evaluasi *Context, Input, Proccess and Product*(CIPP)

In term of Stufflebeam's CIPP evaluation model, one very useful approach to educational evaluation is known as the CIPP, or Context, Input, Process, Product approach. Basically, the CIPP evaluation model requires that a series of questions be asked about the four different elements of the model on context, input, process, and product (Tiantong & Tongchin, 2013: 159).

The concept of CIPP evaluation model (*context, input, proccess and product*) offered by Stufflebeam with the view that an important purpose of evaluation is not to prove, but to improve. CIPP evaluation model can be applied in various fields such as education, management, companies, etcetera, and in various stages of both projects, programs and institutions (Eko, 2014: 181).

Classification of evaluation model is based on the objectives, including CIPP evaluation model management analysis that aimed to evaluate the decision/policy of manager. CIPP evaluation model is being conducted comprehensively to understand program activities started from the emergence of the idea of the program until the results achieved after the programs are being implemented. The CIPP evaluation model systematically conducted to evaluate whether the program that has been implemented with the correct steps. The context of evaluation is done to look back on the considerations underlying a proposed program in order to know whether the proposed program, which related to the needs and objectives of the program are appropriate to meet the needs.

Input evaluation is conducted to study whether the program design has been considering the resources available. The process evaluation is conducted to learn whether the program is in conformity with the plan. The product evaluation is performed to determine whether the program objectives have been achieved by either (Endang Mulyatiningsih, 2012: 124).

This research uses a CIPP model to evaluate the career orientation program during in the training club badminton. The CIPP evaluation model is widely used in various fields. This evaluation model has components of context, input, process and product.

1) Evaluation of *Context*

The evaluation of context is looking back on the basic considerations for the proposed program. It aims to be able to know the needs and suitability program to meet the purposes.

2) Evaluation of *Input*

The evaluation of input is conducted to study the program design that used to consider the resources available.

3) Evaluation of *Proccess*

The evaluation of process is conducted to study the achievement of program implementation.

4) Evaluation of *Product*

The evaluation of Product is conducted to determine the achievement the objectives program that has been implemented.

CONCLUSION AND SUGGESTION

Program evaluation is a method to identify and assess the effectiveness of a program by comparing the predetermined criteria or objectives to be achieved with the results achieved (Djemari, 2012: 34). In this case, reassess the career orientation and education of badminton athletes in Central Java. The evaluation should also provide sufficient information to the results of the object evaluation. In order to minimize the errors in the evaluation process, program evaluation needs to be

planned (Sukardi, 2014: 47). Cronbach & Stuffblebeam (Suharsimi Arikunto, CEPI Safruddin, 2009: 5) argues evaluation program as an effort to provide information to be submitted to the decision makers. Evaluator provides information not a decision maker about a program. From the above opinions, it can be concluded that the evaluation is given in education and careers orientation for badminton athletes in Central Java by using evaluation program.

SUGGESTION

The program requires a plan. It is used to provide the results of the information and decision-making regarding the objectives to be and has been achieved. So it can be seen more clearly on how badminton athletes will measure the path to his career.

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RECRUITMENT AND DEVELOPMENT MODEL OF SPORT VOLUNTEER IN INDONESIA

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Abstract

Organizing sports events especially organizing first multi events takes a lot of volunteers for successful implementation. Board and Committee of sport can't perform all the chores for the event because it takes a lot of people with different skills. The necessity of volunteers become very urgent if the sports event involving participants or contingents from other countries. Indonesia is a country with very huge population, approximately 257 million people. There are 20 million children who still in junior high school and high school. While the amount of college students are approximately 5.3 million people. The large number of population is a good potential which can be managed and developed to be volunteer at the sports events. Ideally volunteer comes from students. Students have the characteristic features such as: 1. Average skills 2. Has an idealism, 3. Easy to mobilize. 4. They like join in group. While the weakness are 1). Less experience, 2). Still need to adjust with their task. 3). Their commitment to tasks still need to be improved. Volunteer who served in certain events need to be recorded and reported on the report as a whole. Some of them who finished their task well, will be rewarded with a certificate. The owner of the certificate will be given priority to be a volunteer at the next sports event. It needs to make a data base of volunteers in Indonesia either fostered by the Indonesian National Olympic Committee. Volunteer recruitment should prioritize high school students and college students. And the committee can give a reward for those who finished their task well. It necessary to make standardizing recruitment, training and deployment of volunteers in any sports event.

Keywords: Volunteer, Recruitment, Development.

INTRODUCTION

The sport event management in Indonesia nowadays is generally incidental which means that there is no solid coordination between each sport organizer yet. Even, the organizing schedules for each sport event among sport branches have not arranged well. The possible main cause for the problem is the events which are arranged based on the budgetary system and not on the activity based.

A sport event is considered success once it is organized well. It is organized well when there is no major distraction during the event. Success is also seen by levels of satisfaction had by every stakeholder involved in the event, both the organizers and audiences or spectators, and not to mention the public in general.

The sport event management itself was started to be professionally held since the Los Angeles Olympic in the United States in 1984. The Olympic was organized with a modern management strategy, involving professional managers who have sufficient capabilities in the field. It results in an advantageous sport event with million dollars profit. Since then, hosting a sport event is a dream of every city in every country in the world.

In order for the sport event to run successfully, a well organization strategy is needed. It comprises the well-organized event management and adequate human resources. Among all is the

ability to choose the right man in the right place. Further, cooperation between institutions also needs to be maintained for the success of mutual interest.

Human resources for the sport event management are steering committees, organizing committees, officials, referees, experts, medical personnel, security, and volunteer. Further for organizing the human resources, there are steps which need to be done; first, planning and procurement that are done to map the number, quality, and competence needed to support a sport event; second, empowerment, this is to empower all available human resource potentials which the outcome is to place the each human resource to the proper field according to each person capability and potential; third, building and development, the former is done to introduce new tasks for the newbie and refreshment for the old human resources, while the latter is conducted to enhance public services for the sport participants and audiences; the last is maintenance or preservation, preserving human resources aims at giving appreciation for the involved human resources, the appreciation is given according to the performance and commitment given by each human resource during the event. In organizing a sport event, the prominent human resources involved are volunteers. Volunteers are needed in every sport event, both in national and international scale, in single and multi sport events. Volunteers are a group of people contributing themselves for the success of a sport event based on their devotion and commitment towards sports without expecting anything in return.

Broader, the purpose of volunteering is to succeed an event done in a certain time. Together, the volunteers help and complete each other in doing their duty. They help and serve willingly without burdens. The only goal they want to achieve is the success of a sport event. In the end, what they might have is pride that they may succeed an event.

The role of volunteer in succeeding the London Olympic 2012 was admitted by the chair of the committee as well as the London mayor. In his closing remark, the mayor delivered his gratitude for the commitment of the volunteers.

There is no exact ratio in deciding how many volunteers needed in a sport event. Many of them are surely needed in a multi branches sport event, especially in international scale. Many volunteers, in addition, are needed because of the specific task they had in providing excellent service for the sport participants. As a consequence, it needs sufficient organizing skill to manage great numbers of volunteers and to optimize each volunteer's role in the event.

Beijing Olympic, for instance, involves 10,000 athletes and 5,000 officials for 1,000,000 volunteers. London Olympic, for the same number of athletes and officials, needed 600,000 volunteers to support the event. Meanwhile, for sport event held in Indonesia, like the Asian Beach Games, only involved 1,200 volunteers for 4,500 participants; and for 2011 Sea Games Jakarta-Palembang involved 2,500 people only.

METHOD

Inventorying Needs

Numbers of volunteer depend on the type and level of the organized sport event. The more popular a sport event which was held, the more volunteers needed. Also, the more numbers of multi events were organized, the more volunteers needed. Many more volunteers even needed if the sport event involves participants coming from other countries. The more countries were involved in a sport

event, the more volunteers needed since each country has different language, tribe, religion and habit. There are a lot of tasks cannot be done alone by the official committee of a sport event.

Involving great numbers of volunteers will not cause any problem once it is organized well. On the other hand, it will bring many advantages for the sport event itself. Volunteers here will have a role as a marketer who will market the sport product to the society. Therefore, as a strategic marketer, volunteers need to be given with the ability to market a product and communicate themselves well.

A sport event which has participants coming from other countries will provide specific criteria for the volunteer recruitment. Among the criteria, the most important for the volunteers is to have a good appearance and communication skills since they will interact directly with the international guests. Volunteers are mirror of the host country. A country's personality will be judged based on the service given by the volunteers.

In addition to this, holding a multi event will be different with holding only a single event. One of which is the numbers of personnel needed during the event. Multi events need more volunteers for many different branches and sport venues. Deciding numbers of branches, venues, and volunteers indeed needs a serious work.

Sources of Volunteers

In order to get volunteers, a sport event organizer needs to recognize places and stakeholders which and who can provide volunteers. The potential groups of society who may provide qualified volunteers are as follows:

- a. Former athletes and off-duty referees
- b. Senior High School students
- c. University students
- d. Member of the sport event organization
- e. The employee of the sport event organization
- f. Athletes' parents
- g. Government employee

Types of Volunteer

a. Liaison Officer

Liaison officer or LO has a special duty which is to serve the VVIP, VIP, and other important guests for the sport event purposes. The liaison officer's duty is divided further into task forces under a central leader or coordinator. The coordinator will be responsible for and coordinated by a manager. Several managers have special responsibility to control all Liaison Officers.

Further, the LO is divided into several task forces, i.e. the Protocol Assistant, the National Olympic Committee Assistant, and the National Olympic Committee Service. The Protocol Assistant has special duty which deals with the errands needed by the VVIP and VIP guests. They are assigned and on duty since the first day the athletes and officials came to the event till the day when all athletes and officials went back to their home country. Specifically, the LO's task duties are to pick up the contingent at the airport, to give information related to the accommodation, venue, and scheduling. Besides, the LOs also assign to accompany and fulfill all the needs of every person in the

contingent which they are responsible for. Another task had by the LOs is to mediate the contingent with the event's committees or the organizer.

In addition for the task related to Liaison Officer is the National Olympic Committee Assistant that is divided into three more specific duties, i.e. LOs for VIP and VVIP guests, LOs for technical delegates, as well as LOs for jurors and referees. Besides, their duties also cover the obligation to serve the participants with general information related to the event, from the event schedules, accommodation, sport venues, to the important locations around venues. The NOC LOs also mediate all errands needed by the contingents with the main secretariat. LOs for NOC Assistant are responsible with the contingents started from the day the contingents arrived till the day when all contingents went back home.

The third is LOs assigned for welcoming ceremony, general managing, general picking up services, as well as handing over the participants to the LO of NOC Assistant. They are assigned at the central post which the main duty is to coordinate the event's scheduling to the LO assistant. Another duty of this type of LO is to serve the reporters from mass media that come to report the events. Surely, the LOs in this field are also on duty from the first day of the contingent's arrival till the day of the contingents' departure to their home country.

b. Workforce

Here, the volunteers work in the secretarial field, publication, cooperation, and other side jobs. They start to work relatively earlier before other volunteers begin to work. The workforce team prepares all the equipments that will be needed by other committees. Even after other committees have finished their duty at the last day of the sport event, the workforce will still be working to make an evaluation report besides also keeps all the important event dealing with the sport events which has just held.

c. Game Support

The main duty of this task force is to prepare, to make sure continuity of the event, and to support the event. The task force consists of people who have understood the rules of the sport branches which they are supervised. Among the task forces are, the accommodation team, the transportation team, the venue team, the food and beverages team, as well as the airport team.

RESULTS AND DISCUSSION

The Volunteer Recruitment System

In order to have a professional volunteer, a set of criteria needs to be arranged. Among the criteria for seeking qualified volunteers are:

A volunteer needs to have strong commitment. It is the first requirement for hiring people to serve as volunteer as part of bigger event. The commitment is shown by one's determination to work hard and sometimes to work overtime. People who have strong commitment will be always responsible to their duties.

Another criterion is to be focus. A professional volunteer are not allowed to be easily influenced by emotional situation and condition. Here, personal satisfaction is the goal of people who have determination in doing voluntarily work.

The second criterion is freedom. One who works as a volunteer needs to have a personal encouragement in doing voluntarily work without any burdens or forces from parents, institution leaders, teachers, lecturers, public figures, etc. Pure intention is the only asset needs to be had by the volunteer.

The third criterion for recruiting volunteer is trying to find the one who never expects financial rewards. This requirement exists as the guarantee that the volunteers work in the sport event do not work for merely a reward but for social purposes. However, in order to respect the helps given by the volunteer, committee usually provides them with the transportation fees, free accommodation, as well as free food and beverages, and not to mention all the needed equipments.

Volunteer generally serves public interests. Here, not all people have courage and concern to serve public needs without expecting any rewards. Modesty and sincerity are needed to be able to serve public demands. People who hold on these principles will be proud after accomplishing the voluntarily work they do.

Another criterion in recruiting the right volunteer is by finding person or people from certain group or social strata in a society. Their homogeneity is needed to be able to place the volunteer in a certain part of the sport event. These volunteers will be working in a group, thus, people coming from the same community or club are needed since they have already possessed the ability to do collaborative work. Further, recruiting people from the same origin community will save time and energy since they have known each other before. So, no introduction and adjustment needed.

Potential Group Analysis

a. Former Athlete and Coach as well as Off-Duty Referee

Former athletes, former coaches and off-duty referees are the most potential team for voluntarily work. They are experienced enough in holding a sport event. Even more, they also have already had a tight networking dealing with the championship itself.

Those advantages make the former athletes and coaches as well as off-duty referees to be the most potential human resources to be recruited as volunteers. However, there are two disadvantages of recruiting these experienced people. First is their experience which will make them to be contra-productive. Second, the number of people belong to this category is limited that will not contribute significantly to other volunteer sectors.

b. High School Students

The high school students are potential to be recruited as sport event volunteers. However, the challenge lies under their insufficient abilities in communication, especially with international participants. Another challenge is the lack of knowledge of students of High School level in terms of sports and the sport event itself. The last is their insufficient experience in holding international events.

c. University Students

University students belong to the most potential member of society to be recruited as a sport event's volunteers. One of the advantages of recruiting university students is that they live in a homogeneous community. They share similar ability and experience among others and most of them might also have the ability to speak in international language.

However, the disadvantage of recruiting university students are the lack of experience the students have in terms of holding a sport event. To overcome the problem, the students need to be trained in an organized volunteer training; discussing specifically about the tasks the volunteers might do in the event besides also training them about responsibility in taking care of people, especially when it involves participants from other countries.

d. The Members of Organization

Members of organization are people who are involved in the management of certain organization. They are formally organized, from the chair of the organization to the member of divisions. The members of organizations are also divided into board members and other members, like athletes, coaches, and referees who only present on the tournament or championship days. However, considering the limitation numbers of the members of organization and considering many activities of each member, make it impossible to recruit all the embers of organization to become a sport event volunteers.

e. The Organization Members of Staff

The organization members of staff are people who are managing sport training process in a daily basis. The numbers are very few, but each person understands the details of activity well. In voluntarily work, these types of people can be given a role as coordinator for technical fields. They are also ideal to be involved in the training for volunteers.

f. The Athlete's Parents

The athlete's parents hold significant roles as potential volunteers. The parents are more or less familiar with the sport events in which their children has already involved in. However, the numbers of parents as well as their free time are considerably limited considering the other jobs that they generally have.

Another disadvantage of asking parents for voluntarily work is the possibility for the conflict of interest to emerge since the children of these parents are taking part in the competition. There is a high possibility that the parents may use their role in the voluntarily work to give advantage for their children who are competing.

g. The Government Employees

The government employees are also possible to be recruited as volunteers because if their position, occupation, community, and experience. The disadvantage of assigning them to be volunteers is because of their routine that may disturb the jobs given to them in the voluntarily work. They may not focus because of the governmental job that they have to do.

In addition, majority of government employees also do the voluntarily work because of the direct order from their superiors. Thus, they have no sense of belonging to the voluntarily work they do. Another disadvantage of assigning government employees for volunteers is that they are used to live in their comfort zones. Government employees, specifically one who has higher job position, tend to live in comfortable situations and services that make them less qualified to be volunteers.

Task Orientation and Debriefing

In developing the skills of volunteer, an adequate and clear debriefing is needed for the success of the event. The debriefing needs to be initiated by introducing the volunteers to the organizational structure employed in the event. By doing so, the task distribution can be clearly explained.

The future participants, in addition, also need to be introduced with the organizational structure of the sport event. It aims at giving them a clear explanation of the coordination plot that is implemented in the event. Specifically, future participants have to know where to go to report their status upon arrival. Future participants also need to be introduced to all volunteers, event coordinators, event managers, and controlled secretariat. As a result, the future participants will be familiar with the standard operational procedure had by the committee. Later, when the participants have queries related to the tournament, they know where to go and ask for solution.

All assigned volunteers have to understand exactly all parts of venue, hotel location, media center, secretariat, airport location, bus station, hospital, and other important places. Therefore, clear job description has to be given to all volunteers before the event is officially opened.

Infrastructures and Facilities Preparation

For the job distribution purposes and for making sure that all work will be done by the volunteers, formal letter of assignment is required besides the contract which is signed by parties; the sport event organizer and volunteers. It purposes to avoid problems regarding to job descriptions.

After all contracts are signed and all letters are distributed, the sport event organizer distributes uniform and other equipments needed for the event. The most important is the distribution of ID cards for the easy access to enter the venues and athlete accommodation buildings.

Important equipment is handy talky or similar kinds of communication tool, used by the volunteers to contact other volunteers, event manager, or other interrelated committees.

Monitoring and Evaluation

Evaluation is needed to be conducted every day in the evening on the day of the event, in order to share problems and issues face by each volunteer. Among issues faced by the volunteers is the unequal portion of the task received. By doing evaluation, the unequal job portion will be communicated and problems will be solved. Monitoring and evaluation is done within the people in the same task force and outside the task force with the general committee. The more general evaluation meeting is lead by a manager to unify and communicate the vision and mission had by each task force. In the end of the event, a more thorough evaluation is done for all task forces in all fields. It aims at assessing the advantages and disadvantages of all activities within the events. Results are made into report and kept as a document for the upcoming years' committee.

Advantages of Becoming Volunteers

One way of getting the outside school/ campus/ office experience is by becoming volunteers for certain activities. The following is some advantages of becoming volunteers for an event.

a. Becoming part of the team

Becoming a volunteer means helping or contributing ourselves to organize an event without getting paid or even without becoming formal committees. Volunteer is part of a bigger committee. In doing his duty, a volunteer is working in collaboration with other volunteers and committees.

Becoming part of volunteer also gives a chance for someone to work together with other volunteers, committees, or even participants. The success of an event depends closely on the success of all member of organization in general. When an event gets a success, each member of organization will feel the relieve, happiness and pride to be part of the event, and vice versa, when an event fails, each member of organization will feel the failure.

b. Learning new skills

Volunteering gives a chance for the individual to have and learn new skills since one might have to do new task that one has never done or learnt before. For instance, by being part of public relation and publication division, one will learn how to contact important figures or high-up to come to the event.

Training or debriefing had by volunteers before the event will provide and equip volunteers to learn new skills and knowledge outside their field of major. Although these trainings are helping greatly in preparing the volunteers for the event, however, skills will be fully mastered by a person once he experiences the task or duty he is assigned for. Further, the training had by volunteers will be a new experience for the volunteer himself. By implementing the training, one will experience new skill for life.

c. Solving social problem

Volunteer is identical to social work that will benefit society in general. Our involvement in a voluntarily work is a contribution to help social problems. The success of an event is also the success of society living at the host region. Many benefits in the field of business, politics, education, and other fields that will be achieved and received by society in general, upon the completion of a sport event. It means the success of a sport event itself is able to answer one of the society's issues.

d. Being able to deal with people

Being a volunteer opens an opportunity to face and meet many people. Here, one's ability to communicate will be sharpening in order to be able to communicate well. It cannot be avoided that many people and volunteers have not had the skills of communication.

Volunteering, in this case, can be used as a medium to learn how to communicate in front of people. It can be a good learning sources especially for those who are still studying at school or university.

e. Networking

Volunteering is a good opportunity for one to build a business network. By doing voluntarily job for a sport event, there will be chances for volunteers to meet important people from inside and outside the country. Doing voluntary work in an event means to be able to communicate and interact with these people intensively. The intensive relationship we build during the event will open new network for the future.

In the modern era like nowadays, the success of a person in a business or a carrier depends closely on the networking ability. Thus, being in an event opens the chances for a person to build his network. The success of a person in his voluntarily work will leave some good impressions for other people. Those who are already impressed would surely be happy to establish an advanced communication.

CONCLUSION

1. Indonesia has huge potentials for the recruitment and development of sport volunteers.
2. A sport event organizer needs volunteers since the organization will not be able to hold the event independently.
3. High school and university students are the most appropriate typical of society to do the sport event voluntarily work.
4. A systematic and sustainable model of recruitment and development may maximize the potentials had by volunteers.

SUGGESTION

1. Promotion on the importance of volunteers for sport and social development is needed.
2. Volunteer recruitment and development model is supposed to be done in a systematic and sustainable way.
3. Organization should give chances for high school and university students to participate as volunteers in any of sport events held in their regions.
4. Reward and punishment system is required for the continuation of volunteer development.

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**THE EXISTENCE OF WOODBALL ATHLETES COACHING AT
THE STUDENT ACTIVITY UNIT (UKM) SEMARANG STATE UNIVERSITY (UNNES)**

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Abstract

Survey method through evaluative descriptive approach is used in this study, which aims to determine the existence of woodball athletes coaching at Student Activity Unit (UKM) Unnes so that it can be used as reference for other regions to build up and produce potential athletes for the region, and further for Indonesia. The results of this study indicate that coaching woodball athletes at UKM Unnes going very well, because it is supported by the human resources and facilities and complete woodball sports equipment. The constraints faced include: (1) program/training schedules often conflict with the lecture schedule of students; (2) lack of coaching funds to follow the event and funds to organize events; (3) athletes/students sometimes took too long dispensation (permit college) while following the championship (so that athletes got mind burden for not following the lecture); (4) lack of attention and participation of Universities in Semarang, Central Java, particularly those with sports studies program to jointly develop the woodball sport; and (5) starting early 2017 woodball permanent field area cannot be used in full (athletes began to fret about finding a place to practice).

Keywords: existence, woodball, Unnes

INTRODUCTION

Woodball is a sport that is constantly being developed in Indonesia until today. In a period of 10 (ten) years many new sports that were introduced in Indonesia, have even competed in local sport events, national, and event international level. 2017 Indonesia Woodball Association (IWbA) already has a regional board on 16 (sixteen) of the province.

Woodball is an outdoor sports games that can be played on a grassy field (woodball) and on the beach (beach woodball). The game can be played individually, in pairs (double/mix), or team. This game is played by hitting the ball gradually until the player can hit the ball into the goal (gate) in each track (fairway) with the least possible number of strokes (the player with the fewest total hitting of strokes is said to be the winner).

Soetrisno (2015: 10) states that, woodball first developed in China Taipei, was discovered in 1990 by Mr. Ming-Hui Weng and Mr. Kuang Chu-Young. Woodball games had already been introduced to other countries since 1995 and in 1999 woodball is already established as one of the Olympic Council of Asia (the Olympic Council of Asia/OCA) supporting sports event. Woodball game is a modification sport of the sport of golf by performing the concept of basic motion in this game (locomotor motion, non-locomotor, and manipulative), considering the elements of efficiency (time, place, and cost) in its activities, as well as maintaining the human environment and cultural life to keep doing physical activity. The very interesting thing from woodball sport that it can load the three basic concept of motion in the game: (1) in a game of woodball, locomotor motion is the occurrence of displacement activity of the body from one point to another (when the games athletes run from fairway to fairway); (2) the motion of non-locomotor woodball games namely in practice or shows movement bends and swing the mallet (sticks); and (3) the motion of manipulative games namely in

woodball requires coordination of body, space, and surrounding objects (the movement when athletes swing the mallet to hit the ball towards a target or gate).

The techniques used in woodball sports is almost similar to the technique used in the sport of golf. Some of the terms adopted from golf: course, fairway, par, and gate-in-one (from hole-in-one). Very basic difference between golf and woodball is located on the tool instead of using the stick (bat) but rather a mallet (wooden bat), target games rather than in the form of holes (holes) but rather the gate (of the net), and in the woodball, there is only one ball that was used during the games (except for experiencing the broken ball, it can be replaced upon permission from the referee or the race supervisor). Equipment used in woodball games such as mallet, ball, and gate are mostly made of wood. Along with the times, recently began switching equipment using aluminum materials (especially mallet and gate), and those who are still using natural materials or wood that is only the ball.

Woodball introduced and developed first in Indonesia in 2006. The establishment of Indonesia Woodball Association (IWbA) was on October 1, 2006 which is located in Pekunden Timur No. 25 Semarang, and on October 4, 2006 in National Sports Committee of Indonesia (KONI) sports woodball registered with number: 2751/LNG /X/06 (Kriswantoro, 2015: 3). After the founding IWbA and registered in the KONI sports woodball, woodball continues to show rapid development in various regions in Indonesia. Evidence of the development of woodball can be seen from the existence of various national and international events organized by the Central Executive Board (PB) and the area at the time (Regional Executive Board of Central Java, West Java, East Java, and Bali Island). Such as the convening of the 1st Indonesia Open Woodball Championship in Tlatar, Boyolali on 28 June to 3 July 2007, followed by six (6) countries and continues to this day. The participation of Indonesia woodball team in the 1st Asian Beach Games 2008, Asian Open Championship 2009 in Bali Island, as well as the 2nd Asian Beach Games in Muscat, Oman 2010. Until finally the IWbA officially became a member of KONI on February 21, 2013 (Humas Media KONI Pusat, 2013) & (KONI Pusat, 2015: 265). Even though it is a new Member in the KONI, through the provincial stewardship scattered in several areas in Indonesia, IWbA have done socializing continuously, coaching athletes intensively, and actively organizes the national or international event. Achievements achieved by Indonesia woodball athlete in the nation's name, and even Ahris Sumariyanto, Indonesia best male woodball athlete, which according to the News Letter Magazine, Issue No. 17, in the year 2012 occupied the World's first rank (Soetrisno, 2012), recently Ahris Sumariyanto grabbed gold medals at Asian Beach Games 2016 (Danang, Vietnam), as well as in 2016, again, Ahris Sumariyanto topped the first rank of the world. The achievements resulted by woodball athletes at the local level, national level, and international level, are obtained through high dedication of organization and continuous training by the athletes. Worth to know that woodball lover should be proud that on August on 9-13 August 2017, Indonesia will host the 1st World Cup Beach Woodball Championship & Indonesia Open 2017 in Lagoi, Riau Islands.

The achievements reached in the world of sports indicates that the presence of the existence of coaching from an organization. In coaching woodball sport, to be able to raise achievement in the national and international scene, optimization is required in the selection of excellent seeds of talented woodball athletes and coaching athletes continuously. Until today, especially for athletes in category of adults (college students), athletes coming from UKM woodball Unnes produces the most accomplished athletes on a national level to international (Ahris Sumariyanto, Wisnu Wicaksono, Ika

Yulianingsih, Dwi Tiga Putri, and many others). Athletes of UKM woodball Unnes are ordinary came from province of Central Java, but athletes who excel tend to come from District of Jepara, Kudus, and City of Semarang. Apparently when District/City has adequate exercise facilities and infrastructures, very big influence on the achievement of an athlete. Seeing that the rapid development of UKM woodball Unnes athletes, even UKM woodball Unnes athletes become a barometer (benchmarks) of woodball achievements coaching from various provinces in Indonesia. For it is very interesting to know how the Existence Woodball Athletes Coaching at the Student Activity Unit (UKM), Semarang State University (Unnes), so that it can generate a lot of potential athletes who can strengthen the Indonesian team at international events.

Based on the reality on the ground and look at the existing conditions, ultimately it is necessary to know the existence of Woodball Athletes Coaching the Student Activity Unit (UKM), Semarang State University (Unnes) so that it can be used as a reference for other regions to coach to produce potential athletes for the region and further to Indonesia. Some questions that require answers through this research are: (1) what causes potential athletes came from UKM woodball Unnes? and (2) why Unnes student chose woodball as an occupied sport?

The purpose of this research is to find out the causes of the potential athletes arising from UKM woodball Unnes and to know why Unnes student chose UKM woodball Unnes an occupied sport. The benefit from the results of this research later expected to be used as a reference for the organization, coach, athlete or related to woodball sports coaching that can generate potential athletes and adds insights for coaches, athletes, as well as woodball organizations related to the existence of coaching in UKM woodball Unnes.

METHOD

This study used a survey method through evaluative descriptive approach. Data collection is done using question form, interviews, and observations directly to the field of Mini Golf Driving Range, Faculty of Sport Science (FIK) Sekaran-Semarang campus (training ground of UKM woodball Unnes). To increase the degree of validation and accuracy of data obtained, document analysis was also performed.

Questionnaires are set based on variables: (1) the organization's profile; (2) support institutions (Unnes); (3) human resources (HR); (4) facilities and training equipment; (5) athlete coaching ; and (6) natural constraints to provide coaching in UKM woodball Unnes. Based on the above six variables, the set of indicators, descriptors, the unit of analysis, and the source of research data are summarized in lattice research instruments.

The sample in this study is a coach or trainer, students or athletes, and executives of UKM woodball Unnes. The research data were then analyzed using descriptive statistical analysis (Sugiyono, 2010: 29).

RESULTS

Viewing at the data in table 1 related to the organization's profile of UKM woodball Unnes, indicates that UKM woodball Unnes owns completeness. Actually, organizational structure of UKM woodball Unnes exists on paperboard, but due to the rapid turnover of management in the UKM woodball Unnes (lasted only 1 year), so the organizational structure is not displayed/installed in the UKM woodball Unnes secretariat.

Table 1. UKM Woodball Unnes Organizational Profil

No	Organizational Profil	Descriptions
1	Organizational structure	-
2	Executive legalization letter	√
3	Secretariat	√
4	Work program	√
5	Organizational flag	√

Descriptions:

√ : exists/owns

- : doesn't exists/doesn't owns

Viewing at the data in table 2 regarding institution support (Unnes), it turns out that the institution has not been able to provide full funding support to UKM woodball Unnes. The main cause of that is because of the many other UKM which need to be financed by the institution to support the work programs. So that in order to join an event, a student or athlete often uses his own personal funds. Because of this reason sometimes some athletes complained about this, where when they should compete under the name of institution but they had to pay for the costs occurs. With the lack of funding, UKM woodball Unnes also found the difficulties to organize the event, so that the socialization of woodball sports for students become obstructed.

Table 2. Institution Support (Unnes)

No	Organizational Profil	Descriptions
1	Coaching of organizational	√
2	The coaching related to programs and nursery of athletes	-
3	Support to organize an event	-
4	Support to join an event	-
5	Support of facilities and infrastructures	√

Description:

√ : optimal

- : not optimal

Viewing the data in table 3 related to human resources (HR) of UKM woodball Unnes, has been very good. This is what it should need to be emulated by the good woodball organization on colleges, in the region, in the province, as well as in the capital. But it would be nice if there are specific psychologists (in a sense, a coach or assistant coach does not double as a psychologist). Once again the researcher emphasizes the specific psychologist is indispensable in UKM woodball Unnes. Because UKM woodball Unnes has many elite athletes who strengthen Indonesia (the load of academic lectures and pressure of exercises are so big), so that the existence of a special psychologists for athlete can help the personal problems.

Table 3. Human Resources (HR) of UKM Woodball Unnes

No	Organizational Profil	Descriptions
1	Coach/coach assistant	√
2	Athletes	√
3	Referee	√
4	Event organizer (EO)	√
5	Psychologist	-

Description:

√ : exists/owns

- : doesn't exists/doesn't owns

Viewing the data in table 4 related to facilities and exercise equipment in UKM woodball Unnes, it is very good. The researcher said for more, here's what it should need to be emulated by the good woodball organizations on colleges, in the region, in the province, in the capital, and also for Indonesian woodball lovers. By the complete and enough facilities and equipment, will make it easier in spheres of woodball socializing, woodball nurseries, as well as woodball coaching.

Table 4. Facilities and Equipment of UKM Woodball Unnes

No	Organizational Profil	Descriptions
1	Woodball field	√
2	Mallet (sticks)	√
3	Gate	√
4	Ball	√
5	Physical exercise facilities	√

Description:

√ : exists/owns

- : doesn't exists/doesn't owns

Viewing at the data in Table 5 related to UKM woodball Unnes coaching athletes, has been very good. However, there are two indicators at athletes coaching in UKM woodball Unnes, namely (1) starter athletes coaching (for new students join the UKM woodball Unnes and developing athletes or have not completed any competitions) and (2) the achievement coaching for already targeted athletes and advanced athletes (athletes who have been competing to represent Unnes, athletes who have completed the Regional Sports Competitions (Porda), athletes who have completed the Provincial Sports Competitions (Porprov), athletes who have completed the National Sports Competitions (PON), athletes who have completed the World University Championships, athletes who have completed the World Cup Championships Woodball, and athletes who have completed the Asian Beach Games. The researcher said for more, here's what it should need to be emulated by the good woodball organizations on colleges, in the region, in the province, in the capital, and also for Indonesian woodball lovers. Through good coaching and support programs, will produce potential athletes. Hence the existence of woodball can be equalized with other sports.

Table 5. Coaching Athletes of UKM Woodball Unnes

No	Organizational Profil	Descriptions
1	Achievement coaching	√
2	Exercise program/exercise schedule	√*
3	Try-in and try-out	√
4	Competition participating	√
5	Development athletes monitoring	√

Description:

√ : exists

- : doesn't exists

√*: exists but incidentally

Obstacles in Coaching Athletes of UKM Woodball Unnes

The sixth variable is obstacles in coaching athletes of UKM woodball Unnes that are: (1) program/training schedules often conflict with the lecture schedule of students; (2) lack of coaching funds to follow the event and funds to organize events; (3) athletes/students sometimes took too

long dispensation (permit college) while following the championship (so that athletes got mind burden for not following the lecture); (4) lack of attention and participation of Universities in Semarang, Central Java, particularly those with sports studies program to jointly develop the woodball sport; and (5) starting early 2017 woodball permanent field area cannot be used in full (athletes began to fret about finding a place to practice).

DISCUSSION

Woodball has a very deep philosophy, because woodball is a game that against yourself. Woodball is very different from other sports, eg: badminton, volleyball, basketball, tennis, boxing, etc. All of the above example is a sport that requires the player or athlete to beat the opponent (even with emotion sometimes can win a match), while in the woodball thus differs with some examples of the above sports. Woodball is a sport that has a type of soft play into yourself and play against yourself.

A woodball player can not beat the opponent by showing emotions and hit the ball at full speed. The uniqueness of woodball is this game relies on strategy or management of self, so that through the strategy and management of self that will produce precision hit (when hit the ball, it must be in the fairway continuously) and its accuracy (the hit when gating the ball, it must go through a wicket small). Whenever playing woodball with rely on emotion or hitting the ball at full speed without control, the precision and accuracy cannot be achieved constantly.

The art of woodball is when looking at a player shows the strategy or playing management. A player would or should determine if should take how many hitting to insert the ball to gate (small goal or whether directly execute the gating). Truly that woodball sports associated with the values of life in the everyday life of a person, for example in taking the job, how many steps should be used to complete the work, such as woodball games if that is analogous in everyday life. Woodball games can reflect the character or the workings of a person in his daily. Whether it's a type of emotional, daring to take risks, people who are full of calculations, or full of strategy and planning in taking decisions.

Based on the findings of the above study, obviously, its presence in the UKM woodball Unnes athletes coaching then produce high achievement, are caused by (1) facilities and infrastructure exercise support from Unnes; (2) good human resources (HR), and (3) the existence of a permanent field that can be used for training (full training facility). In science, to develop and establish an athlete should be done through the following stages: to promote, nursery or early coaching, and ultimately towards the stage of specialization. However, what happened to athletes of UKM Woodball Unnes? They entered the college at the average age of 18-19 years. Up to this point, we can say that 100% of athletes UKM woodball Unnes got to know woodball since study in Unnes. From the results of the interviews, some athletes said that their joining to woodball because they cannot get into the core team in other sports (sports who was involved before entering into the college) they can't get in on the core team in UKM and they are also aware of his difficult achievement, so that they see the opportunity in woodball, they can complete the competition for achievement with a fairly short time in a mature age). This is a very interesting phenomenon. What's on Unnes, produce elite athletes, even produce world champion athletes? After the analysis of researcher, evidently to be the existence of adequate exercise infrastructure is being the cause. The existence of a permanent field became the foremost key of the born of Unnes elite athletes. They can practice with unlimited time (it's open for 24 hours, as there are students who maintain and sleep at the Secretariat of the UKM

woodball Unnes). Especially when there is spare time or empty hours of lectures, they can do exercise directly, and after it they can attend lectures (when there is a schedule of lectures). So it is clearly visible, the inception of the elite athletes in the woodball is not always by passing early nursery, but the exercise and practice in almost unlimited time. If the athlete early nursery deployment can be done and the existence of a permanent field support on various colleges, the region, and the provinces in Indonesia, and there is a spirit strong of practice of athletes, then it's not UKM woodball Unnes again which caused the woodball existed, but all of us who became an actor in the further existence of woodball.

In terms of training facilities and infrastructure, coaching, and the achievement of athlete of UKM woodball Unnes is worth to be parameters for woodball development in Indonesia. However, the fund-problems are often very burdensome for athletes or students. Athletes lamented every time they join the event (while representing the college) mostly of them put out his personal funds. This is said to be pretty heavy to defend the college, it is better to defend the region (all fund is covered and there is a bonus). Hopefully, in the future, Unnes can consider the potential of sports to carry the name of the institution (both in the national and international arena). So with the policy of the college, it will be able to fund the featured sports of Unnes. So as to make the students have more spirit in reaching the achievements.

To meet the demands of the academic or private cases that many experienced by the athlete (in lectures, exercises, games, as well as in their lives) specialized psychologists is much needed to help Unnes elite athletes. So with the team of psychologist, athletes can complaint or tell his personal constraints, and finally obtain a solution. So the UKM woodball Unnes athletes can get success and balance between academic and sports achievements.

To ensure the existence of woodball coaching at Unnes, the synergy of the various parties (cross-stakeholder) is needed. So the existence of a strategic policy and the involvement of the various parties (institution or Unnes, lecturer or trainer, student or athlete, and organization, so Unnes woodball always exist in coaching, sports achievements, as well as academic achievement.

CONCLUSION

Based on the data analysis and discussion of the results of research on top of the existence of a woodball organization (both in terms of coaching as well as achievements) required policies and synergy of various parties (cross-stakeholder). The support of the institutions (Unnes), human resources (HR), exercise facilities and equipment, as well as coaching to become the main thing supporting the existence of UKM woodball Unnes achievements during this time. What's with the spirit of the practice from within the athlete and is supported by the presence of permanent field became the main key for the born of Unnes woodball elite athletes (so that its existence is very important). Although their age belongs to an adult to start learning to be an woodball athlete, however, with the high spirit of practicing, many achievements can be earned, even UKM woodball Unnes athlete, grabbed the world title in the year 2016 through Ahris Sumariyanto.

The constraints faced include: (1) program/training schedules often conflict with the lecture schedule of students; (2) lack of coaching funds to follow the event and funds to organize events; (3) athletes/students sometimes took too long dispensation (permit college) while following the championship (so that athletes got mind burden for not following the lecture); (4) lack of attention and participation of Universities in Semarang, Central Java, particularly those with sports studies

program to jointly develop the woodball sport; and (5) starting early 2017 woodball permanent field area cannot be used in full (athletes began to fret about finding a place to practice).

In connection with the above conclusion, while the recommended advice is to produce achieved athletes, synergy of the various parties (cross-stakeholder) is needed. In woodball sports various beings are involved, as expected in coaching, always uphold the values of sport and the values of humanity. Through this research, it is expected: readers, coaches, athletes, sport organization managements, and policy makers can find out about the existence of woodball athletes coaching on UKM woodball Unnes and if there are useful things, it can be implemented in the world of education and sport in Indonesia.

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TRADITIONAL SPORT DEVELOPMENT AS TOURISM VILLAGE ATTRACTIONS

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Abstract

The purpose of this research is to develop traditional sports as attractions of a tourism village. This research uses a method of field survey approach with Focus Group Discussions, limited trials, and recommendations based on SWOT analysis. The research is conducted in Tambaknegara Village, Rawalo sub-district, Banyumas Regency. The location is selected based on consideration that those village is a guided tourism village developed by Tourism, Cultural, and Sports Office of Banyumas Regency. The results are in the forms of traditional sports including *Dul-Dulan*, *Eteng Gablogan*, and *Gerit Ingo-Ingo* are greatly potentials utilized as alternative tourism attractions. The recommended alternative strategies should be made are massing development, community participation increase, tourism marketing improvement, guiding enhancement, packaging quality attention of traditional tourism sports.

Keywords: traditional sports, tourism village.

INTRODUCTION

One community empowering effort on tourism sector may be performed by developing a real community tourism concept in society. The development policy basically is to solve problems of unemployment, uneven income distribution, and poverty.

One community tourism model is village tourism which is supported by government for the sake of community income diversification and environmental preservation maintenance. The existence of village tourism is expected to provide economic benefits either directly or indirectly to village communities since goods and services are provided by them.

To develop this tourism village, there must be various tourism products, such as performing the unprocessed tourism products based on visitors' needs and requests. Visitors are greatly interested in cultures and local people's daily lives. The tourism products are expected meeting the needs of tourism village.

The existence of tourism village has an obvious role in order to provide benefits for local government to improve regional income from tourism sector and to realize the development even distribution to the isolated villages which may directly enjoyed for the sake of village community welfare and prosperity.

Nowadays, tourism village has become a strategic issue in order to have even distribution of development based on community empowerment emphasizing on local wisdom. In Central Java Province, tourism villages are rapidly growing and have become the alternative local tourism sites. Based on data of the Cultural and Tourism Office of Central Java, by 2015, there have been more than 145 tourism villages facilitated and developed by provincial governments.

However, the development of tourism villages in the surrounding areas of Banyumas, Banjarnegara, Purbalingga, Cilacap, and Kebumen (*Masbarlingcakeb*) particularly tends to depend on natural phenomenal attractions, such as water falls, including *curugs* (cascades), rivers, lakes, mountains, and beautiful sceneries. In facts, there are still numerous other tourism village attractions

which have never been deeply observed that they are obviously potentials to attract either domestic or foreign visitors in the forms of traditional sports.

The purpose of this research is to identify and then develop the potentials of traditional sports, which may become attractions in a tourism village object, as well as analyze the strengths, weaknesses, opportunities, and challenges of the existing traditional sports related to the development strategies as the reinforcing tourism village supports.

METHOD

This research is conducted using an observational approach that the temporal and other secondary data are collected from the field. This research is conducted in Tambaknegara Village, Rawalo Sub-District, Banyumas Regency. The research location is selected based on consideration that Tambaknegara is a guided tourism village developed by tourism, cultural, and Sports Office (*Disparbudor*) of Banyumas Regency.

There are several steps in conducting this research, including potential identification through field surveys, interviews, Focus Group Discussions, Limited Trials, festivals, and developmental recommendations provided based on Strengths, Weaknesses, Opportunities, dan Threats (SWOT) analysis.

RESULTS AND DISCUSSIONS

Administratively, Tambaknegara village is located in Rawalo Sub-District, Banyumas regency, Central Java Province. This village is at the most eastern part of Rawalo Sub-District at medial provincial highway channel between Purwokerto and Cilacap. This village is bordered by Losari village of Kebasen sub-district which is separated by Serayu River in the southern part; by Notog village of Patikraja sub-district in the eastern part, by Rawalo, Pesawahan, and Sidamulih village in the western part, and by the forested mountainous areas belonging to Indonesian corporate government (*Perum Perhutani*) in the northern part.

a. Tourism Potentials of Tambaknegara Village

Tambaknegara tourism village of Rawalo sub-district of Banyumas Regency is one tourism village with a special interest. Its various activities are organized by the communities and village activists of *Kelompok Sadar Wisata (Pokdarwis)* Tirta Kencana. The interviews resulted from Head of Pokdarwis Tirta Kencana of Tambaknegara Village, Sumarno, the information is obtained that Tambaknegara Village has several tourism sites, such as Kalibacin, Gua Kodo, and Batu Kelir. The land contour is classified into a hilly area with the pine forest and other interesting attractions such as enjoying sunrises and sunsets.

b. Traditional Sport Potentials

The deeper informational collections on traditional sports or games commonly played by the local people or communities those days, are conducted by interviewing village public figures as the elderly local people, that is, Head of Islamic *Kejawen* communities, Kyai Karta Miharja from Eastern Area Group (Bonjok Wetan Hamlet), and Kyai Muharto from Western Area Group (Kali Tanjung Hamlet). The in-depth interviews with both village public figures result in the necessary information that the existing traditional sports in that area is presented as follows.

Tabel 1. Traditional Sport Potentials in Tambaknegara Village

No.	Traditional Sport's/Game's Name	Characteristics/Objectives
1.	Jagoan	In-group/guessing the opponent
2.	Dul-dulan	In-group/occupying opponent's territory
3.	Slusupan	In-group/guessing the opponent
4.	Cublek Suweng	In-group/guessing the opponent
5.	Misik	In-group/guessing the opponent
6.	Gobak Dung	In-group/chasing the opponent
7.	Gobak Sodor	In-group/touching the opponent
8.	Sigar Jambe	In-group/occupying the opponent
9.	Eteng Gablogan	In-group/defeating the opponent
10.	Gerit Ingo-ingo	In-group/catching the ball

c. Results of *Focus Group Discussion* (FGD)

FGD is performed to obtain similar perception as traditional sports are selected due to their potentials and special characteristics utilized as Tambaknegara tourism village's alternative attractions. FGD participated by village public figures, including the Village Head, Katam; Head of *Kelompok Sadar Wisata*, Sumarno; Tourism Activist, Dewi; elderly local people; Budi, and 2 youth figures. FGD results in agreement that traditional sports which are necessary to develop are *Dul-dulan*, *Eteng Gablogan*, dan *Gerit Ingo-Ingo*.

d. The Analytical Results conducted with SWOT Matrix

SWOT analysis covering *Strengths*, *Weaknesses*, *Opportunities*, and *Threats* is intended to explain the entire identified strengths and weaknesses to provide a developmental recommendation based on the existing potentials and local wisdom consideration. The SWOT analytical results on the existence of traditional sports related to the tourism attractions are presented in the table below.

Tabel 2. SWOT Matrix

	STRENGTH	WEAKNESS
	<ol style="list-style-type: none"> Youth Number Emphasizing on physical activities Attractions are in the forms of Human Creation Offering happiness and health Playing Games in village areas Attractive 	<ol style="list-style-type: none"> poor community participation no guiding supervisory almost extinct Limited sources of information Limited driving forces Not played much anymore
OPPORTUNITY	STRENGTH AND OPPORTUNITY STRATEGY (SO)	WEAKNESS-OPPORTUNITY STRATEGY (WO)
<ol style="list-style-type: none"> No requiring high operational cost Not yet developed in other regions May be packaged in a huge festival Developing community sports Marketing through both printed and electronic Mass Media 	<ol style="list-style-type: none"> Massing improvement of traditional sports Youth Empowering development Increasing tourism marketing of traditional sports 	<ol style="list-style-type: none"> Improving community participation Enhancing traditional sports

THREAT		STRENGTH-THREAT STRATEGY (ST)	WEAKNESS-THREAT STRATEGY (WT)
1. Traditional Attractions in other regions	Sports	1. Maintaining characteristics of traditional sports	1. Paying attention to packaging quality of traditional sports tourism
2. Stakeholders' attention	Poor	2. Deepening OT observation	

The SWOT Matrix mentioned above is organized based on *Strength, Weakness, Opportunity, and Threat* as strategic factors for internal dan external analysis. The analysis results in strategies formulated as follows; SO strategy is a combination of strength and opportunity factors with the following alternative: 1) Massing improvement of traditional sports 2) Youth Empowering development 3) Increasing tourism marketing of traditional sports. WO strategy is a combination of weakness and opportunity factors with the following alternative: 1) Improving community participation 2) Enhancing traditional sports. ST Strategy is a combination of strength and threat factors with the following alternative: 1) Maintaining special characteristics of traditional sports 2) Deepening OT observation. Meanwhile, WT strategy is a combination of weakness and threat factors with the following alternative: 1) Paying attention to packaging quality of traditional sports tourism.

CONCLUSION AND SUGGESTION

Traditional Sports of *Dul-dulan, Eteng Gablogan, dan Gerit Ingo-Ingo* are greatly potentials as Tambaknegara tourism village's alternative attractions. Alternative strategies should be well developed as tourism attractions by massing development, community participation increase, tourism marketing improvement, guiding enhancement, packaging quality attention of traditional tourism sports.

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TEACHERS COMPETENCE IN ORGANIZING LEARNING ASSESSMENT AND EVALUATION OF PHYSICAL EDUCATION VOCATIONAL HIGH SCHOOL TEACHERS IN KABUPATEN KARAWANG

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Abstract

The method used is a qualitative method approach to the type of ethnography, using purposive sampling technique and Snowball Sampling. The purpose of this study to determine how much teachers conduct assessment with the evaluation process and evaluation of learning outcomes in physical education. Subjects in this study are Physical Education Teachers Vocational High School in Kabupaten Karawang, among which one person physical education teacher of SMK 1 Karawang, one person physical education teacher of SMK Rosma Karawang and one person physical education teacher of SMK BANKING Karawang. The results of the data analysis of this research is the competence of teachers in organizing learning assessment and evaluation of Physical Education Teachers Vocational High School in Kabupaten Karawang as follows: 1) Competence of teachers in conducting the assessment and evaluation of Physical Education learning outcomes can be stated that all teachers are competent both in conduct assessment and evaluation of the results at the end of learning. Teachers give good answers and explanations in conducting assessment and evaluation of learning outcomes by applying the assessment of cognitive, affective, and psychomotor, and 2) Competence of teachers in conducting assessment and evaluation of learning process are less good. Less physical education teachers can explain the organization of the learning process evaluation activities related to the assessment of teachers, student, teacher interaction with students, the implementation of learning in achieving the learning objectives of physical education.

Keywords : Competence of teachers, assessment and evaluation, Physical Education learning

INTRODUCTION

Teachers are professional educators with the primary task of educating, teaching, guiding, directing, train, assess and evaluate students on early childhood education, formal education, primary education, and secondary (Undang-Undang RI Nomor 14 Tahun 2005 Tentang Guru dan Dosen). The teacher is a person who has a noble task to encourage, guide and learning facilities for students to achieve the goal. Teachers have a responsibility to see everything that happens in the classroom to assist in the development of students. Submission of the subject matter is just one of many activities in learning as a dynamic process in all phases and processes students' progress (Slameto, 2003: 97).

The learning process is a series of activities ranging from planning, implementing up to organize a follow-up evaluation and learning activities. The success of physical education teachers in teaching tasks, can be seen from the results of learning achieved by the students. To determine the results achieved, teachers need to perform an activity evaluation of student learning activities. Evaluation is a learning activity that includes an evaluation of the process and learning outcomes. Results of the evaluation exercise will provide an overview to rearrange teachers in the next program. The picture can be either good or vice versa, thus giving the opportunity for teachers to undertake improvement programs (remedial) or enrichment.

Viewed from the concept of physical education assessment and evaluation is supposed to be a physical education teacher competence, by comparison with the real situation there are many physical education teacher who has not run a monitoring and evaluation system in accordance with the concept of operation. So deficiencies and progress of learners in the learning process is not well known to the teacher. Physical education teacher only assess and evaluate at the end of the learning program without knowing the ability of learners, and assessment during the learning process. So that the evaluation does not run in accordance with the purpose and function.

Based on the description above, the writer is interested in conducting research on “Teachers Competence in Organizing Learning Assessment and Evaluation of Physical Education Vocational High School Teachers in Kabupaten Karawang”. To better direction in this study, the authors formulate the research problem as follows: 1) What is Competence of teachers in organizing assessment and evaluation of physical education learning outcomes ? and 2) How Competence of teachers in organizing assessment and evaluation of physical education process and learning outcomes?

LITERATURE REVIEW

Teacher Competence

Professional competence of teachers according to Sudjana (2002: 17-19) can be grouped into three areas: pedagogical, personal and social. Pedagogical competence regarding intellectual abilities such as mastery of subjects, knowledge of teaching, learning and knowledge about individual behavior, knowledge of guidance counseling, knowledge of the administrative class, knowledge about how to assess learning outcomes, knowledge of the community as well as other general knowledge.

According Murniati (2007: 2) one of the characteristics of the profession are required to have skills that meet the requirements that have been standardized by the authorities (teacher competency standards). The term competence is defined as a combination of knowledge, skills, attitudes and values embodied in patterns of thought and action or as a set of intelligent action and the full responsibility of a person as a condition to be considered capable by the public in carrying out tasks in accordance with the specific job. Based on Government Regulation No. 19 Year 2005 on National Education Standards, teachers must have pedagogical, personal, professional, and social (Depdiknas, 2005: 24, 90-91).

1. Pedagogic competence is the ability with regard to the understanding of learners and managers of learning to educate and dialogue. Substantively this competence include the ability of understanding of the learners, the design and implementation of learning, evaluation of learning outcomes, and the development of students to actualize their potential.
2. The personality competence is a personal capacity reflects the personality of the steady, wise, mature and authoritative, become role models for students, and noble.
3. Professional competence is the ability with regard to mastery learning materials widely dap field of study that includes in-depth mastery of the substantive content subjects in school curriculum materials and scientific substance that houses the curriculum materials, as well as adding depth of knowledge as a teacher.
4. Social competence with respect to the ability of educators as part of the community to communicate and interact effectively with students, fellow teachers, staff, parents / guardians of students and the surrounding community.

Assessment Results and Learning Process

Rate educational program or curriculum assessment regarding the assessment of the purpose of education, program content, program implementation strategies, and assessment of education means learning process involves an assessment of the activities of teachers, student activities, teacher-student interaction patterns, and implementation of teaching and learning program. Meanwhile, regarding the assessment of learning outcomes study short-term results and long-term learning outcomes, Nana Sudjana (2010: 1).

Assessment is defined as the process mention the value of an object. In order to determine a value necessary to measure or criterion in determining the category of good, acceptable or less. So that an assessment is a process of give or determine the value of the specific object based on a certain criteria in the scoring process takes place in the form of interpretation which ended with the judgment.

Assessment of learning outcomes is the process of giving value to the results of learning achieved by students with certain criteria. Student learning outcomes are essentially behavioral changes, which include the areas of cognitive, affective, and psychomotor. Assessment of learning process is an attempt to give value to the learning activities of students and teachers made in achieving the learning objectives. In this case, the assessment visits of the extent to which the effectiveness and efficiency of the learning process can achieve the purpose of learning or changing attitudes of students, Nana Sudjana (2010: 3).

Learning as a process contains three elements that can be distinguished: the purpose of teaching (instructional), the experience of learning and learning outcomes, the relationship these three elements illustrated in the following figure. Nana Sudjana (2010: 2).

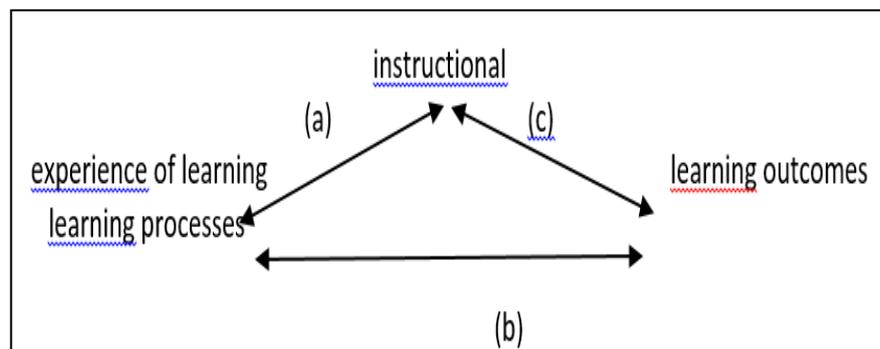


Figure 1. Relationship element instructional objectives, learning processes and learning outcomes

From the picture above can be formulated that the assessment expressed in the line (c) is an action to see the extent to which learning objectives have been achieved by students in the form of learning outcomes are seen after they take their learning experience through the learning process. While the line (b) an assessment to determine the effectiveness of the learning experience in achieving optimal learning results.

Definition of Learning Evaluation

Evaluation has a different meaning to the assessments, pengukuran, as well as tests. Stufflebeam and Shinkfield (1985) states that: "Evaluation is the process of providing information

that can be used as a consideration for determining the rates and services of the objectives are achieved, the design, implementation and impact to help make decisions, help accountability and improve understanding of the phenomenon". The core of the evaluation is to provide information that can be used as consideration in making a decision.

Meanwhile, according to Brinkerhoff (1986) explains that the evaluation is a process that determines the extent to which educational goals can be achieved, in Widoyoko (2013: 3-4). Evaluation is the process of getting information and using it to draw up assessment in order to make a decision. Evaluation can be done by means of measurements and tests. Evaluation is an activity that is always done by every teacher, has meant so much to the success in the learning activities of teachers and students. The task of the teacher in addition to educate and teach is to make an assessment of the students on the materials that have been taught. Implementation by providing repetition of her students.

Assessment is an activity or a process to measure or compare anything in order to determine whether or not or the adequacy of using certain measures that have been prepared and determined using certain measures that have been prepared already prepared and determined beforehand. In line with the teacher's job exposure, the evaluation is a process or election activities, the collection, analysis, and presentation of information that can be used sebagaiu basis for decision making and the preparation of the next program, Griffin and Nix (1991) in Widoyoko (2013: 4).

It can be formulated that learning evaluation of physical education is the work done by the teachers to find out information about the development of students' skills in motion, gesture, and pengetahuanya in order to get an overview of the achievement of learning objectives physical education that have been established, namely through the assessment process and the learning outcomes of students who performed periodic, continuous and thorough, Gustiawati (2015: 5).

Physical Education Learning

Physical education and health are essentially poses utilizing physical activity and health to produce a holistic changes in individual quality, both in terms of physical, mental, and emotional. Education to treat the child as a unified whole, being in total, rather than just take it as a separate person physical and mental quality.

In fact, physical education and health is a very broad field of study. Point of concern is the increase in human movement. More specifically, physical education with regard to the relationship between human movement and other educational area: the relationship of the development of the physical body with mind and soul. The focus on the influence of the physical development of the region's growth and development of other aspects of the human being that made him unique. There is no other single area such as physical education and health are concerned with the total development of the human being.

When viewed from the definition, physical education expression defined in a variety of sentences. But essentially the same, it can be concluded that physical education utilizing the physical tools to develop human wholeness, through physical activity, mental and emotional aspects also helped to grow, even in a deep enough emphasis, Husdarta (2009:3-4).

METHOD

This study uses a qualitative study using ethnographic type approach. This study explores the phenomena that is descriptive of the competence of teachers in organizing learning assessment and evaluation of physical education teachers vocational high school in Kabupaten Karawang. Researchers using purposive sampling technique and snowball sampling in determining the research subjects / informants are Physical Education Teachers Vocational High School in Kabupaten Karawang, among which one person physical education teacher of SMK 1 Karawang, one person physical education teacher of SMK Rosma Karawang and one person physical education teacher of SMK BANKING Karawang.

Type of research data used are notebook, video recording, documentation and photos. Data was collected by observation, interview, and documentation. Data analysis techniques in this study using a Circular Model Nasution, namely the question of research, data collection, data analysis, verification, and reports based on records and memories. Data validation was done by triangulation of the principals, fellow teachers, and students. Here grating interviewing.

Table 1. Grid of Instruments Interview

Variable	Dimension	Sub Dimension	Indicator
Teacher Competence in Pedagogy	Implementation of physical education assessment and evaluation of Physical Education learning	1. The implementation of assessment and evaluation of physical education learning outcomes	a. Cognitive aspects b. Affective aspects c. Psychomotor aspects
		2. The implementation of assessment and evaluation of physical education learning process	a. activities of teachers b. student activity c. Teacher interaction with Students d. Implementation of learning

Table 2. Criteria for Assessment of Competence of Teachers in Organizing Learning Assessment and Evaluation of Physical Education

Values	Criteria
81-100	Competency Very Good
61-80	Competence Good
41-60	Competency Enough Good
21-40	Competence Less Good
< 20	No Competent

RESULT AND DISCUSSION

This study aims to determine how the competence of teachers in organizing learning assessment and evaluation of physical education teachers Vocational High School in Kabupaten Karawang.

1. Teacher Competence in Conducting Assessment and Evaluation of Learning Outcomes declared competent good.

Most informants provide answers and explanations both in conduct assessment and evaluation of physical education learning outcomes by applying cognitive assessment to measure students' knowledge at the end of the learning process. Informants held affective ratings to measure

the attitudes of students at the end of the process of learning, where students are assessed by observation sheet to see changes in the behavior of the attitude of the students after undergoing a process of learning. Then the student movement assessment that assess psychomotor learning students after gaining experience of motion, so the motion aims to determine the changes experienced by students after the learning process of motion in physical education and health.

Informants have learning program short and long term, which is applied in the manufacture of an annual program and the next semester in detail into the daily program in the form of learning implementation plan (RPP). In making the informant also has prepared a lesson plan and design the assessment and evaluation instruments to assess the level of cognitive, affective, and psychomotor student.

2. Teacher Competence in Conducting Assessment and Evaluation of Learning process are competent less good.

In most informants are less organized learning assessment in physical education process, in which the assessment process is intended to provide information about the extent of the effectiveness and efficiency of the process of presenting the learning done by teachers in achieving the learning objectives that have been set.

It is proven that the informant is less emphasis on assessment and evaluation of students' activities during the learning process, less observe or assess the students' activities during the learning progresses, less assess and pay attention to the interaction between teacher-student must be created by the informant as a teacher during the implementation of the learning takes place, and assess as well as evaluating the enforceability of the learning program has been designed to achieve the learning objectives. Assessment of the learning process emphasizes on the improvement of the implementation process of learning activities of physical education and health, with examples provide appropriate models and methods, providing improvement services for students who have not completed, and improve the learning atmosphere is not good.

Teachers tend to be more organized assessment and evaluation of learning outcomes in assessment aspects of cognitive, affective, and psychomotor of the organizing process and learning outcomes of physical education pertaining to the assessment activities of teachers, students, teacher-student interaction, and achievement of learning implementation physical education to achieve goals which has been in programkan. The evaluation results obtained revealed the fact of most of the informants do not understand the use of assessment of learning outcomes for the improvement in the application of teaching methods, programming, modifications and other media related to the improvement of the learning process in terms of getting the learning experience to increase achievement results are better learners. Assessment results and learning processes are related to each other, because the outcome is the result of the process.

CONCLUSION AND SUGGESTION

Based on the results of research and discussion, it can be concluded that, meaning revealed by this study is the competence of teachers in organizing learning assessment and evaluation of physical education at the vocational school teachers in Karawang regency of the informants tend to be more organized assessment and evaluation only at the end of learning. More details can be summarized as follows:

1. Teacher Competence in Conducting Assessment and Evaluation of Learning Outcomes declared competent good at vocational high schools in Karawang.
2. Teacher Competence in Conducting Assessment and Evaluation of Learning process are competent less good at vocational high schools in Karawang

In connection with these conclusions, the suggestions can be put forward in this study as follows:

1. The Department of Education in particular in the field of physical education and health, to hold a seminar or training of physical education teachers to improve their competence in terms of data collection and assessment of students in the process of learning outcomes based authentic assessment, in accordance with scientifically-based learning in the curriculum, 2013.
2. Principal should include physical education teacher into some special workshop event sport and physical education teacher health, to physical education teachers always have a good competence in organizing learning assessment and evaluation of physical education.
3. The teacher of physical education and sports health care system should be more open in the face of a change towards the better for the interests of their competence, especially in the implementation of the assessment and evaluation of learning that is authentically.

So from the above description, based on the research results, discussion and conclusions, as an input for improving the competence of teachers in organizing learning assessment and evaluation of physical education, then formulated the following recommendations:

1. Physical Education Teacher sports and health need to be more to learn and get used to gradually change the paradigm that the assessment and evaluation of learning not just to see the results of learning, but in doing during the learning process or assess the process of a motor skills.
2. Physical Education practitioners should be more careful, that the vote on the learning process of physical education can provide external motivation among students who lack ability in the field of physical education studies exercise and health. Because on the assessment results, teachers only see the product of a movement skills do learners.
3. For other researchers interested in the discussion of teacher competence in the assessment of physical education, you should follow up the results of this study with different methods of research to be more detailed and in-depth.

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THE CONTRIBUTION OF ORGANIZED LEISURE TOWARD ACHIEVING QUALITY OF LIFE: INDICATORS FROM YOUTH LEISURE SATISFACTION ACROSS SES

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Abstract

Leisure time use and physical activities play important roles in the lives of young people and several policies in Malaysia have been established to enable students, for example, to have access to the benefits of participating in sports and recreation. Moving towards a developed country, Malaysia too is struggling with the reality of increasing rates of social problems among its youth. Due to that, this paper reviews on the benefits of organized leisure activities among youth as contributing factors toward achieving quality of life from the indicators of their leisure satisfaction and substance use. A cross-sectional survey was done among youth who involved in a specific Youth Movement. Youth involvement in any substance use was collected and their leisure satisfaction was measured from six aspects. Using a cluster random sampling technique, a total of 413 youth from all districts in a state in Malaysia answered the questionnaires. Mean scores and t-test were used to reveal any substance intake and One Way ANOVA was used to see the differences across SES on leisure satisfaction, followed by Post Hoc tests. Results showed that youth hardly ever or never committed in all categories in the substance use, with mean scores are less than 2.00. Results also demonstrated reasonable satisfaction with activities in all aspects, with no significant differences among the SES groups with Psychological, Educational, Social, Physical and Aesthetic aspects of leisure satisfaction. As far as leisure satisfaction is concerned, 'aesthetic' aspect stands out and they also agreed that 'relaxation' gave them the most satisfaction. The Post Hoc Test showed that the difference was between lower and upper groups (sig. = .002) and also between middle and upper groups (sig = 0.41) and no significant difference between youth of middle and lower SES groups. Following the dimensions defined for the measurement of well-being, leisure and social interactions are essential domains to measure the well-being of an individual, as they directly influence life satisfaction. In this research, the satisfactions with the aesthetic component of leisure indicates that leisure resources and environmental conditions are contributing factors towards quality of life in which research may associate the quality of the programs and activities delivered, are significant in providing greater leisure satisfaction to youth. Furthermore, the involvement in organized leisure has also helped preventing youth from substance use. The access of organized leisure programs carried out is a vital element in harmonizing life, which indicates balancing free time with activities and work or study, thus creating self-independence among youth through leisure choices.

Keywords: organized leisure, quality of life, leisure satisfaction

INTRODUCTION

Many social problems like smoking and drug abuse, and health problems, including mental issue are said to be on the rise among youths in Malaysia. This was revealed in the National Health and Morbidity Research 2015, which showed mental health issues among 16-year-old youth spiked from 10.7% in 2011 to 29.2% in 2016. The main cause, according to experts was due to inactive lifestyle that led to people developing an addiction to smoking and eating unhealthy food. As young Malaysians make up 60 percent of the population, this can be a serious issue because they are the future leaders of the nation. Due to that many policies were implemented to protect youth and cater for their needs. For example, National Youth Development policy was established, from many other

reasons was to encourage youth to engage in social and voluntary activities that lead to a healthy, active and quality lifestyle.

Structured leisure programs, for instance are organized by several agencies under various organizations, involving students in schools as well as higher learning institutions to encourage youth's involvement in a variety of physical, social, cultural, and community activities. This definitely involving youth time use after school. However, In Malaysia, there has been little documentation or no research into what young people think leisure time actually is and how they might like to utilize this time although one way of a remedial measure to overcome social problems is understanding quality time for children (Kausar, 2005).

The government of Malaysia is concerned with the way youth spend their time and what kind of activities youth engaged in during their leisure time. It has been portrayed in newspapers in recent years that some youth engage in minor crime activities during their leisure hours, which sparked the idea for structured program implementation to curb the problems. Therefore the motivation and rationale of this study is to examine the nature of leisure activities among youth and the possibility of government managing some leisure activities for youth. Although the quality of life is determined with objective factors and subjective factors which influence human life, but leisure activities play a very important role in subjective well-being because they provide opportunities to meet life values and needs. Through participation in leisure activities people build social relationships, feel positive emotions, acquire additional skills and knowledge, and therefore improve their quality of life.

In relation to this, this study examines the benefits of organized leisure activities among youth and its contributions toward achieving quality of life from the indicators of youth leisure satisfaction across socio-economic status. The quality of life dimension in this study was based on the measurement of leisure satisfaction with leisure experiences based on the underlying assumptions that the higher the level of satisfaction, the better the quality of life.

REVIEW OF LITERATURE

Understanding Leisure

Leisure is defined as times free from work, where people spend time doing what they enjoy in their leisure time for their own benefit and without any external pressure (Murphy, 1981). Kraus (1990) suggests that this view of leisure is closely aligned with that of recreation that involves the way free time is used. The concept of leisure as an activity provides an opportunity for someone to engage in some kind of activity, whether vigorous or relatively passive. Leisure in a cultural context, however, influences children and youth expectations about leisure and how they structure their leisure to fulfill their expectations. This context is expressed in forms such as gender, race, ethnicity, class, or behaviors that youths use and in deciding how to act in different situations. This is relevant to the assumption that leisure cannot be separated from other aspects of people's lives (Rojek, 2010). A classical understanding of leisure is that it is made of activities which enlighten and educate (Torkildsen, 1992). According to Larson and Verma (1999), activities of adolescents are typically freely chosen and non-instrumental, whereby adolescents can try out different social roles and develop social identities. Their activities can be rather unstructured (e.g., hanging out with peers) or structured (e.g. activities with a registered youth club). Hutchinson et al. (2006) found positive consequences of unstructured activities as they provide social support from the peers whereas

Mahoney and Stattin (2000) proposed that the lack of leisure activities' structure can be detrimental to the development of adolescents and that this kind of leisure activities even may be a risk factor for problem behavior.

Young Partner Policy

Young Partner is the biggest youth movement in Malaysia and is chosen as the provider for organized leisure activities among youth for this study. It was introduced in 1994 and considered as one of the most significant programs for youth in Malaysia. The program is based on the transformation of an implementation philosophy in line with the Community Youth Development approach which emphasizes total involvement of youth and local communities. This movement was demonstrated through Nine Lifestyles to suit the needs of youth and accomplish the vision to develop youth who are disciplined, responsible, and active with exemplary qualities such as good leadership, perseverance, independence, patriotism, and highly competitive (Rakan Muda Development Department, 2010). The Nine Lifestyles include Games, Entrepreneurship, Self Defense, Fitness, Love for Nature, Community, Culture, Recreation and Innovation, which can be chosen by youth according to their interest.

Leisure Satisfaction, Happiness and Quality of Life

Leisure satisfaction is the positive feelings derived from leisure participation of an individual (Beard & Ragheb, 1983). Many research activities have associated leisure satisfaction with other variables, particularly with personality, leisure activity, interest, constraints and other fields' related satisfactions (Korotkov, Mclean & Hamilton, 2011). Many research findings have indicated leisure satisfaction as a variable that is eminent to contribute to life satisfaction (Brown & Frankel, 1993; Russel, 1987) and satisfying leisure experiences are important in all life stages. For instance, leisure satisfaction during college life is important to help develop students' leisure patterns and behaviors, which have long term effects on their leisure attitudes (Gordon & Catalbiano, 1996; Hultsman, 1993). Other studies suggest that leisure activity also impacts such satisfaction based correlates as mood and happiness (Wijnallele et al., 2006). Furthermore, conscientious individuals who engaged in regular physical activity across a range of activities tended to report being more satisfied with their leisure lifestyle relative to those less conscientious (Korotkov, McLean & Hamilton, 2011).

Many factors motive individuals to pursue leisure. These factors vary from person to person, depending upon unique personalities, lifestyle, goals and needs. Kraus (1994) indicates that many participants pursue leisure primarily for 'fun' and enjoyment. In reporting research conducted by Angier, Kraus notes the positive relationship of fun and enjoyment to quality life. Leisure provides opportunities for temporary escape from stress of work, family and interpersonal relationships because there is great stress, complexity and demands in this life. Therefore, many individuals need to escape or recover from the pressure or problems that arise from day to day living. Participation in positive, constructive forms of leisure provides an excellent alternative to negative forms of escape such as substance abuse (Driver & Brown, 1986).

Many researchers have associating leisure and quality of life. For example, Bradburn's theory of psychological well-being was based on the notion of "emotional balance," or the presence of positive feelings about life and the absence of negative feelings. Cassidy (1996) found that individuals who have more positive attitudes towards participating in leisure activities experienced less psychological distress, less anxiety and less depression. This indicates that frequent participation in a wide range of leisure activities was related to good physical health status and perceived as physically

and psychologically healthier. However, in a study carried out by Ardahan and Lapa (2010) on 804 university students, it was found that leisure satisfaction and its sub-dimensions do not differ according to gender, but that the level of leisure time satisfaction increases in parallel with the increase in income level.

Some researchers have also investigated the relationships among leisure participation, attitude, satisfaction, motivation, and a set of behavioral and social concepts. For example, Kaufman (1988) found out that there was a significant positive relationship between leisure participation and leisure satisfaction. Also, he reported that the higher the leisure satisfaction and leisure participation, the lower the levels of anxiety. Furthermore, Iso-Ahola and Weissinger (1990) found a negative relationship between boredom and leisure participation, motivation, attitude, and satisfaction. Participation in activities is often regarded as having positive relationship to life satisfaction (Lloyd & Auld, 2002). Approaches to the measurement of leisure's relationship to quality of life have identified place-centred indicators (e.g., the frequency of leisure facility usage) and person-centred criteria (e.g., satisfaction with leisure with quality of life. Further analysis revealed that people who engage in social activities more frequently and who are more satisfied with the psychological benefits derive from leisure, experience have higher levels of perceived quality of life.

In other words, the quality of life of the individual must necessarily be left in the hands of the individual while the quality of the community is something that can be effectively managed by government. The importance of leisure to the quality of communities has been recognized by urban planners and community builders for some time. The quality of life dimension in this study was based on the measurement of leisure satisfaction with leisure experiences based on the underlying assumptions that the higher the level of satisfaction of participants, the better the quality of life.

Structured Leisure

Structured leisure activities are organized and directed, stimulating, and skill-focused pursuits requiring commitment and regular participation (Larson & Verma, 1999; Mahoney & Stattin, 2000). For example, school activities are usually highly structured with specific goals, usually directed towards cognitive and social development and play a role in molding young people's morale and able to help them to have self-control. A study involving 700 young people in the UK, which was based on the work of the Peterborough Adolescent and Young Adult Development Study (PADS+), showed that the rate of crime during structured leisure activities was very low (Wikstrom et al., 2012).

Due to some positive effects leisure activities have made on individuals, attendance and interest towards leisure activities have grown and correspondingly investments have been gaining importance (Yerlisu et al., 2012). Leisure activities are also being organized and becoming a public service provided by formal government structures. Therefore, it becomes more eminent to study the impact of the activities arranged by governmental institutions or private institutions for individuals to spend their leisure (Sönmezoğlu et al., 2014).

Results also showed that participation in highly structured leisure activities was linked to low levels of antisocial behavior, with similar results for boys and girls (Mahoney & Stattin, 2000). Other research also showed no differences between male and female participation rates in structured activities generally, or physical or social activities in particular (Bartko & Eccles, 2003; Pedersen & Seidman, 2005). Furthermore, youth participation in structured out-of-school activities is often associated with positive behavioral outcomes. For example, research by Melnick et al, (2001) found a

positive association between participation in structured activities and a negative correlation with tobacco use.

In contrast, time spent unsupervised with peers tend to influence youth towards negative behaviors because youth behaviors are least constrained by supervision during unstructured leisure activities and make them more conducive to rule-breaking and deviant attitude (Wikstrom et al, 2012). However, it would be unnecessary to eliminate all unstructured peer socializing as this is an important component of the transition process to adulthood. Furthermore, youth needs time free from expectations and commitments and the very nature of structured leisure activity itself is that it is only available for a defined and comparatively limited time each week.

This research examines leisure aspects among youth in their participation in organized leisure programs under the Ministry of Youth and Sport. The movement was initially implemented to control undesired involvement in negative activities during free time among the young people. Young Partners was established and is a well-known organization that provides various programs and activities that give choices to young people to participate.

METHODOLOGY

In this research, the social class groups are identified as socio economic status (SES) because typically, higher level of education represents higher income; therefore, the higher the social class indicates a higher level of socioeconomic status. One-way between groups analysis of variance (ANOVA) was conducted to explore the impact of SES between the diverse groups of family background on several aspects of leisure satisfaction namely Psychological, Educational, Social, Relaxation, Physiological and Aesthetic. It is to determine whether there are significant differences among the various SES groups from Lower, Middle and Higher Class family groups with their leisure satisfaction and Post Hoc Test was carried out to test the differences between each of the specific family group.

RESULTS AND DISCUSSIONS

Youth in this research is referred to the Young Partners who have participated in programs organized at the state and districts levels. The members are from 15-25 years old, who are school students, college students, and school leavers or young working people. Table 1 shows the demographic profile of the participants.

Table 1. Demographic Profile

Item	Frequency	Percentage (%)
1. Gender		
a) Female	211	51.5
b) Male	199	48.5
Total	400	100.0
2. Ethnic groups		
a) Malays	368	89.8
b) Chinese	8	2.0
c) Indians	32	7.7
d) Others	2	0.5
Total	410	100.0
3. Districts		
a) Gombak	36	8.7
b) Kuala Langat	19	4.6
c) Kuala Selangor	48	11.6
d) Klang	52	12.6
e) Sepang	41	9.9
f) Sabak Bernam	38	9.2
g) Hulu Selangor	25	6.1
h) Hulu Langat	84	20.3
i) Petaling	70	16.9
Total	413	100.0
4. Socioeconomic Status		
a) Lower	244	61.8
b) Middle	105	26.6
c) Upper	46	11.6
Total	395	100.0

Leisure Satisfaction across SES

The Leisure Satisfaction Measurement (LSM) was used to identify the level of satisfaction among youth toward leisure in the context of Young Partners Policy. Table 2 represented the leisure satisfaction experienced by youth across different SES. Leisure satisfaction was measured from 6 aspects: Psychological, Educational, Social, Relaxation, Physiological and Aesthetic. Here, the higher the mean score, the higher the satisfaction toward the activities.

Table 2. *Comparing Leisure Satisfaction among Youth across Different SES*

Leisure Satisfaction	SES	N	Mean	Df	f Value	Sig
Psycho mean	Lower	244	3.9539	2,392	.856	.426
	Middle	105	4.0190			
	Upper	46	4.0978			
	Total	395	3.9880			
Edu mean	Lower	244	3.9611	2,392	2.355	.096
	Middle	105	4.0833			
	Upper	46	4.1902			
	Total	395	4.0203			
Social mean	Lower	244	3.9395	2,392	.067	.935
	Middle	105	3.9357			
	Upper	46	3.9837			
	Total	395	3.9437			
Relax mean	Lower	244	3.9016	2,392	5.906	.003
	Middle	105	3.9881			
	Upper	46	4.3207			
	Total	395	3.9734			
Physiological mean	Lower	244	3.7910	2,392	.993	.372
	Middle	105	3.8929			
	Upper	46	3.9185			
	Total	395	3.8329			
Aesthetic mean	Lower	244	4.0697	2,392	.122	.885
	Middle	105	4.0881			
	Upper	46	4.1250			
	Total	395	4.0810			

1 – Never true, 2 – Not true, 3 – Not sure, 4 – True, 5- Always true

Table 2 shows the overall results of leisure satisfaction from six dimensions. The mean scores indicated that participants agreed that their experiences and participation in various programs handled have given them the satisfaction, which showed Educational and Aesthetic values were the highest score. Results also showed that there were no significant differences among the SES groups with Psychological, Educational, Social, Physical and Aesthetic aspects of leisure satisfaction with sig >.05. For example, in the psychological aspect youth from all SES categories seemed to agree that they were satisfied with the activities. Activities from YP programs have given them the sense of freedom and enjoyment, but not at all times.

They also agreed that the activities have provided satisfying educational aspect to them. It means leisure participation in the YP context has provided satisfaction of intellectual stimulation and learning among youth at all SES levels especially among the middle and upper group. Similarly, there

were no significant differences in terms of youth’s satisfaction from the social aspect, which means no matter what levels SES they came from they seemed to agree that leisure participation in the context of YP has given them the chance to meet and interact with others though at certain point it might not be always true.

In the physiological aspect, youth across different SES agreed that the participation has given them fair satisfaction. It means their involvement somewhat can help them to stay healthy, but not as a main intention in participating (mean = 3.8329). There were also no significant differences in all SES groups about aesthetic aspect when youth fully agreed that the activities they participated have given them satisfying aesthetic experiences in which they appreciated the areas with which they engaged in as beautiful and interesting.

Finally, relaxation is the only aspect that showed a significant difference among youth across SES groups with sig < .05. The upper SES youth group agreed that relaxation gave them more satisfaction (mean = 4.3207) toward activities organized by YP as compared to the lower and middle groups. This means, youth from upper SES believed that leisure participation helped them to relieve stress. Thus, to determine where the differences lie among them, Post Hoc test was carried out.

Post Hoc Test

Post hoc test was carried out to identify where the differences lie in relaxation aspect among youth from different socioeconomic backgrounds.

The results in Table 3 showed that although there was a statistically significant difference (p < .05) in leisure satisfaction for relaxation score but the Post Hoc Test showed that the difference was between lower and upper groups (sig. = .002) and also between middle and upper groups (sig = 0.41). There was no significant difference between youth of middle and lower SES groups. Thus, we can conclude that youth from upper SES agreed more on relaxation aspect which gave them high satisfaction as compared to lower and middle groups. This can be the reason of higher level of participation among youth who can afford more resources and financial aid for involvement that can also provide greater satisfaction for them.

Table 3
Post Hoc Test for Comparing Relaxation Aspects across Different SES

(I) SES	(J) SES	Mean Difference (I- J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Lower	Middle	-.08646	.08872	.991	-.2998	.1269
	Upper	-.41901*	.12219	.002*	-.7128	-.1252
Middle	Lower	.08646	.08872	.991	-.1269	.2998
	Upper	-.33256*	.13441	.041*	-.6557	-.0094
Upper	Lower	.41901*	.12219	.002*	.1252	.7128
	Upper	.33256*	.13441	.041	.0094	.6557

Note.* The mean difference is significant at the 0.05 level.

Leisure Satisfaction Measure (LSM) by Beard & Ragheb (1980) was used to assess the feelings that an individual gains as a result of engaging in organized leisure activities. Leisure Satisfaction was measured from the Psychological, Educational, Social, Relaxation, Physiological and Aesthetic components. Results showed that youth were satisfied with their leisure participation and youth were found to be highly satisfied in the aesthetic component which indicated that their leisure activities have helped them to appreciate the environment and they were truly satisfied with the settings in which they engaged. The relationship between satisfactions with the aesthetic component of leisure indicates that leisure resources and environmental conditions are important to quality of life (Lloyd & Auld, 2002) which in this research may be associated to the quality of the programs and activities delivered, thus provided greater leisure satisfaction to youth. This is relevant to previous findings of different types of leisure activities which were found to contribute to people's health through increased park usage (Orsega-Smith, Mowen, Payne, & Godbey, 2004), and that pleasant affective reactions often occur in a visually pleasing natural environment (Ulrich, 1983).

CONCLUSION AND SUGGESTION

The implications of this finding are based on the discussions in the review of literature on leisure needs and motives. For example, the effect of social factors for participation is the presence of others, because youth involve in the activities that others participate. They direct their intrinsic motivation to social recreational activities and followed what others were doing. This is possible because structured leisure activities require the presence of others (London et al., 1977). There was also a positive interpersonal involvement (e.g., developing close relationships) which indicated one of the basic dimensions of leisure needs through socialization. Furthermore, they learned through their socialization process that such activities gave health benefits, relaxation and increased their knowledge. They also learned how to use time wisely, how to access resources for leisure involvement, and how to interact socially during leisure. Thus they learned many skills that are applicable to other areas of life (Caldwell, 2002). Their satisfaction was also increased by the rewards they may receive, such as medals, certificates and recognition from YP participation.

One aspect in leisure satisfaction has signified the influence of SES. Youth from the upper SES group admitted the relaxation aspect gave them most satisfaction compared to the lower and middle SES while participating in YP programs. They believed that leisure time relieved them from stress, made them happy and they usually felt satisfied after spending their leisure time. Relaxation in this context is similar to the findings by Witt and Bishop (1970) catharsis theory that leisure participation is initiated by a need to release emotional tension and anxiety. The findings also supported the concept of intrinsic motivation underlying leisure behavior when youth perceived their leisure as providing them with positive interpersonal involvement (London, Crandall, & Fitzgibbons, 1977). Thus, youth from higher social class who usually come from the urban areas participated in outdoor activities as a leading motive for solitude, the same as social interaction function for those in more rural areas (Knopp, 1972).

Other motives for taking part in leisure activities which were highlighted in the previous research included psychological: Self-concept, self-confidence, self-sufficiency, sensation seeking, actualization, wellbeing, personal testing, sociological and physical needs (fitness, skills, strength, coordination, catharsis, exercise and balance (Cheek & Burch, 1976; Rolston, 1986). So the integration of various activities through Nine Lifestyles that involve physical and psychological

aspects offered by YP has contributed in achieving the objectives through structured leisure analysis in this research has shown considerable level of satisfaction among youth in their participation, particularly on the aesthetic values. This indicates the importance of locality where leisure activities were carried out.

So, it is important that youth can get easy access to program locations and decide on leisure activities they are interested in providing that the activities are safe, appropriate and attractive. There must also be a balance between the freedom youth has in pursuing his desire on the choice of activities and the responsibility he has as a member in a community because at present YP is emphasizing on community typed activities. By having positive and satisfying leisure experiences during Young Partners' participation, youth are able to develop and shape long-term leisure patterns and behaviors among youth (Gordon & Catalbiano, 1996; Hultsman, 1993). More importantly, youth will continue to participate in leisure activities even after the college years. As determined by Searle, Mactavish, and Brayley (1993), leisure satisfaction was one of the main variables that contributed in explaining an individual's choice to continue participation in leisure activities. If the leisure activities and leisure satisfaction are of such importance in terms of their contribution to personal happiness of students, who are representing the younger generation, then universities and municipalities can offer fully-equipped indoor and outdoor recreation centers and facilities. Factors causing solitude and an avoidance of leisure activities should be thoroughly analyzed and psycho-educational workshops promoting communication and social skills for students can be organized (Kaya, 2016).

In conclusion, understanding leisure satisfaction from the analysis of Young Partners, organized leisure programs are a continuous effort in achieving policy objective among youth in Malaysia. The success of the program will be determined in the cycle with continuous improvements throughout the implementation and structured leisure activities are a fundamental element in providing knowledge to the young ones in understanding leisure concepts and the spectrum of leisure in achieving quality of life.

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VALUE OF RECREATIONAL SPORTS ACTIVITY OF URBAN COMMUNITIES

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Abstract

According to the WHO, health is not merely the absence of disease or infirmity, but a state of complete physical, mental, and social well-being. Recreational sports activities particularly for urban communities could be used as a life style, because it may considered balance individual condition between physical, spiritual and social needs. This study aims to describe and investigate: 1) the reason why recreational sports become urban society choice as weekend activities and holiday activities, 2) the type of recreational sport activities done by urban communities, 3) the value of individual's physical and psychosocial aspects, 4) potential space for individual who do recreational sport activities. This research used ethnographic study with empirical and theoretical approaches. We conclude that the recreational sport activities as an option activity for the urban community, and is quite representative to facilitate the needs of sport cultures, and a sense of concern for the environment which useful in maintaining health.

Keywords : Recreational sports; value; urban communities

INTRODUCTION

Recreation is human rights and it is part of the life. Recreation cannot be separated from human beings who always grow and develop every time. Recreational education is one of the integral parts from nation and society responsibility of nation caretaker, education implementer, community, and other education stakeholders.

The aims of recreational sports implementation are to give the valuable real contribution, to give the inspiration for prosperity and human survival from the aspect of physical, mental and social. The meaning that contained in recreational sports is not only about physical education but also about the overall aim of education. In addition, the meaning of recreational sports can also give the contribution toward individual life in physic, psychology, and social aspects.

The real condition of the implementation of recreational sports in Indonesia is still apprehensive. It needs attention from government, perpetrators, and sports stakeholder. The growth and development of sports in the society shows many dimensions. That phenomenon plays an important role in relation to the intellectual life of nation, character building, moral education, and balancing the physical, spiritual, and social needs. One of the sports which are able to create the development of sport foundation comprehensively is recreational sports.

The law no 3 year 2005 about national sport system divides the sport into three kinds: (1) educational sport, (2) sport competition (3) recreational sports. **Why is the recreational sport important to society?** It is because human beings can make the recreational sports as their life style. It also equalizes the physical and spiritual need, and improves physical, mental, and social prosperity. Balance recovery through recreational sport activity is developing and become the recreational sport called "sport for all". It has the advantage for physical, mental, and social prosperity. According to WHO, healthy is not only free from the illness but also prosperous in physic, mental, and social.

When someone is free from illness and get the prosperous life, the improvement of body's endurance from the illness can be achieved from sport activity (Panduan olahraga rekreasi: 2011: 2).

There are three categories of recreational sports. They are (1) massive sport (2) traditional sport (3) specific sport/ rehabilitation. Generally society's recreational sports for 18 – 40 years old are heart-healthy exercise with its variation, aerobics and its variation, cycling, walking, jogging, and other sport games. Meanwhile the recreational sports that is done by teenagers in school age are football, futsal, cycling, walk for health and aerobics with its variation. Then, the traditional sports that is done are go back through the door, walking on stilts, huge clog (*bakiak jumbo*), and hit with pillow (*gebug bantal*).

In addition to the mentioned sport above, there are life style sports that done by the society such as aerobics, weight training, spa message, and tness. Those sports are performed in gym studio and sport center. Those sports are usually performed by boy or girl teenagers and adults.

The result of the writer's observation especially in Semarang city, recreational sport that are played in open space such as Simpang Lima, jl.Pemuda, Pandanaran, Menteri Supeno, and roundabout in jl. Pahlawan (car free day track) are walking, cycling, jogging, heart-healthy exercises and its variation, aerobics, roller skate, volley ball, mini football and etc. Furthermore, the recreational sport is also performed in Mugas field. The recreational sports that are done in Mugas field are walking, heart-healthy exercise, aerobics, football, and badminton. Other places that used to do the recreational sports are Sam Po Kong area, Ronggo Warsito museum area, Graha Padma Regency Semarang, and BSB regency Ngalian Semarang. In Sam Po Kong, the society does walking, gymnastics for elderly and roller skate. In Ronggo Warsito Museum area, society perform walking, cycling, futsal, volley ball, and heart-healthy exercise. Then, in Graha Padma Regency Semarang, the society accomplishes Tera Indonesia gymnastics, aerobics, walking, jogging, cycling, football, and futsal. Meanwhile in BSB Regency Ngalian Semarang, the activities that performed are walking, jogging, gymnastics for elderly, aerobics, cycling, and mini football.

The rise of the variation of recreational sport recently, there are, of course, some reasons that related to the motivation, objective, advantage (for physics, mental, and social), behavior, social value, environmental potential (safety, comfort) that motivate the people to get the value in physical, psychological, and social aspect. Urban society is the recreational sports perpetrators. They have different social status, economy status, different education and profession. Those differences do not diminish the spirit in doing the recreational sport because it is done to fulfill the need of self-expression as human being. Visually, that expression is needed to be recognizing by the surroundings (Maslow in Baihagi; 2009: 144).

Recreational sports is the sport activity that is done by the society based on the hobby and ability which is grown and developed appropriate with the condition and culture value of society to get fitness and happiness. Recreational health that is performed as healthy recovery process and fitness is completed without compulsion and in excitement ambience. Additionally, recreational sports are aimed to build the social relation between the doer and preserve the wealth of nation culture diversity (Paper: 2011; 10).

Therefore, the activities of recreational sport give the doer a chance to implement the weekend activities, and to get the value from physical aspect, psychological aspects and social value in society's environment. One of the value is the doer can express themselves as human beings who have a real value to fulfill the need of self-actualization as a cultured human in social life.

METHOD

Unit and Subject of Research

The unit and subject in this research are the group of elderly gymnastics, the group of aerobics and urban society that performed recreational sports such as cycling, walking, and jogging on weekend or holiday.

Object or target and research location

The objects or research targets based on the problem that is written in the introduction are (1) the reason why recreational sport be the urban society's choice as weekend and holiday activities, (2) the type of recreational sport activities that performed by urban society, (3) the value from physical aspect and psychosocial, (4) the potential of the environment that can facilitate and be accessed by the urban society in performing recreational sport activities.

The research location that based on the problem and the aim of the research took place in Semarang precisely in Graha Padma regency Semarang. That location was chosen because it is representative by considering many things such as: (1) There are many recreational sport perpetrators and varies from children, adult, elderly, men and women in group or individual, (2) the wide open space area and it has the representative access as green sport area, (3) the area is free from conflict, safe and comfortable because there is a security system.

Data Collection Technique

According to the problem statement and the approach of the research, the role of the researcher is as human instrument by using focused physics observation technique. The methods of this technique were examining the health condition of perpetrators, observing participant about the event, observing the type of recreational sports that performed by the perpetrator, doing in-depth interview about psychosocial value and investigating the document for administration and information note of the perpetrators.

Data Validation

The data was validated by using data and informant triangulation. In this validation, the researcher compare and confirm the result of the same data about the value of physical health and psychosocial from some sources or from the perpetrators of elderly gymnastics, aerobics, cycling, walking, and jogging.

The Source of the Data

The main source of data in this research is in description that express through (1) event: recreational sport activities of urban communities, (2) Perpetrators : urban community who performed recreational sport activities, type of recreational sport such as elderly gymnastics, aerobics, group of cycling, walking and jogging. Twenty five people in elderly gymnastics and fifteen people in aerobics join healthy test. Then, thirteen cyclist, ten pedestrians, and five people who performed jogging also join healthy test. (3) The document of data sources or written information such as the event of recreational sport activity in urban community. The supported sources of data are the data from the sport expert, leader of FORMI Semarang and perpetrators as testimony.

Data Analysis Technique

The achieved data was analyzed inductively by using interactive cycle of Miles and Huberman. The data reduction was done to reduce unimportant data. The other techniques that used were simplified, focused, chosen, selected and sharpen the data that achieved.

RESULTS AND DISCUSSION

The reason of urban community choose recreational sport as weekend and holiday activity

The reason is because the sport is done in the spare time and the society can choose the type of the sport and the group. They do sport happily without compulsion. Moreover, the societies think that recreational sport is easy to be performed and give the interaction access in social life without seeing the class, status, and position.

The type of recreational sport activities which are chosen by the society

The society choose gymnastics for elderly (Tera Indonesia gymnastics) especially for men and women, aerobics for young mother until pre elderly, cycling for all ages, walking for all ages, and jogging for all ages.

The value result of recreational sport activities from physical and psychological aspect

1. The value of physical aspect (physical fitness)

The value of elderly gymnastics group is 20% for very poor category of fitness, 40% for poor category and 40% for medium category. Then, the group of aerobics gets 10% for very poor category of fitness, 20% for poor category and 70% for medium category. In addition to the value, the group of cycling gets 10% for very poor category of fitness, 80% for poor category, and 10% for good category. Then in the group of walking, 50% include in medium category and 50% include in good category. The last one is the group of jogging that get 30% for very poor category and 70% for medium category.

2. The value of psychosocial aspect

- 1) The guidance for behavior (commitment, care, life in order, and discipline)
- 2) Keep the social integrity (the society does the activities together, the society is accepted in its community, the society does not break the norm, the society feel happy and enthusiast, the society will avoid the conflict).
- 3) The social control (having the agreement for the same purpose, having a broader knowledge of social life, honor each other and help each other).

The Potential of environment that can be accessed and facilitate the urban community in doing the recreational sport

- 1) There are many perpetrators of recreational sports and they are varied from children, adult, elderly, men and women in group or individual,
- 2) There are wide open space area and they have representative access for green sport area,
- 3) The area is free from conflict, safe and comfortable because there is a security system.

CONCLUSION AND SUGGESTION

The impacts of recreational sport toward the physical fitness of elderly gymnastics doer are in very poor and poor category because almost of the participant in this group are elderly. In this age, physiologically, degenerative process is happened so the optimalisation of organ activation is running improperly particularly the heart. In this age, the body faces some problems in blood circulation, metabolism process, and muscle stiffness in some organs. In aerobics group and cycling group, the impacts are quite significant because the participants are people below 50 years old. Physiologically, the organ ability is still in good condition so it can work maximally. Aerobics and cycling that done three times in a week give a good impact for heart. Meanwhile, in the group of walking, the positive impacts can be achieved because walking is the activity that appropriate with the condition of participant both young and old. The heart is pushed based on the participants' ability. The movement of walking activity is quite easy. Then in jogging, the impact is fairly significant because the participants are in the middle age. The average of its physical fitness value is in medium and good condition. Jogging that done four times in a week will push heart optimally.

The descriptions of psychosocial that discussed here are behavior and keep the social integrity and also social control. The role of recreational sport activity here is as an interaction media, communication, and integrity in social life. In the activity of society in a group, the existence of society should adapt with the environment. They may not break the norm and social value. The society can broaden their knowledge, avoid the conflict and uphold the social value in their behavior toward each other and environment. The last, the society will have spirit and feel fun.

The recreational sport participants are able to construct the perception that the recreational sport can be urban community trend. The advantage of recreational sport can control the health behavior in social life.

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THE DEVELOPMENT OF “SPORT ACCESS LEARNING (SAL)” TO PROMOTE SCIENCE AND TECHNOLOGY IN SPORT

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Abstract

The increasing trend of using information and communication technologies (ICTs) brings the variations of education especially on learning how to develop and improve its competence. It is also found in the field of physical health and sports education (PJOK) which is also possible to develop a new strategy that is able to shorten the distance between classes that only face to face course towards class combination of face to face, online, and offline. The specific objectives to be achieved in this study are: the first stage: (1) obtain the data analysis of the necessity of SAL needs, (2) find the specification and components of SAL, the second stage: (3) develop Sport Access Learning (SAL) science and technology in sports. The research method to achieve the goal of the study is conducted by survey research design, development, and causal comparative. The development used in this study is Dwiyo's development model which consists of nine stages. The subject of this study in order to obtain the data model of learning design, requirements analysis, and specification of the model is 81 teachers of physical, sports and health education in East Java. The subject of study is to develop SAL in psychologists learning, technology learning, and sports science. The analysis result of needs implies that the needs of SAL which is well received by 96,3%. The development undertaken is review sports education, sports achievements, sports creations, articles, sports policy, sports science and technology, e-books, and video. Further development of SAL is discussed in this study.

Keywords: sport access learning, technology, science, sports and health education.

INTRODUCTION

Sport is an academic discipline using interdiscipline and cross discipline approaches. Interdiscipline approach shown that sports science is supported by other disciplines such as psychology, health, philosophy and so on. Meanwhile, cross discipline approach means that sub-discipline that forms the body of sports science comes from the adaptation of other disciplines which has been established and combined with the phenomenon of sports, it formed sports psychology, sports medicine, sports philosophy and so on [3]. The focus of sports as an academic education is the motion as a function of human dynamic [17]. The body of sport include; (1) the normative studies (philosophy, history and comparative studies), (2) antropology and sociology, (3) grounding biomechanics, (4) exercise physiology and sports medicine, (5) neurology function, and (6) learning. The academic disciplines as the organizing body of knowledge that includes formal lessons, skills, and science coverage [3]. As the scope of science, cultivated fields of physical education and sport in the United States include: (1) sports sociology, (2) antropology, (3) motor learning, (4) sports history, (5) sports psychology, (6) gender in sport, and (7) the philosophy of physical and sports education [7].

The body of sports science as an academic discipline has 3 (three) dimensions, (1) dimensional theory, (2) dimensional sport, and (3) dimensional research [11]. Dimensional theory has seven fields of theory: (1) sports medicine, (2) sports biomechanics, (3) sports psychology, (4) sports sociology, (5) sportspedagogy, (6) sports history, and (7) sports philosophy. Dimensional sport includes various sports such as athletics, swimming, games (football, volleyball, basketball, etc.),

gymnastics, and martial arts. Meanwhile the dimensional research include the types of paradigms that are used to develop theories, models and applied research to solve real problems. The disciplinary commission of sport science divides the body of sport into seven (7) areas: (1) sports medicine, (2) sports biomechanics, (3) sports psychology, (4) sports pedagogy, (5) sports sociology, (6) sports history, and (7) sports philosophy.

Sport has a very crucial role for humans in general. Sports education is very important related to the development of the experience of sports education that influence current pattern of life (as an adult) [15]. Sports education is generally associated with physical manipulation [16]. In general, there are some elements of sports education consisting of wellness, health, sport, exercise, athletics, recreation, and other areas used in physical activity to enrich the physical, cognitive, social, and emotional condition to improve the welfare of one's life [5]. All of it must be presented in accordance with community needs [15].

Related to the urgency of the sport itself, it is not surprising that the government's commitment to improve the quality of sport is getting real. Various documents of the government's agenda and the juridical foundation has supported the commitment, among others, the Law of the Republic of Indonesia Number 3 of 2005 on National Sports System and the Indonesian Government Regulation No. 16 Year 2007 on the Implementation of Sports. Through this law, it is expected to facilitate the sports policy will improve the quality of sport, especially sports achievement. Nevertheless, the achievements of the Indonesian athletes in various international events in general are not making progress. In Southeast Asia, particularly in Sea Games the dominance of Indonesia began to face difficult challenge.

Many obstacles that cause the condition to stagnate the development of sport in Indonesia, the main obstacle is the looseness of the relationship of various sub-system as well as training discontinuity in the context of long-term development and a weak foundation in sports coaching. On the other hand, the quality of training, which related to the procurement and improving the quality of training issue is very left behind. The lack of the structure and quality of competition as well as the experience in competing internationally in all sport. It causes many athletes in Indonesia are lagging in terms of the latest techniques and tactics that should be controlled by an athlete of international caliber.

Another constraint is the available facilities which is crucial for the implementation of development and will directly affect the quality of the training. The high needs in mastering the technique and tactics need facilities and adequate infrastructure support. Furthermore, the lack of attention to the rewards system and security of athletes and coaches. This system is really strategic as a supporting factor in ensuring the sustainability of long-term development. The participation of athletes and coaches that require a long time energy and time deserve to be provided with adequate rewards, whether they are still an athlete or when they are already retired.

Another obstacle is the weakness of the implementation of science and technology in sports coaching. In developed countries, the achievements of an athlete is not solely based on one's talent, but also supported by the training process which its method resulting from the recent findings that are based on scientific studies. The approach to science and technology in the development of sport in Indonesia is very urgent to be addressed.

Many obstacles that cause the stagnation of the development of sport in Indonesia, one of the most important thing is the limited use of science and technology in sports coaching system. One

of the challenges for sports education in the future is associated with the use of better technology [5]. The result of research conducted by higher education institutions of sport and Directorate of the development of sport science and technology has not published/promoted on various stakeholders who needs it. Even if it has been done, it is only to a limited circle in the form of journal printing which is very limited. Furthermore, the results of a survey on the P.E teacher shows that 18% (the second largest percentage) of teachers clarified the need for the development of science and technology (ICT). It shows the relationship between the teacher professionalism and ICT into the various studies which implies the positive correlation between the teacher professional development and classroom management in the 21st century as well as digital literacy and information technology [9].

Various studies have shown that physical education or sport is not only limited to the face to face learning condition, but also the renewal related to the integration of technology by the P.E teacher. The technology which integrated into physical education broadly associated with the use of computer technology, monitoring of physical activity, and use of video feedback such as PPT, video, YouTube, Pedometers, Heart Rate monitor, and Coaches Eye [2], audio-visual [13], multimedia [6], Exergames [10], and Nitendo Wii [14].

Related to the real example of the use of science and technology in sport, so it needed a demonstration of how the results of the study, research, and development in the field of science and technology of sport can be useful, accessible by many users anywhere, anytime, and by anyone, and it needs to be conducted through information and communication technology in the form of Sport Access Learning (SAL) science and technology in sport. By developed the Sport Access Learnings (SAL) science and technology in sport, it is expected to be a reference for researchers both in sports college as well as in regular college in conducting a research, for sports coaches in managing sports achievements, for students to get information for further studies, and for coaches and athletes as a source of learning related to science and technology in sport. The specific objectives to be achieved in this study are (1) obtain the data analysis of the necessity of SAL needs, (2) find the specification and components of SAL, (3) develop Sport Access Learning (SAL) science and technology in sport.

This study is expected to contribute the information about SAL and science and technology in sport. In terms of popularizing the science and technology in sport, this study is expected to slightly contribute to learning resources relating to science and technology in sport. The benefits of this study are expected to give both practical and theoretical use of science and technology in sport to the scientists / researchers, coaches, athletes, and sports coaches. The factual information which is generated from this study is expected to provide benefits in popularizing the science and technology in sport.

METHOD

Overall, this study will use type of descriptive and developmental research program. The research subjects to obtain model data of SAL's program, needs analysis, and model specification are 81 teachers of physical, sport, and health education in East Java. The model of the development used in this study is Dwiyogo's developmental model that consists of 9 stages grouped in 3 main phases [8]. The first stage, analysis, consists of (1) problem-solving need analysis, (2) learning source and problems identification in the implementation of blended-learning based approach, and (3) learner's characteristics identification. The second stage of development is design consisting of (1) learning

purpose establishment, (2) selection and establishment of learning strategy, and (3) learning source development. In the evaluation stage, the following activities are to be carried out: (1) testing, (2) revising, and (3) producing a prototype of blended learning-based problem-solving learning outcome. Instruments to measure the study variables are formed based on the variables and indicators of the study, which are developed latter. Before the instruments are used, validity and reliability tests are applied. Data analysis is based on the characteristics and program of descriptive statistic of the study.

RESULTS AND DISCUSSION

A result of a survey related to analysis of the need of SAL's development generally shows data as follows. Associated with the desire to increase professional competencies, which are specifically by mastering science and technology, almost the whole (98%) of teachers of physical, sports, and health education have a high desire to improve science and technology in the field of sports. Support appears through the perception toward mastery of the technology that is considered high by teachers or prospective teachers of sports education [18]. This indicates an important need of improvement of professional quality in terms of mastery of technology.

The second, it is related to the sources of information in the field of sports ever accessed by teachers of physical, sports, and health education. They obtain information about sports from books (75.3%), computer games (6.2%), seminars (66.7%), newspapers/ magazines (64.2%), television (76.5%), and internet (70.4%). It can be remarked from the data that the teachers do not indicate the need to seek information from radio and MGMP due to the respondents who answered no more than 50%.

Further, it is associated with the utilization of the internet as a source of information in general. Internet has always used daily, but it is not always used to find sources or materials related to learning or sports. About the utilization of the internet as sources of information in the field of sports, the teachers of physical, sports, and health education tend to take 1-2 hours/week (66.7%) to access information from the internet every week.

Furthermore, it is related to collection or resource of learning owned by the teachers of physical, sports, and health education in the field of sports. Respectively, the teachers of physical, sports, and health education have collection of books as follows. 49.28% of teachers have 1-5 titles of books, 24.64% of teachers have 6-10 titles of books, 4.35% of teachers have 11-15 titles of books, and 4.35% of teachers have 16-20 titles of books. Despite the learning resources owned by the teachers are limited quantitatively, the books are still readable. As many as 42.9% of teachers of physical, sports, and health education do activities of reading books of sports as one of the activities to get more information about sports.

In addition to the use of printed materials, audio-visual media, or in this case is a collection of DVD or CD also helps to increase the competence of teachers, or as learning materials. 45.7% of the teachers of physical, sports, and health education have a collection of audio-visual media as follows. 45.95% of teachers have 1-2 titles of media, 16.22% of teachers have 3-4 titles of media, 5.41% of teachers have 5-6 titles of media, and 2.7% of teachers have more than 6 titles of media. However, only 22.2% of teachers watch the CDs/ DVDs to improve their knowledge in the field of sports.

Related to the response of the developments of SAL, almost the entire respondents welcomed the idea to develop sporting information that can be accessed publicly, easily, and inexpensively. 96.3% of respondents answered agree and strongly agree (69.1% of teachers of

physical, sports, and health education answered strongly agree and 27.2% answered agree). Further, the teachers recommended that the development of information about sports could be in the format of text (49.4%), video (84%), animation (5%), and power points (18.5%).

The data in the stage of needs analysis then became a major input in the design of SAL, which is developed. In the development of SAL, the main soft wares used are AutoPlay and Macromedia Flash by integrating different types of media. Figure 1 shows the initial page before entering to the main menu by pressing the button “enter”. Next, the main menu consists of seven menu buttons namely sports education, achievements sports, creation sports, articles, sporting policy, science and technology in sport, and e-books, as well as an extra button for video. The sports education emphasizes to sports related to education. Achievements sports consists of several subtopics namely athletics, self-defense, aquatics, gymnastics, big ball games, small ball games, sporting events, KONI (Indonesian National Sports Committee), anti-doping, and information about PON (National Sports Week). The menu button for articles contains various articles related to sports as a source of readings. The Government’s policy is presented on the menu button of sporting policy. Menu button of science and technology reviews some important points related to sports in science and technology. The menu button of e-books provides a collection of electronic books that can be read directly. In the menu button of video, which is located at the bottom right contains eight tutorial videos about a wide range of sports.

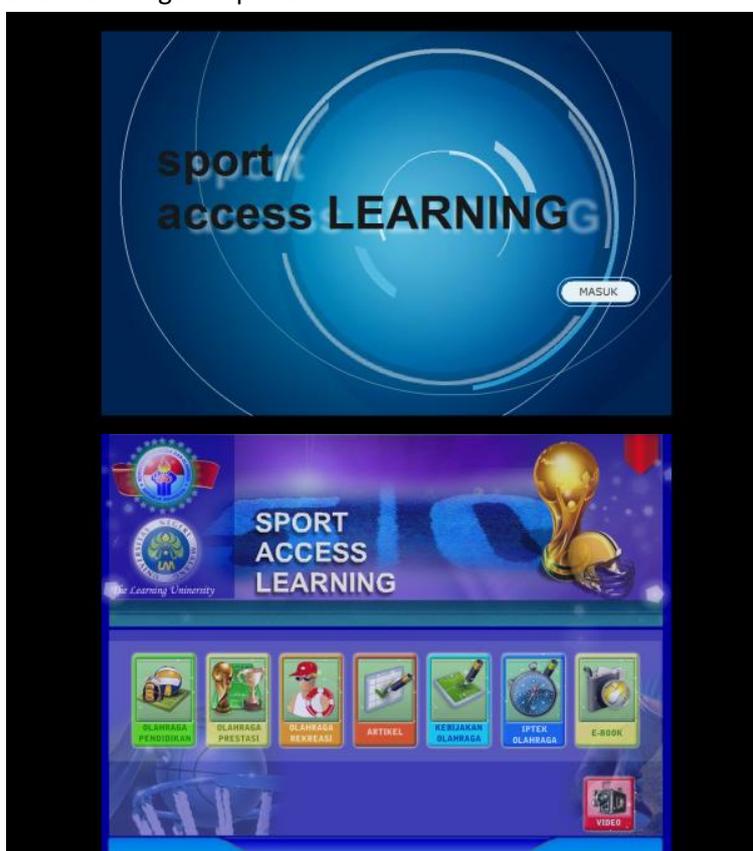


Figure 1. The Display of Main Menu Homepage of SAL

The e-books and articles can be read by using Macromedia Flash with the view as the original files in pdf form. This is intended to make the reader easier in reading long texts in various time. The

display also makes the readers easier in shifting the page to move to the next page. This concept is also similar to the video display of SAL. The display of the video can be played automatically through Macromedia Flash Player (see figure 2).



Figure 1. The Display of the Video

All of these components are combined in one device in the form of all-in-once desktop with full-touch screen in the form that is similar to Automated Teller Machine (ATM), which allows users to browse information in SAL as in the Figure 3. When resources are available, SAL will work automatically by responding to the touch on the available menu button.



Figure 3. The Display of SAL's Platform

Related to SAL that has been developed, the aim of the product emphasizes on the integrated technology. Integrated technology is the ways to produce and distribute materials that contain some forms of media with the guide of computer. Many believe that the most advanced technology for learning involves some form of media guides of the computer. Examples of hardware

components of the integrated system include computer with a big scale of material capability, with internal hard drive completed by high resolution of colored monitor. Peripheral tools guided by computer include videodisc player, supporting display tools, networking hardware, and audio system. The software includes videodisc, compact disc networking software, and digitalized information. All of these can be guided by the lesson of hypermedia operated under systems like *hypercard* or *toolbook*. The main feature of this technology is the interactive activity involving the learner with different source of information.

Learning with integrated technology has some characteristics such as (1) it can be used randomly or not in a series, as well as in linear; (2) it can be used according to the chosen way of the learner; (3) the concepts are presented realistically within the context of learning, based on the way that is relevant to the learner and under the learner's control; (4) the principles of cognitive and constructivist science are applied in the development and utilization of the lesson; (5) the learning is focused cognitively and organized so that the knowledge can be constructed when the lesson is used; (6) the materials show the intensity of the learner's activity interactively; and (7) the materials blend words and imagery from media sources. The learning resource consists of the printed, audio, audio-visual technology, and computer. The diverse learning resources are expected to enable the learning process to be done everywhere, any time, and by anyone. Sport Access Learning is an application to facilitate the learning resource in the field of sports for enthusiasts in the field of science and technology in sport, such as lecturers, students, sporting guides, coaches, and athletes. As it is known, the technology used has different characteristics and functions. When the technology is not implemented correctly, it can hinder the learning process [1]. Therefore, the selection of an appropriate technology must be a primary consideration in the integration of ITC in sports education.

CONCLUSION AND SUGGESTION

In general, the development of Sport Access Learning (SAL) of science and technology in sport is expected to be a reference for researchers both in sports college and non-sports college in conducting research, for sporting guides to manage achievements sports, for coaches and athletes as learning source related to science and technology. The specific purposes to be achieved in this study are to (1) obtain the data analysis of the need for Sport Access Learning (SAL) of science and technology in sport, (2) find the specifications and components of Sport Access Learning (SAL) of science and technology in sport, and (3) develop a Sport Access Learning (SAL) of science and technology in sport.

Based on the findings of the study on the need analysis, the teachers of physical, sports, and health education want the specification in video format. Thus, the learning videos need to be developed to enhance the science and knowledge in the field of sports. The videos consist of techniques, tactics, game rules, refereeing, physical development, winning mental development, practice methodology, research methodology, test, and measurement. Sport Access Learning is the application to facilitate resources of learning in the field of sports for enthusiasts in the field of science and technology in sport, such as lecturers, students, sporting guides, coaches, and athletes.

In the development of SAL, the main soft wares used are AutoPlay and Macromedia Flash by integrating different types of media. The main menu consists of seven menu buttons namely sports education, achievements sports, creation sports, articles, sporting policy, science and technology in sport, and e-books, as well as extra button for video. All of these components are combined in one

device in the form of all-in-once desktop with full-touch screen in the form that is similar to Automated Teller Machine (ATM), which allows users to browse information in SAL.

Before presenting suggestion, this research has some limitations that become considerations as suggestion for further research. The limitation of the study is that this study has not yet provided the further stage of the research in order to describe the effectiveness of the product developed. In addition, explicitly and implicitly, the research has not yet provided SAL in the in online form in terms of the development of the product. Therefore, the further research is expected to emphasize the transition of SAL in the online mode.

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**PE-SWIM APPLICATION ON ANDROID PLATFORM:
A SPORT BUSINESS OPPORTUNITY FOR STUDENT**

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Abstract

PE-Swim application is a swim course application based web service on Android platform. The goal of this application is to develop PE-Swim application on android platform and use PE-Swim application on android platform as a chance sport business for student. With this application all of data easy to process through software and smartphone. It hopes with controlling and integrataing a swim course activity will manage all data requirements simply and efficiently. There are some necessities to creat this application, such us Web Service Java, Extensible Markup Lamguage (XML), MySQL, and Technology Acceptance Model also Android system which works by linux operating system. Web service will support interoperability interactios among engine to engine through a net. Generally web used to conducted response and request between cilent and server. Indirectly connection's web with client and server. Java is a group of technology to make and run software on standalone computer. Java will read bytecode in file class a program. Extensible Markup language is portable markup language to describing kinds of data. MySQL as database management system. Technology Acceptance Model is a model established to analising and understanding influence factors. Android is operating system based linux. It provides open platform for developer to create their application themself. Planning necessary also important. In this phase will conducting about the functions and fiturs. Design process conducted after anlise to know specifications or system requirements established. Design of working process to describing application's design. It's for the implementation will be going fluent. Layout design gives general design about the application. PE-Swim application helps to manage a swim course easier and integrated. All of activity on PE-Swim application could processed through smartphone software easily. Data processing will be going neatly and efficiently. Also with PE-Swim application on android platform will create sport business for student.

Keywords : PE-Swim, Android, A sport busines opportunity

INTRODUCTION

swimming is a sport that has a business opportunity for students. As we know the pool requires the performer to perform activities of motion in the water. Swimming has many functions, among which children from an early age his posture will be tall if he does swimming routine, in addition, if something occur when we are doing aktivities which involve water like a cross river or sea are not desirable, swimming skill can save our life. Until now a lot of institutions that offer swimming lessons but management using the manual method.

Sport Science Faculty is a faculty in Semarang State University which most learners are actors of the sport. Sport Science Faculty always produce student achievements at sports, it can create opportunities to be coach in the sport in accordance with the expertise of learners. Being a swimming coach is the right choice. This opportunity is widely used by learners to earn extra income during a student, but because there is no institution capable of uniting and using well, it goes with irregular and inefficient.

In fact, a lot of institutions who offer swimming courses with the manual method, where the swimming course management must constantly monitor its members. Besides, in the reporting of the data still must meet with members to set presence, payments and others, it is very complex and inefficient. A solution is currently underway with the implementation of a web-based application on an outdoor sports services through the android platform is very helpful in improving the swimming course management services and provide business opportunities for students. Applying a PE-Swim app on android platform that contains a swimming course management is very useful for users and swimming instructor. Users, managers and PE-Swim instructor application easy to arrange schedule, record presence, managing all activities that have been designed previously.

PE-Swim app on android platform all the processes take place regularly and well integrated. Application of PE-Swim app on android platform provides a business opportunity for the students, therefore the application of PE-Swim on android platform are appropriately created in an effort to improve Technopreneurship in Indonesia and at the Semarang State University.

Conceptual of the creation of an android app that contains the swimming course that the process of its management with smartphone media is to regulate the process of managing data from a swimming course can be run more orderly and efficient.

Technopreneurship development in PE-Swim app on android platform will be solving the needs in the field. PE-Swim app on the android platform will also provide a new breakthrough in the swimming course as a sport business opportunity for students. Students will manage and students who will use the application PE-Swim through the android platform.

RESULTS AND DISCUSSION

Android is an operating system based linux for mobile devices from Google. Android is hailed as "the first mobile platform is Complete, Open and Free.

1. Complete (Complete Platform)

Android is an operating system that is safe and Provides many tools to build software and Allows for application development opportunities.

2. Open (Open Source Platform)

Developers can freely to develop applications. Android itself uses Linux Kernel 2.6.

3. Free (Free Platform)

No license or royalty fees to be developed on the Android platform, there are no membership fees, no fees required testing. Applications for Android can be distributed and traded.

Web services is a technology that converts Internet capabilities by adding a transactional web capabilities, the ability of the web to communicate with the pattern of program-to-program (P2P). The focus of the web has been dominated by the communications program-to-user interactions with business-to-consumer (B2C), whereas transactional web will be dominated by the program-to-program interaction with business-to-business.

Basically, there are various platforms where applications software for execution such as Microsoft Windows, Unix, Linux, NetWare, Macintosh, and OS / 2, but the applications running on a platform (eg Windows) will not be executed on another platform (eg Linux) without recompilation effort, even to make changes to the program code. Java platform is a software into a virtual machine for Java applications to be executed, so that Java applications do not need to be recompiled if it has

been compiled in a platform when compiled to run on different platforms, because a Java application running on top of the Java Virtual Machine (JVM).

XML is a cross-platform technology, and it is a tool for transmitting information. XML is not a program, or library. XML is a technology, a standard with a variety of specific rules. In simple terms, an XML document is simply a plain text file that contains various tags that are defined solely by the manufacturer of the XML document. As its name suggests, the eXtensible Markup Language, an XML document is a document with markup, just as with HTML. XML is not new and is not a replacement for HTML. Both have different functions in the application. XML is intended to focus on the data, while HTML is aimed at how to display the data. XML is a syntax that is used to describe other markup language, so-called meta-language.

This database is a collection of data that consists of one or more related tables. Users have the authority to access that data, either to add, modify or delete existing data in the table.

MySQL is a database that can be used either as a client or server. MySQL is a database server, it can also act as a client so often called a database client / server, which opens with the ability to run on any operating system, with Windows and Linux platforms.

Rapid Application Development (RAD) is a software development process model that emphasizes the linear sequential development cycles are very short. The main objective of all the methods of systems development is to provide a system that can meet the expectations of users, but often in developing a system does not involve the users of the system directly, and this makes the system are made far from the expectations of users who can result in the system although acceptable but users are reluctant to use it or even the users refuse to use it. At the time of RAD is implemented, then the user can be part of the whole process of system development by acting as a decision-maker at every stage of development.

RAD method has the following stages:

1. Necessary Plan
2. Design Process
3. Implementation

Necessary plan

Needs to be planned is an important stage. Because at this stage will be planning a well-planned and well structured. Plans regarding the needs of the desired functions and grouping of the features that should be there. PE-Swim app on android platform useful for the survey of members and users are being recorded more regular and integrated.

Some key components of this application are:

- (1) Management of all data on the presence, attendance and scheduling on the applications of PE-Swim.
- (2) Management of member data.

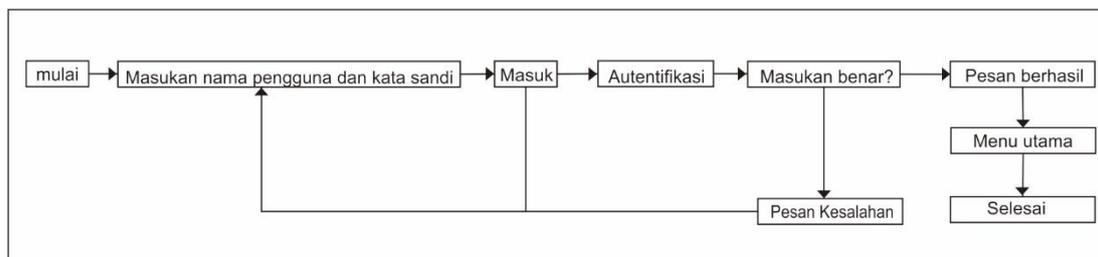
Design Process

The design process is the next step after the planning process. The design process is done on a system after the designer conducted an analysis to determine the specifications or requirements of the system to be built. The design process illustrates the shape and needs of the application required.

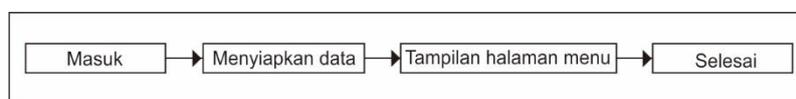
Implementation

Design of work processes is a fundamental description of the behavior of the system as well as the activity that occurs when the application is run. In this process will be determined on all matters contained in the application PE-Swim order on implementation can proceed smoothly. Figure 3.1 illustrates a flowchart Login menu, which is the first menu when the application is run. Figure 3.2 illustrates a flowchart of the Main Menu applications.

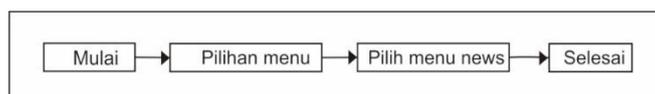
The processes that take place on the Main Menu page described by Figure 3.3, Figure 3.4, Figure 3.8 and Figure 3.9. Figure 3.5 describes the meeting arrangements workout. Figure 3.6 illustrates the selection of swimming coaches and trainers Figure 3.7 illustrates the biographical data.



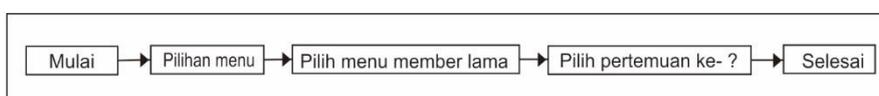
Gambar 3.1 Flowchart Login menu



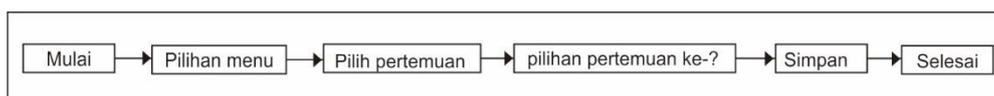
Gambar 3.2 Flowchart main menu



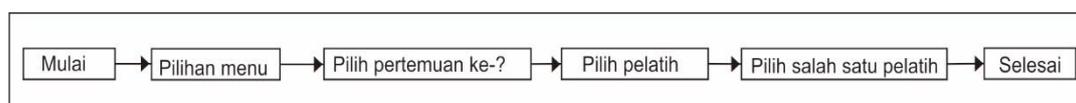
Gambar 3.3 Flowchart News menu



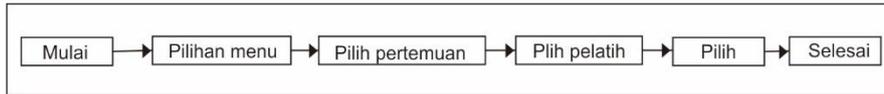
Gambar 3.4 Flowchart old Member menu



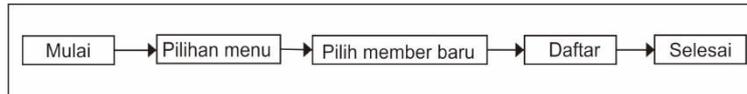
Gambar 3.5 Flowchart meeting menu



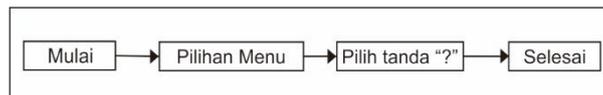
Gambar 3.6 Flowchart coaches menu



Gambar 3.7 Flowchart choosing coach menu



Gambar 3.8 Flowchart new member menu

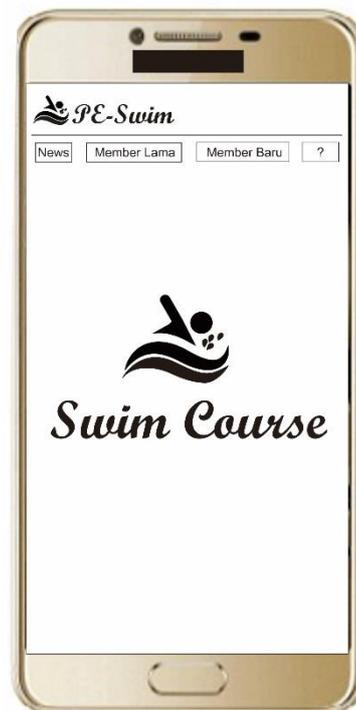


Gambar 3.9 Flowchart help menu

Layout Design provides a general overview of the application to be built. Figure 3.10 illustrates the main page to login function. Figure 3.11 illustrates the main page. Figure 3.12 illustrates the News menu. Figure 3.13 illustrates the old Member menu. Figure 3.14 illustrates the Meeting menu. Figure 3.15 illustrates the Selection menu coaches. Figure 3.16 illustrates the new Member menu. Figure 3.17 illustrates the Help menu and 3:18 images depict the display menu after booking.



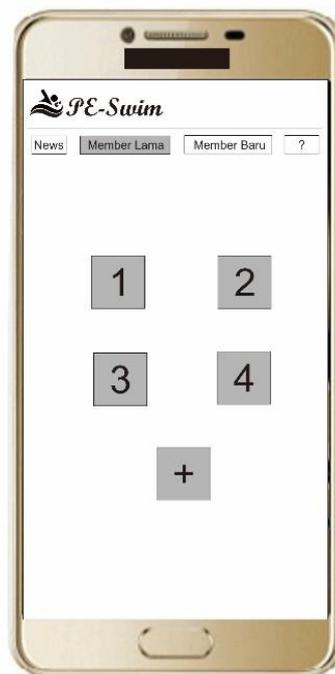
Gambar 3.10 Login layout



Gambar 3.11 main menu layout



Gambar 3.12 news layout



Gambar 3.13 meeting layout



Gambar 3.14 set meeting layout



Gambar 3.15 Coaches layout



Gambar 3.16 coach layout



Gambar 3.16 new member layout



Gambar 3.17 help layout



Gambar 3.18 done order layout

CONCLUSION AND SUGESSTION

PE-Swim app on android platform is very helpful in managing a swimming course. All activities in PE-Swim application can be processed via a smartphone device that is very simple and easy. The data collection process took place in a neat and well structured, efficient. Members who use the swimming courses PE-Swim applications can directly access and assess themselves wherever they may be. PE-Swim app on the android platform will also create a business opportunity that can be run by the students.

Application of PE-Swim as supporting application management processes can be developed further by building different applications platform, application of PE-Swim as supporting application data processing management process can be developed further by building applications using databases other than MySQL in order to compare its performance and Application of PE-Swim still need improvement in order to achieve maximum performance.

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Health Education and Public Health

**THE EXISTENCE OF HEALTH ACADEMICIANS MAKING COLLEGE
HEALTHY, SUPERIOR AND PROSPEROUS
(Study of Quality Physical Health for Lecturers and Staff in Semarang State University)**

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Abstract

The work pattern of the academica of the stable in College had an important role in realizing the vision and mission which have been made. Semarang State University (Unnes) from day to day always tries to make a breakthrough to achieve its vision as a university which has a conception of conservation and international reputation. This situation requires lecturer and staff a tough, healthy and fit in the work. The purpose of this research is to find out the quality of the lecturer's and staff's physical health at Unnes. The methods used in this research are a survey and test instruments used fitness instruments were analyzed using categorical description. From the results of the tests that have been conducted the health results obtained that BMI 57.8% was in ideal category, 6.3% was in obese category, 26.6% was in overweight category, and 9.4% was in underweight category, whereas the results of the examination blood pressure obtained 57.8% was in category normal, 34.4% was pre-hypertension and 7.8% was in hypertension stage 1 category. From the results of these data it can be concluded that the level of quality of physical health lecturer and staff on average into the category of good, this indicates that the academicians at Unnes always remain to keep the health of their body so that they can always work optimally and can contribute to make Unnes' development better

Keywords: Academicians; Quality of physical health; Semarang State University.

INTRODUCTION

Nowadays a person's needs are more complex. The needs include material, physical, mental or spiritual need. In correlation with the fulfillment of those needs, someone has to be able to compete in order to fulfill his needs. In facing the competition the main modal that should be have is healthy body. Health is defined as a prosperous physical, mental and social condition and it is not only a situation which there is no illness and weakness.

Individual's, group's or society's health level is influenced by 4 main factors; environment (physical, social, cultural, economic, politic, etc), behavior, health service, and offspring. Behavior as one of the health determinations is someone's response to stimulus. Whereas health behavior is someone's response to stimulus of pain and illness, food and drink, environment and health service. In society's health practices which are various efforts or health programs (including environment and health service) always have contiguity with behavior (Soekidjo, 2010: 5). For example dengue fever is happened because people do not want to do 3 M, heart coroner is happened because of eating behavior, lack of exercise, environment pollution can cause various health problems, and also because people's behavior which is they do not care with their environment.

The stable work pattern of academicians at university has the important role in realizing the vision and mission that have been made. Semarang State University (Unnes) from day to day always

tries to make a breakthrough to achieve its vision as a university which has a conception of conservation and international reputation by building and evaluating work system and lecturer's and staff's performance and also developing the management system. With the work pattern management in Unnes that is more effective, which each element has each role, both the leader and those who are headed by. This situation needs strong, healthy and fit lecturer and staff at work and they have to always develop Unnes, by employing their skill and knowledge, with high work rhythm, guided by wide conservation and knowledge character. So, people in Unnes have to have healthy and fit physical condition.

The main idea in realizing the recruitment for academicians including lecturers and staffs to accustoming sports for the moment is by providing jogging track which can be used to walk or bike and by creating more outdoor facilities which are appropriate with the constitution of Unnes, all of those are done to realize the environmental and physical conservation. Physical conservation in Unnes is done by giving or creating sports infrastructures around the strategic outdoor area by using environment in order to be the easier access for lecturers and staffs in Unnes to exercise or do sports activities. So that lecturers and staffs can make the best use of the sports infrastructures in their busy days to keep their health. The effect that they have from the efforts is the lecturers' and staffs' performances are increasing. So it can remain the optimize step of Semarang State University which has the conception of conservation and international reputation.

Physical conservation can be defined as all efforts of maintaining performance, attitude, and behavior by accustoming planned, structured physical exercise that is repeatedly done. Physical activity or exercise can reduce the risk of uninfected diseases such as embolism, diabetes, cancer, etc. this is the reason why physical conservation is really needed by Unnes to control behavior, and even the way of thinking to fix their life pattern quality, the get them closer to God, so that they will obedient to the rule, right, and obligation. One of the expected result from physical conservation is the appearance of self-integrity in lecturers' and staffs' soul. By having self-integrity level, obviously it will increase the quality of a university. Therefore, conservation is not only done for environmental preservation, but also physical conservation. For it is from physical conservation which is built can influence lecturer's and staff's personality in Unnes.

The lack of physical activity can cause the change of cells and musculoskeletal system, cardiovascular, and neurotic system metabolism (Ceña et al, 2006). The change of cells metabolism can be the divergence of enzyme activity, the change in muscular and skeletal system including skeletal declassification, the change of muscular tissue by connective and fat tissue as well as the loss of nitrogen, the change in heart system and blood vessel such as tachycardia (fast heart rate) at rest or work time and the stable cardiovascular regulation (Depkes RI, 1985). In daily life, physical exercise or physical activity will give positive effects on health, including reduce the possibility of having some diseases such as heart attack, hypertension, maintaining good body shape and healthy (Heyward, 1984).

In daily life, human usually uses a third of his reserve skills. Therefore, the more his reserves, the more his daily work skills or the more his workloads that can be tackled (Kristensen et al, 2010). As well as the two-thirds of skills as the reserve skills. The reserve physical skills are needed to deal with addition workloads on body (the harder work), to restrain disease, to deal with loads caused by environment (weather) and so on (Depkes RI, 1985). One thing that can be ignored is that a person's skill performance is also influenced by his physical skill, means that the better his physical skill, the

better his increasing performance achievement. The components of physical skill are cardio-circulatory/cardio-respiratory endurance, strength, flexibility, and movement coordination (Williams, 1990).

Therefore, in evaluating lecturer's and staff's performance potential, from time to time evaluation of their physical health is needed. Knowledge of the potential of performance can be used as evaluation source for Unnes in order to optimize its physical health quality of lectures and staffs. The suggested activity is a health evaluation/test activity for lecturers and staffs in Semarang State University aims to evaluate the health level of lecturers and staffs as the basic information that can be used to make initial strategy in increasing health level observed from the Body Mass Index (BMI) and blood pressure. Data describing health level of lecturers and staff in Unnes have not been made yet, therefore the present research aims to observe deeply the BMI (Body Mass Index) and blood pressure of lecturers and staffs in Semarang State University that can be identified as the indicator of person's health level.

METHOD

This research aims to provide data and information for the policymaker. Making decision and policy would be more effective if it is supported by accurate information and data. The topic of the research is a topic related to actual issues of the human source implementation and management in Unnes about lecturers' and staffs' health. The method used in this research was test survey.

The present research was conducted in Laboratory Prof. Soegijono FIK Unnes with the subjects are 400 lecturers and staffs in Unnes, sampling technique used random sampling by taking 16% from the total population which was 64 people, each work unit in Semarang State University sent its delegation/representation to be tested, it was done to estimate the collecting time and data analysis (Suharsimi, 2010:116). The data obtained in this research were primary and secondary data. Primary data was data obtained directly from respondents, including respondents' names, sexes, ages, addresses, and physical endurances. Secondary data including tables and norms (reports, documentations, and so on). Data collecting technique was by taking the data directly from the sample by using fitness instrument and then the obtained data would be edited and examined whether there was error in filling the data, and data was processed by using categorical description. The testing procedures with the series of tests were differentiated between male and female, then test reliability and validity was as follow: 1) series of test for age, had reliability value for male 0.720 (Doolittle), for female 0.673 (atken) and 2) series of test for age, had validity value for male 0.960 (Doolittle), for female 0.711 (atken).

Materials and facilities used in this research were jogging track, stopwatch, start flag, piles, chest numbers, lime powder, eraser, test forms, whistle, and stationary. The provisions of the test was series of tests, therefore all of the test items should be done seriously. Evaluation of health level was done by referring score and norm table (to determine classification of BMI and blood pressure level). To evaluate BMI category, it referred to threshold of BMI in Indonesia. Definition and classification category of BMI and blood pressure can be seen in the following table.

Table 1. The category of threshold of BMI in Indonesia (Kg/m²)

Classification	Category	BMI score
Underweight	High level of underweight	≤ 17,0
	Low level of underweight	17,0 – 18,5
Normal	Ideal	≥ 18,5 – 25,0
	Low level of overweight	≥ 25,0 – 27,0
Overweight	High level of overweight (obesity)	≥ 27,5

Source: Depkes, 1994 in Nyoman Supriasa, et al, 2002:61

Table 2. The definition and classification of blood pressure (mm/Hg)

Category	Systolic	Diastolic
Optimal	≤ 120	≤ 80
Normal	120 – 129	80 – 84
Normal – high (prehypertension)	130 – 139	85 – 89
Hypertension level 1	140 – 159	90 – 99
Hypertension level 2	160 – 179	100 – 109
Hypertension level 3	≥ 180	≥ 110

Source: Nikolaos, et al, 2014:82

RESULTS AND DISCUSSION

Based on the result of the research conducted to lecturers and staffs of each work unit in Semarang State University by conducting BMI and blood pressure tests the data obtained from the research was as follow:

Table 3. The result of BMI (Body Mass Index) test measurement of lecturers and staffs in Unnes (N=64)

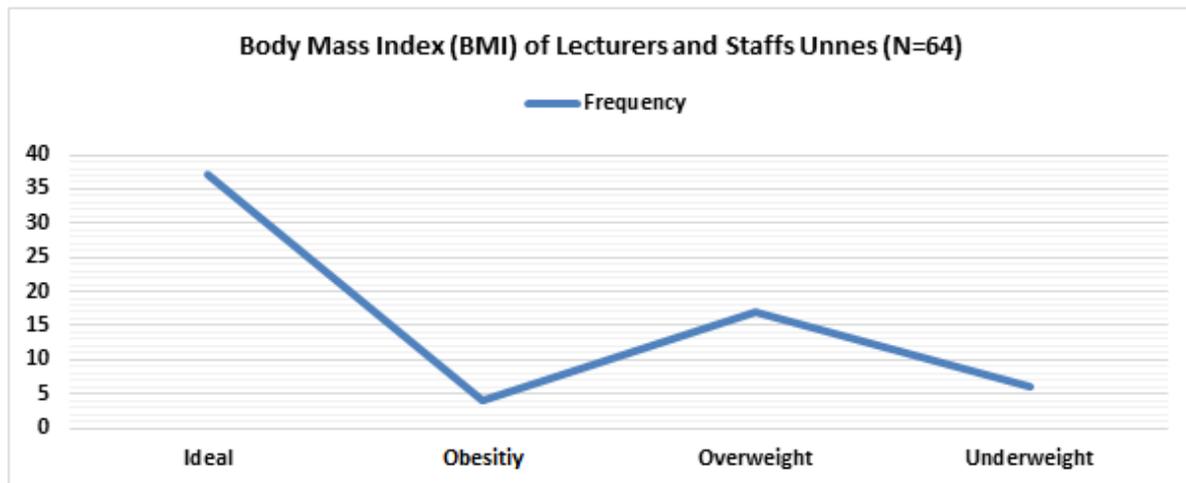
No.	Category	Frequency	Percentage	Valid Percentage	Cumulative Percentage
1.	Ideal	37	57.8	57.8	57.8
2.	Obesity	4	6.3	6.3	64.1
3.	Overweight	17	26.6	26.6	90.6
4.	Underweight	6	9.4	9.4	100.0
Total		64	100.0	100.0	

Source: Research Data in 2016

From the data above it can be described that 64 people consisted of lecturers and staffs of each work unit in Semarang State University who did Body Mass Index (BMI) measurement test about their proportion of nutrient status score was 37 people had score between 19-25 kg/m² with ideal category, 17 people had score 27-29 kg/m² with overweight category, 6 people had less than 18.5 kg/m² with underweight category, and 4 people had more than 30 kg/m² with obesity category. Percentage of the result about the proportion of nutrient status score of lecturers and staffs of each work unit in Unnes that was seen from Body Mass Index (BMI) there was 57.8% ideal category, 6.3% obesity category, 26.6% overweight category, and 9.4% underweight category.

It can be concluded that from the BMI score, 57.8% BMI of lecturers and staffs of each work unit in Semarang State University was in ideal category with its score between 19-25 kg/m². The result described that the most of weights of lecturers and staffs were ideal. This result showed that the sufficiency of nutrient was good. Thus, physiologically the energy need of lecturers and staffs to

support their daily activities was sufficient. To do daily activities human needs energy. Energy is an ability to work, while work can be defined as power which is done in certain distance. Energy used for movement comes from food, therefore if staffs' nutrients are sufficient, the need of energy for their daily activities is also sufficient. By controlling his dietary habits, a person can achieve his ideal body mass index, besides controlling dietary habits he also must do regular and prograded sports activity. Good sport is appropriate with his choice. A lecturer and staff of each work unit in Unnes can choose various sports provided in under coordination of university. The sports activity should be done three times a week. If the sports done well certainly it will cause change, including anatomically, physically, biochemically, and psychologically change. For better understanding the following test result of body mass index (BMI) is presented in graphic form.



Source: Research Data in 2016

Figure 1. Test result graphic of Body Mass Index (BMI) measurement of lecturers and staffs of each work unit in Semarang State University

Then the test result done to identify health level of lecturers and staffs of each work unit in Semarang State University was blood pressure measurement. The result of the test can be seen in the following table.

Table 2. The data result of blood pressure measurement of lecturers and staffs Unnes (N=64)

No.	Category	Frequency	Percentage	Valid Percentage	Cumulative Percentage
1.	Hypertension Level 1	5	7.8	7.8	7.8
2.	Normal	37	57.8	57.8	65.6
3.	Prehypertension	22	34.4	34.4	100.0
Total		64	100.0	100.0	

Source: Research Data in 2016

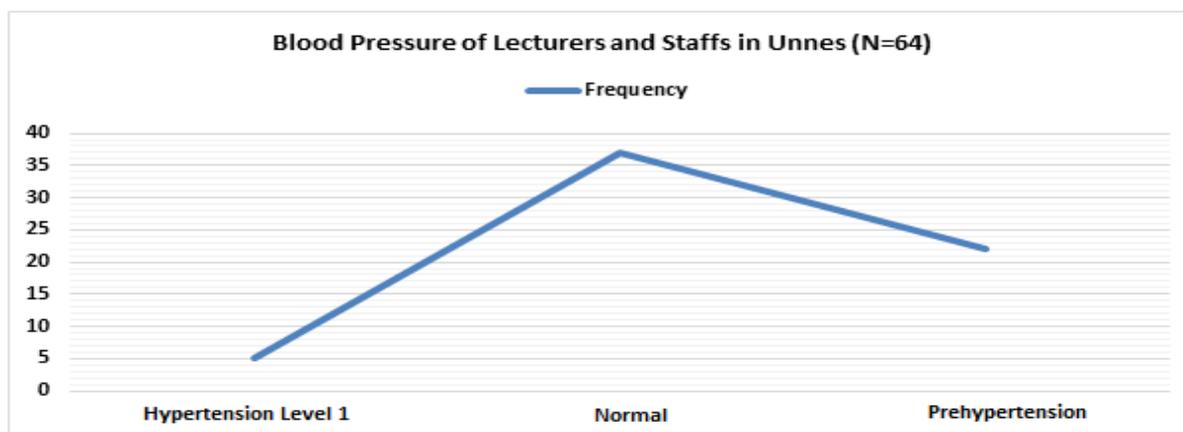
From each data above it can be described that 64 people consisted of lecturers and staffs of each work unit in Semarang State University who joined the blood pressure test measurement obtained that systole and diastole score of 37 people with the range score between 120-129 mmHg/80-84 mmHg with normal blood pressure category, 22 people were in prehypertension category with the range score between 130-139 mmHg/85-89 mmHg and 5 people with the range score between 140-159 mmHg/90-99 mmHg were in hypertension level 1 category. Percentage of

the result related to blood pressure of lecturers and staffs of each work unit in Semarang State University obtained that 57.8% was normal category, 34.4% was prehypertension category and 7.8% was hypertension level 1 category.

It can be concluded that from the norm of blood pressure, the score of systole and diastole pressure 57.8% was in normal category with the range score 120-129 mmHg/88-84 mmHg. This result showed that the pressure of lecturers and staffs of each work unit in Semarang State University had normal blood pressure. It showed that their physiological was good enough. Thus physiologically that was the strength to pump heart, the amount of blood that was circulated, the elasticity of blood vessels walls, and edge stage were in good condition. A person's blood pressure was also influenced by some factors: 1) Age, 2) Activity (muscular work changing attitude), 3) Height (gravitation), 4) Expiration and Inspiration, 5) Heart work, 6) Thinking influence.

The increasing of blood pressure is happened because it was influenced by gravitation, because heart must pump harder to against gravity. It is difference when we are laying the position of upper and lower extremity is parallel with heart so that the velocity of blood stream is standard. But if we are standing the upper extremity is higher than heart so that to fulfill the need of the destination, higher strength in pumping is needed so that the cardiac output increases blood pressure. Thinking influence also affects high blood pressure, because blood pressure increasing caused by brain which needs much energy and oxygen to think, so that cardiac output will be increased and then will increase venous return and peripheral stages which soon cause increasing blood pressure. Besides that heart must against gravity to draw blood to brain.

By controlling dietary habits, emotion and overthinking, a person can achieve normal blood pressure, he also can do sports regularly in order to have normal blood pressure to maintain the optimize work of heart pump, for instance to do sports in free time by doing car free day, because exercising in free time is a free activity that we can do, with happy feeling, enjoy, without any force, that can be used as an effort to control stress, healthy behavior, maintaining health physically, mentally and socially. The sports should be done three times a week. If it is done well certainly it will cause change, including anatomically, physiologically, biochemically, and psychologically condition. For better understanding here is the result of blood pressure measurement test presented in graphic form.



Source: Research Data in 2016

Figure 2. Test result graphic of blood pressure measurement of lecturers and staffs of each work unit in Semarang State University

The discussion that can be explained based on the result above was that respondents who were academicians of Semarang State University, generally realized how important sport was for their health, but their understanding was not comprehensive enough to realize that there was a chance of decreasing their productivity performance because of the physical and mental saturation emerged by monotone work, and this threat could be prevented by giving movement activity which could make lecturers and staffs healthy (Kleinman, 1983). Besides that there was concern from respondents in responding the result of health measurement test that it was possibly could be an indicator of their life pattern quality and also they could realize that they should provide their time to do exercise between their work times. They felt that they had no authority to response the test result, because the effect would be very wide especially to university's policy. However, personally they seemed to be welcomed and appreciative to the possibility of implementing sports activity for academicians until lecturers and staffs level. They stated that they would do it carefully if the activity was applied as a regulation which should be done for all of the universities in Indonesia.

Health behavior is someone's response to stimulus or object related to health, illness, and factors influencing the health, illness (healthy) such as environment, food, drink, and health service. In other words health behavior is all activities which either observable or unobservable related to health maintenance and improvement (Soegiyanto, 2010). Health maintenance including preventing and protecting ourselves from diseases and other health problems, improving health, finding a cure if we have problems or diseases. Health behavior is divided into 2: 1) Healthy people behavior to remain and improve health, and 2) Ill people behavior to find a cure. Healthy behavior can be activities related to the efforts to maintain and improve health such as: 1) eat a balanced diet, 2) Get enough physical activity or exercise, 3) Do not smoke, drink alcohol, or take drugs, 4) have enough rest, 5) control the stress, 6) positive lifestyle (Widowati, 2015).

So someone would do health maintaining if he gets a stimulus, because someone's behavior is influenced by two main factors formed in himself, that is external factor such as stimulus from others, external factor in behavior is environmental factor, both physical or non-physical in the form of social, culture, economic, politic, and so on. From the research above it showed that the biggest external factor which formed someone's healthy behavior in doing sports activity in his free time could give behavior which constructed perception the benefits of exercising because it could control healthy behavior for his daily life in work environment.

All of the lecturers and staffs in university should take their time to exercise, sports that can be done are recreation sports in weekend. Recreation sports are sports done by people with their hobby and ability growth and developed based on the condition and culture for health, fitness and happiness. Recreation sports are done as a health and fitness recovery process done without any force and they are full of happiness. Besides that recreation sports referred to build the social connection between people and also preserve and increase national culture (FORMI, 2011:10)

CONCLUSION AND SUGGESTION

Based on the result and discussion, it can be concluded that the result achieved in the physical health quality measurement test toward lecturers and staffs in Semarang State University, some lecturers and staffs in Unnes had health quality that were good enough, there were still some lecturers and staffs in Unnes who had health quality which were not sufficient. In the relation of supporting vision and mission of Semarang State University which has a conception of conservation

and international reputation as well as realizing healthy, excellent and prosperity university, then the suggestion in this research is that lecturers and staffs of Semarang State University or academicians of Unnes should improve sports culture, because sports influence the improvement of physical and spiritual quality which is healthy, excellent, and prosperity so that they can contribute in better national and institute development, because sports can maintain someone's health and fitness so that he can keep optimizing performance quality in order to realize the vision and mission of Semarang State University in this year this reputation would be realized for institution of Semarang State University so Unnes would always develop its policy and program to all of the academicians including lecturers and staffs and the vision and mission would be implemented and structures and Unnes would develop outdoor area especially for sports to give optimal contribution for academicians including lecturers and staffs of Unnes in improving sports culture.

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ENVIRONMENTAL CONTROL AND BEHAVIOR INCREASING IN FILARIASIS ELIMINATION THROUGH THE IMPLEMENTATION OF “MANDIRI” POCKET BOOK

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Abstract

Mass Drug Administration (MDA) coverage for filariasis in Indonesia increased from 37.7% in 2011 to 73.9% in 2014. In contrary, filariasis case increased from 11,902 in 2012 to 14,932 in 2014. Pekalongan City had the most filariasis case number in Central Java, Indonesia. It had been implementing MDA but it had not decreased the filariasis case number. The knowledge and the community participation on filariasis elimination was still in the low level. Reading could increase knowledge and influence practice. This study aimed to assess the increasing of knowledge, attitude and practice in filariasis elimination through implementing “MANDIRI” Pocket Book. This was a quasy experiment research with randomized control group pretest-posttest design, done in 2 villages of Pekalongan City. Compared to the control group, the experiment group resulted incerasing in knowledge, attitude, sleep behavior, repellent application behavior, night outdoor behavior and indoor environmental control ($p < 0.05$).

Keywords: filariasis elimination, health education media, community participation, “MANDIRI” Pocket Book

INTRODUCTION

Filariasis (elephantiasis) is an infectious disease caused by filaria worms which attacked channels and lymph nodes. They enter human body through the biting of various mosquitoes. In 2004, filariasis has infected 120 million people in 83 countries around the world, especially the tropical and subtropical regions (Indonesia Health Department, 2008).

Filariasis has spreaded in Indonesia from Sumatra, Java, Kalimantan, Sulawesi, Nusa Tenggara to Papua. It was reported 11,914 clinical cases which spread in 401 regencies / cities in 2009 (Indonesia Ministry of Health, 2010). The coverage of Mass Drug Administration (MDA) for filariasis in Indonesia increased from 37.7% in 2011 to 73.9% in 2014. In contrary, filariasis case increased from 11,902 cases in 2012 to 14,932 cases in 2014 (Indonesia Ministry of Health, 2015).

Pekalongan City has the highest number of filariasis cases in Central Java, Indonesia. In 2010, in Central Java, there were 451 cases spread across 25 regencies / cities and there were 2 endemic regencies / cities, i.e. Pekalongan Regency and Pekalongan City (Central Java Health Office, 2011). The filariasis case in 2011 was 537. The 141 of it were new cases, of which 125 cases were found in Pekalongan City, the rest was spread over 8 regencies / cities (Central Java Health Office, 2012). It has been implementing MDA but it has not decreased the filariasis case number and the Mf-rate yet. Pekalongan City had applied MDA for five years. Based on WHO's guidance, an evaluation should be done after applying MDA for 5 years. The evaluation would determine if the MDA need to be continued. The evaluation result in the end of 2015 stated that Pekalongan City had to continue MDA for two years next. Pekalongan City's failure in applying MDA for only 5 years could be caused by

environmental condition, vector density and filariasis prevention behavior. Preliminary study showed that Pekalongan City had potential environment for filariasis transmission and people which had lack of knowledge about filariasis (Indarjo et al, 2016; Siwiendrayanti et al, 2015 (a)).

MDA should be strengthened by controlling environment, vectors and community participation for optimizing filariasis elimination (Okon, 2010; Juriastuti, 2010; Nwoke, 2010; Albuquerque, 1995; Upadhyayula, 2012). Preliminary study was conducted in February 2015 and it was noted that paddy fields, swamps and bushes were easily found in Pekalongan City. WHO (2010) stated that poor environmental sanitation affecting the availability of breeding places and resting places for filariasis vectors (mosquitoes) (World Health Organization, 2010). The study of Syuhada (2012) showed that the presence of sewerages, puddles, bush and swamp can be a risk factor for the incidence of filariasis. In Pekalongan City, swamp may include natural swamps, tidal flood, and rice fields. Pooled sewerage were almost in every roadside in Pekalongan City which were suitable for breeding places of *Culex quinquefasciatus*, the main vector of filariasis in Pekalongan City (Siwiendrayanti et al, 2015 (b), Windiastuti et al, 2013). It became worse that Pekalongan City is located next to Pekalongan Regency which also a filariasis endemic area. Besides those environment problem, it was found that some people refused to take the MDA medication, and some others were postponed in taking MDA medication. In 2011 in Pekalongan City, there were 10,109 people who did not take the MDA medication and 36,037 people were postponed in taking MDA medication. Whereas in 2012 there were 8,479 people did not take the MDA medication and 30,906 people were postponed in taking MDA medication (Pekalongan City Health Office, 2013).

Several studies in Pekalongan City found that the lack of knowledge about filariasis, filariasis prevention efforts and MDA was the background for being neglecting their environment and not taking the MDA medication (Septiriani, 2010; Indarjo et al, 2016, Ginandjar et al, 2017). Banerjee et al (2013), Abraham et al (2014) and Weinstein et al (1991) had proven in their studies that behavior changes would be more permanent when be backed up by adequate knowledge. It is necessary to form method, strategy and appropriate media for educating people about filariasis, filariasis prevention efforts and MDA in Pekalongan City.

This study chose "MANDIRI" Pocket Book as media. "MANDIRI" is an abbreviation from "Media Baca Hindari Filariasis" which means "Reading Media of Filariasis Prevention" in English. "MANDIRI" itself means "be autonomous" in English. This pocket book contained textual information with some illustration images about filariasis, filariasis prevention effort and MDA. McLuhan (1994) stated that printed media could deliver textual and visual contents integratedly and could be reread without reducing its contents. It could produce similar perception on a lot reader. This kind media was chosen because majority of Pekalongan City people were educated and it has low illiteracy rate. This pocket book is simple, rereadable and lendable. "MANDIRI" Pocket Book had been created for a year period before with stages of need assessment, material editorial, taking indigenous pictures, validation by experts (by Pekalongan City Health Office, health expert, communication expert and psychology expert), and trial to people and revisions. "MANDIRI" Pocket Book was registered with ISBN 978-602-285-265-6.

METHOD

This was a quasi experiment study. The control group was treated by the usual program from Health Office of Pekalongan City. The experiment group was treated by applying "MANDIRI"

Pocket Book through “PKK” program activity. “PKK” is “Pendidikan dan Kesejahteraan Keluarga” or Education and Welfare for Families. “PKK” Program is a kind of social organization which is formed in society with wives as its members. Usually “PKK” Program has a meeting every month. The “MANDIRI” Pocket Book Program were done by groups in “PKK” Program activity then every group had a “MANDIRI” Pocket Book which would be lent to every member in rotation. “MANDIRI” Pocket Book had been created for a year period before with stages of need assessment, material editorial, taking indigenous pictures, validation by experts (by Pekalongan City Health Office, health expert, communication expert and psychology expert), trial to people and revisions. “MANDIRI” Pocket Book was registered with ISBN 978-602-285-265-6. This study took Bandengan Village as experiment group with 75 people as its respondents and Kuripan Lor Village as control group with 74 people as its respondents. The villages were chosen purposively because of their risky condition for filariasis transmission, such as environment condition, risky behavior and being surrounded by other endemic villages. Pre-test was taken a month before treatments. The treatments were applied for 3 months. Post-test was taken a month after the treatments. Data were analyzed with chi square test and Fisher test. This study was done in 2016.

RESULTS AND DISCUSSION

Table 1. Comparison between pre-test and post-test in experiment group (Bandengan Village)

No	Variable	Categories	Pre-test	Post-test	p
1	Filariasis knowledge	Good	18	36	0.001
		Poor	57	39	
2	MDA knowledge	Good	22	44	0.002
		Poor	53	31	
3	Attitude in filariasis elimination	Good	71	74	0.100
		Poor	4	1	
4	Attitude in MDA participation	Good	69	72	0.021
		Poor	6	3	
5	Risky night outdoor habit	Not do	42	57	0.016
		Do	33	18	
6	Risky habit in having a nap	Not do	16	64	0.001
		Do	59	11	
7	Mosquito repellent application	Do	55	64	0.001
		Not do	20	11	
8	The use of mosquito net	Do	20	18	0.001*
		Not do	55	57	
9	Indoor environment control	Good	9	35	0.001
		Poor	66	40	
10	Outdoor environment control	Good	7	8	0.613 [#]
		Poor	68	67	

* = significantly different, but the pre-test was better than post-test

= the post-test was better, but not significantly different

Table 1 showed that post-test was better significantly in experiment group for all aspects, excepts the use of mosquito net and outdoor environment control. Pre-test of the use of mosquito net in experiment group was significantly better than the post-test. Post-test of the outdoor environment control in experiment group was better unsignificantly than the pre-test.

Table 2. Comparison between pre-test and post-test in control group (Kuripan Lor Village)

No	Variable	Categories	Pre-test	Post-test	p
1	Filariasis knowledge	Good	30	8	0.001 ^!
		Poor	44	66	
2	MDA knowledge	Good	37	31	0.977 !
		Poor	37	43	
3	Attitude in filariasis elimination	Good	73	64	0.001 ^!
		Poor	1	10	
4	Attitude in MDA participation	Good	69	57	0.025 ^!
		Poor	5	17	
5	Risky night outdoor habit	Not do	53	41	0.060 !
		Do	21	33	
6	Risky habit in having a nap	Not do	51	43	0.307 !
		Do	23	31	
7	Mosquito repellent application	Do	44	39	0.508 !
		Not do	30	35	
8	The use of mosquito net	Do	67	66	1.000 !
		Not do	7	8	
9	Indoor environment control	Good	33	28	0.025 ^!
		Poor	41	46	
10	Outdoor environment control	Good	33	22	0.387 !
		Poor	41	52	

^ = Significantly different

! = The pre-test was better than the post-test

Table 2 showed that the post-test was worse than the pre-test for all aspects in the control group. Even some aspects were significantly getting worse for post-test in control group. They were filariasis knowledge, attitude in filariasis elimination, attitude in MDA and indoor environment control. This result had proven that the usual program from Health Office of Pekalongan City could not optimally maintain the knowledge, attitude and behavior in filariasis elimination. It might be caused by the lack of time and quantity of the health officer for delivering education to people.

Table 3. Post-test comparison between experiment group and control group

No	Variable	Categories	Control group	Experiment group	p
1	Filariasis knowledge	Good	8	36	0.001
		Poor	66	39	
2	MDA knowledge	Good	31	44	0.035
		Poor	43	31	
3	Attitude in filariasis elimination	Good	64	74	0.052
		Poor	10	1	
4	Attitude in MDA participation	Good	57	72	0.001
		Poor	17	3	
5	Risky night outdoor habit	Not do	41	57	0.009
		Do	33	18	
6	Risky habit in having a nap	Not do	43	64	0.001
		Do	31	11	
7	Mosquito repellent application	Do	39	64	0.001
		Not do	35	11	
8	The use of mosquito net	Do	8	18	0.052
		Not do	66	57	
9	Indoor environment control	Good	28	35	0.009
		Poor	46	40	
10	Outdoor environment control	Good	22	6	0.001
		Poor	52	69	

Table 3 showed that the experiment group was better than the control group in all aspects except outdoor environment control. For only the aspects of attitude in filariasis elimination and the use of mosquito net, the experiment group were better insignificantly than the control group.

The control group was significantly better than the experiment group only for outdoor environment aspect. It could be explained with observing the difference environment between them. The Bandengan Village (experiment group) usually have tidal flood. It causes a large portion of unsanitary area. It is very difficult for people to get rid off. In contrary, Kuripan Lor Village (control group) never get tidal flood. It makes the environment keep sanitary.

Knowledge is the result of the idea, and this occurred after people perform sensing to a particular object. Sensing occurs through the five senses. Or cognitive domain knowledge is very important in shaping a person's actions (overt behavior). Behavior that is based on knowledge will be more lasting than the behavior that is not based on knowledge (Notoatmodjo, 2003). According to Rogers (1974) in Notoatmodjo (2003), before people adopt new behaviors, in that person happens sequential process, namely: Awareness, Interest, Evaluation, Trial and Adoption. However, subsequent studies, Rogers concluded that behavioral changes do not always go through stages above. If the acceptance of a new behavior or adoption behavior through such a process is based on the knowledge, awareness, and a positive attitude, then the behavior will be lasting (long lasting). Conversely, if the behavior was not based on knowledge and awareness then it will not last long. According Notoatmodjo (2003), the vast majority of human knowledge gained from the eyes and ears. Knowledge in the cognitive domain has six levels, namely: Know (Know), Understanding (Comprehension), application (Application), analysis (Analysis), Synthesis (Synthesis). Or cognitive domain knowledge is very important for the formation of a person's actions. Those who have a good level of knowledge will certainly be more alert to the risk of filariasis by way of protection measures against filariasis vectors bite when doing an activity or event nights and also reduce mosquito breeding sites around their environment (Budioro, 1997). Changes in behavior in the process of adult education (andragogy) is generally more difficult than in the behavior change in children's education (pedagogy). This is understandable because adults already have the knowledge, attitudes, and certain skills that may already possess many years. So the knowledge, attitudes, and behaviors are not they believe it becomes difficult to accept. It required the efforts of its own in order to learn to believe in the importance of subject knowledge, attitudes, and behaviors for their lives (Notoatmodjo, 2003).

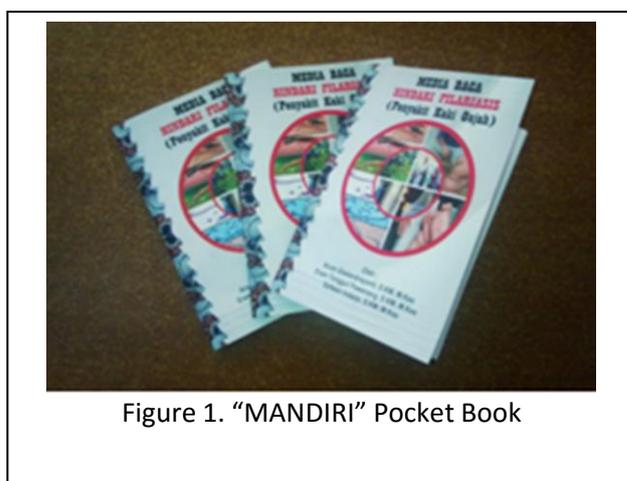


Figure 1. "MANDIRI" Pocket Book

This study proved that “MANDIRI” Pocket Book generally could result increasing in knowledge and some filariasis prevention behavior. Applying “MANDIRI” Pocket Book with lending in rotation system could save time, cost and quantity of health officer. It would be very usefull because so far the lack of time, cost and quantity of health officer always be a problem. The lending in rotation system anable interaction and discussion between the lender and the borrower. It would result society motivation in starting behavior change. Similar results were also expressed by Rachmaniah which revealed that psychoeducation with the media booklet and discussions were also influential on anxiety and coping the parents who have children with thalassemia (Rachmaniah, 2012). The process of education with media pocket book assessed effectively increase the knowledge because pocket book contains a lot more information can be stored, read repeatedly anytime and anywhere (Notoatmodjo, 2010). In addition, the material written on the pocket book using simple sentences making it easier to understand the message. Pocket book also comes with interesting pictures, making it easier to capture the message, remember and practice it in everyday life. From various sources a large number of studies have shown that people remember 10% of what they read, 20% of what they hear, 30% of what they see, 50% of what they see and hear, 80% of what they hear, see and was told (Leung et al, 2003; Rahmawati et al, 2016; liana et al, 2012). In addition to the foregoing, according medium of learning through a more concrete image that is can overcome the limitations of space and time and show the appropriate comparison of the actual object (Susilana et al, 2009).

CONCLUSION AND SUGGESTION

Compared to the control group, the experiment group resulted incerasing in knowledge, attitude, sleep behavior, repellent application behavior, night outdoor behavior and indoor environmental control ($p < 0.05$).

“MANDIRI” Pocket Book Program could be apply to educate the society about filariasis prevention. Its procurement cost could be minimized because the book could be lended in rotation. It also would be a solution for the lack of helath officer’s time and quantity.

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THE UTILIZATION OF FISH BONES WASTE AS A COAGULANT SUBSTANCE TO EXPEDITE THE DRYING OF WOUNDS

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Abstract

This study aims at utilizing the fish bones waste which came from fisheries industrial waste to be coagulant substance, as it can give solution to the environmental health problems. Fish bones become one of the highest waste from fisheries industry which usually used only for animal feed, that actually have potential to be processed as more valuable product regarding to its content. Therefore, it is necessary to develop an innovation on processing and managing the fish bones waste. A literature study method was done to collect data and information that fish bones contain high calcium, and this content can be used to expedite the drying of wounds as it becomes the most-happened accident in daily life. The data collection then used in analysis-synthesis to formulate the problem solving, conclusions, and recommendations. The result proved that fish bones waste have potential to expedite the drying of wounds because it contains high calcium and can be used by society through some process of reforming fish bones into coagulant substance.

Keywords: fisheries, fish bones, calcium, coagulant, wound

INTRODUCTION

Public health is the art and science of preventing disease, prolonging life and promoting health through the organized efforts of society (Acheson, 1988; WHO). It is multidisciplinary field such as epidemiology, biostatistics, health policy, health economic, occupational safety, and environmental health. In environmental health, many activities are targeted at populations such as inform, educate, and empower people about environmental health issues.

Environmental health issues manifested in various problems including climate change, sanitation, toxins, pollution and waste. In case of managing waste, improper disposal of waste is one of the major risk factors that affect health. Poor waste handling can lead to encourage the breeding of disease-vector insects, result in a range of diseases through different routes of exposure, and also environmental pollution. That is why it is important how to remove the waste properly or make it into more valuable thing.

In Indonesia, many wastes of fisheries industry are produced because of fisheries activities, as this country is well known as maritime state. One of fisheries waste is fish bones. Fish bones waste have not yet been widely used. It is only used for animal feed, fish bones flour, and become the basic material in some food product.

In fact, fish bones contain high calcium, for about 14% of all contents. Calcium have function as a catalysator in biological reaction and also become one of coagulation factors. Coagulation refers to body response when blood comes outside the vessels or usually called as wound. This indicates that fish bones waste can be used more than just being animal feed or food product, but also as a coagulant substance which has potential to expedite the drying of wounds.

METHOD

This writing used the method of literature study procedures, that next data collection is being used for the benefit of analysis-synthesis in solving the problem, conclusions, and suggestion. This writing method started with the studies of various literature about all the concept that relate to the purpose of this writing. Literature study was done through study from various books, scientific journal, and the internet. With the basic subjects are fish bones waste, calcium, wound, and coagulation process. The analysis method in solving problems was done by means of comparison and deep analysis.

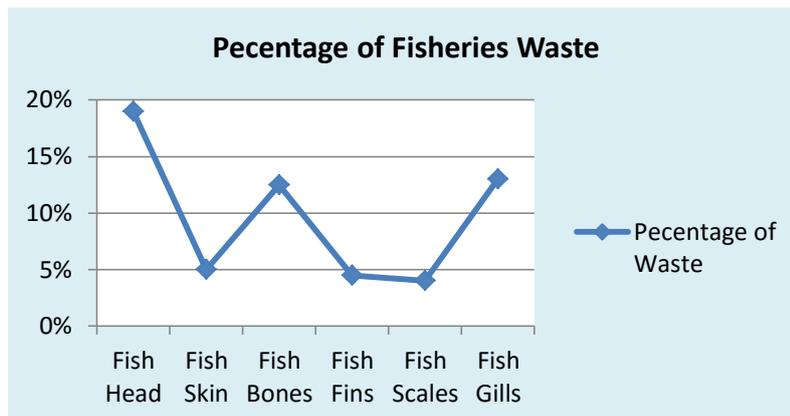
RESULTS AND DISCUSSION

Nowadays, the development of industry and technology gives impacts on air pollution, water pollution, and also land pollution. Land pollution is easier to be controled than water or air pollution. Generally, land pollution caused by two factors : internal factors that caused by natural accident such as volcanos activities, flood, and earthquake; external factors that caused by human activities such as industry, household, and waste of other daily activities.

Waste can be classified into some kind of group. (1) Garbage is wet waste which comes from residual activities of cooking or even waste of food; (2) Rubbish is dry waste which comes from dried residual that usually easy to be burned; (3) Ashes and cinder which come from residual of burning activity; (4) Dead animal; (5) Street sweeping which comes from the street; and (6) Industrial waste. Industry in Indonesia engaged in many sectors such as agricultural, plantation, mining, or even fisheries. Fisheries industry becomes one of most potential industry as Indonesia provides many resource because of its area.

Fisheries waste industry can be defined as anything left and wasted of an activity and management of fishery products. Waste is a less valuable products, and moreover it also becomes an issue in an industry. According to Moeljanto (1979), fishery waste was a fish wasted, and the rest that is already processed at some point and have not been able to be used as economical manner.

Basically , waste of fisheries industry can be classified into two major groups. First, liquid waste in the form of the banished fluids from the process of weeding and laundering fishes which especially contains blood, fat, and other substances. Second, solid waste that includes the viscera, tail, fins and bones, scales, and flesh of fish. Solid waste gives the biggest contribution of the industrial waste fisheries. In cases where the head, fins, viscera, and other pieces can produced waste 35% or 350 kg of solid waste. And overall production of fisheries industry increased by an average of 9,24 % per year. Annually, more than 50% of total fishery products (over 120 million tons) are discarded as inedible by-products.



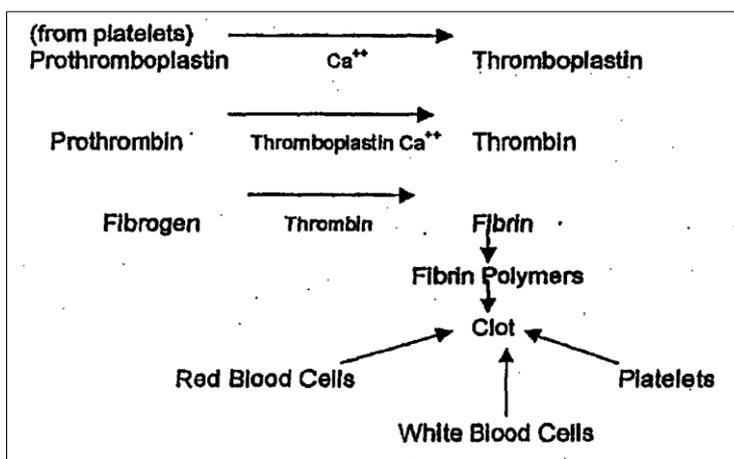
Picture 1. Percentage of Fisheries Waste (Anugerah Putri, 2010)

The product of industrial fisheries generally treated in various product, such as fillet fish or packaged fish products. And the rest is becoming industrial waste which can pollute environment if not handled in proper way. Based on Picture 1, part of the fish that usually being consumed is flesh (49-60%), while the other parts like head (13-19%), skin (3,5-5%), bone (7,5-12,5%), fins (2-4,5%), scales (2,4-4%), and gills (7-13%) are included in industrial fisheries waste (Anugerah Putri, 2010).

Fish bone is one of waste that can be used into something more valuable. In japan, fish bones is processed to be calcium in the form of flour bone. Fish bone contains many calcium in the form of calcium phosphate for about 14% of the total bones. Main contents of the bones fish are calcium, phosphates and carbonate, while the minor contents are magnesium, sodium, strontium, citric, fluoride, hydroxide and sulphates (Lovell, 1989).

As the one of highest contents of fish bones, calcium has various roles or function, they are : (1) take part in formation of bones and of teeth as an integral part of bone structure and as a place of storing calcium; (2) catalyst biological reactions; (3) muscular contraction which has a role in interaction of muscle protein, known as actin and miosin; (4) improve the functioning transport of cell membrane as a stabilizer membrane and transmission of ions through cell organelles; (5) set the blood clotting process.

A hemostatic agent such as calcium can be adapted to be applied directly onto a bleeding wound comprising.



Picture 2. Blood Clotting Process (James A. Patterson et al, 2010)

Blood contains both a solid and a liquid component. The liquid component is called plasma and contains a very broad variety of proteins. Among them are albumin, immunoglobulin and an assortment of proteins which participate in blood clotting. The solid components of the blood include red blood cells (erythrocytes), white blood cells (leucocytes), and platelets. Of these, only platelets participate directly in blood clotting. When blood clots, depending upon the immediate cause, the proteins in the plasma which are involved (which are proteolytic enzymes) act in a chain reaction. Clotting is a function of plasma. It depends upon the orderly interaction of a group of plasma proteins (which are sequentially activated following vascular injury) with some phospholipid (from either damaged tissue or platelets) and some calcium. The final stages include the formation of thrombin.

Calcium ions (Ca^{++}), which are normally present in the plasma, cause the conversion of inactive Prothromboplastin into the active proteolytic enzyme, Thromboplastin. Thromboplastin, in the presence of calcium ions (Ca^{++}) causes the activation of Prothrombin into Thrombin. Thrombin (also a proteolytic enzyme) acts upon Fibrinogen (present in great quantity in the plasma) to remove a portion of that protein, thus converting it to Fibrin, which then actively polymerizes with itself. Calcium also becomes one of the 13 coagulation factors. Many factors influence hemostasis, and the clotting process is a very complex series of chemical interactions. Majority of clotting factors are precursors of proteolytic enzymes known as zymogens that circulate in an inactive form. Most of the procoagulants and anticoagulants are produced by liver except factor III, IV and VIII.

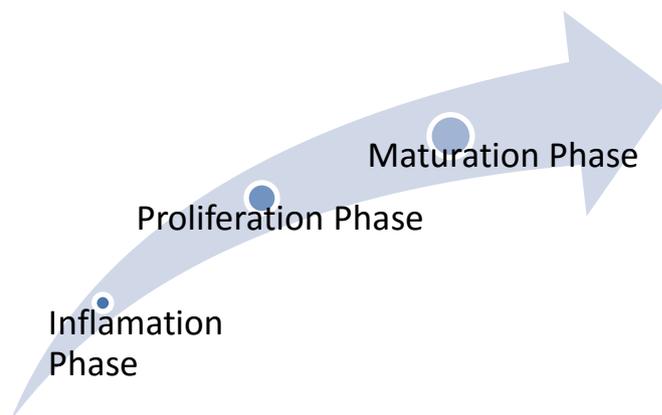
Table 1. 13 Coagulation Factors

Factor	Name	Pathway
I	Fibrinogen	Both
II	Prothrombin	Both
III	Tissue Factor	Extrinsic
IV	Calcium	Both
V	Proaccelerin	Both
VI	Accelerin	Both
VII	Proconvertin	Extrinsic
VIII	Antihemophilic	Intrinsic
IX	Christmas Factor	Intrinsic
X	Staur-Prower Factor	Both
XI	Plasmathromboplastin Antecedent (PTA)	Intrinsic
XII	Hageman Factor	Intrinsic
XIII	Protransglutaminase	Both

Human daily activities are often unable to be prevented of an accident because several factors of accident that often happens. One thing that can be caused by accident is the occurred of wound; which defined as the broken of body tissue whether it is the skin tissue, muscle tissue, nervous tissue, the blood and lymph vessels because of several factors.

Wound is discontinuity of a body tissue because of injury or surgery. Based on the incident, wound is divided into deliberate wound and undeliberate wound. The examples of deliberate wound is radiation or surgical wound, while undeliberate wound is trauma. An undeliberate wound or trauma can also divided into closed wound and opened wound. It is called as closed wound if there is no rips, while open wound if there is rips and it looks as a cuts or abrasio, puncture wounds (because of prick), and hauration (injured by instrument of injury treatment) (Hidayat, 2006).

The healing process of wound is one of the most important things in post care phase. Healing is a process that occurs normally. It means, the body has natural ability to protect and recover the body itself. Nevertheless, there are some health care that may help to support the healing process of wounds.



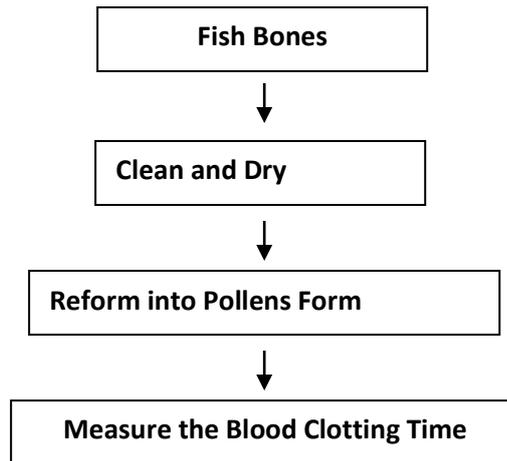
Picture 3. Healing Process of Wound

The healing process of wound is divided into some phase; inflammation phase (lasts 3-4 days), proliferation phase (lasts 3-24 days), maturation phase (started from week 3). If the healing process takes longer than usual, it can cause many kind of complications. One of them is infection. Wound infection is one kind of nosocomial infection which can increase mortality rates.

In a wide variety of circumstances, animals, including humans, can be wounded. Often bleeding is associated with such wounds. In some instances, the wound and the bleeding are minor, and normal blood clotting functions in addition to the application of simple first aid are all that is required. Unfortunately, however, in other circumstances, substantial bleeding can occur. These situations usually require specialized equipment and materials as well as personnel trained to administer appropriate aid. If such aid is not readily available, excessive blood loss can occur. When bleeding is severe, sometimes the immediate availability of equipment and trained personnel is still insufficient to stanch the flow of blood in a timely manner.

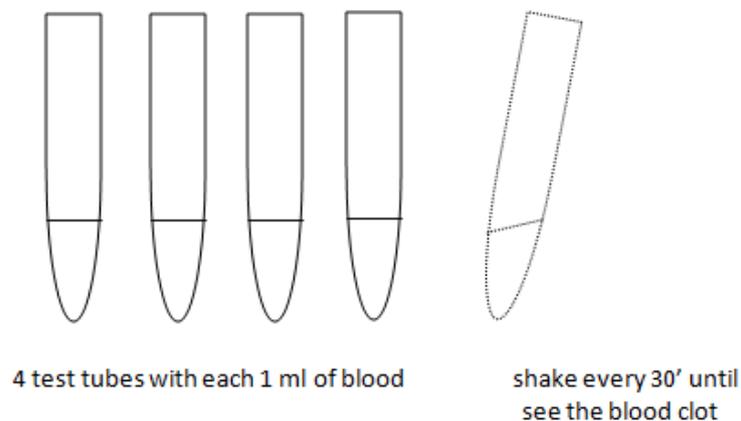
Moreover, severe wounds can often be inflicted in very remote areas or in situations, such as on a battlefield, where adequate medical assistance is not immediately available. In these instances, it is important to stop bleeding, even in less severe wounds, long enough to allow the injured person to receive medical attention. In an effort to address the above-described problems, materials have been developed for controlling excessive bleeding in situations where conventional aid is unavailable or less than optimally effective. Based on the foregoing, it is a general object of the present invention to provide a bleeding accelerate substance.

To reform fish bones waste to be coagulant substance, it is needed to do some process. Firstly, it is important to dry and clean the fish bones first. The wet bones might influence the process. Drying process can be done through traditional way by using sun light or even using the machine such as oven. After the drying step, fish bones should be reform into pollens form. From that pollens form, a simple laboratory test can be done to make sure the potential side of calcium as coagulant substance. Picture 3 shows the flow chart on processing the fish bones.



Picture 4. Early Step on Processing Fish Bones Waste

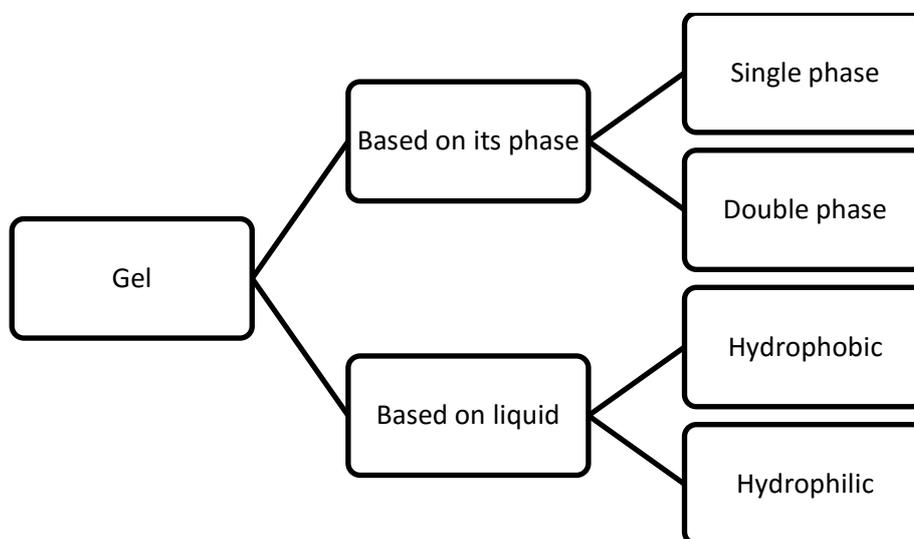
Lee and white method can be used to measure the blood clotting time. Equipments that are needed are : (1) stopwatch; (2) four test tubes; (3) disposable syringe; (4) tube rack. Blood sample is taken from vein puncture by taking 5 milliliters of blood. This simple test can use only four test tubes which each tube was filled with 1 milliliters of blood. The pollens form of fish bones can be added in each tube as an experiment. Start the stopwatch and measure the blood clotting time. Observe the tubes in every 30 seconds by shaking it and note the clotting time of every tubes. The total clotting time is the average of four test tubes.



Picture 5. Lee and White method of blood clotting time

After measuring the blood clotting time of blood which already reacted with calcium of fish bones, it is important to look for the best way to present the fish bones as coagulant substance. Gel form might be more effective to be used by the society instead of pollens form.

Gel as known as semisolid prepare which is made from small organic particle or organic molecule that penetrated by some liquid. Gel form can be used as it gives many advantages, such as : (1) high level of lucidity; (2) easily applied on the skin; (3) easy to be removed; (4) not depending on its solubility. Generally, gel is classified into some groups.



Picture 6. Diagram of gel classification

Single phase gel is easily applied to the skin. Double phase gel is used bentenite as material base. Hydrophobic gel contains liquid parafin and poliethylene. While hydrophilic gel consists of water, glicerol, or prepilene glicol.

Conclusions

This medical applications which processed from fish bones waste include a variety of hemostasis usages for arresting blood flow caused by minor wounds. The material is expected to maintain minimal blood loss in the most rapid manner possible by expediting the drying of wound. This invention provides a flowing blood or body fluid clotting agent or a hemostatic agent or a delivery vehicle for use in arresting the flow of blood from a minor bleeding wound and for treating skin or tissues that is wounded. This invention, in one aspect, uses calcium which appear to have a similar beneficial affect upon accelerating the coagulation of blood from an open minor wound.

Suggestions

The present invention is suitable for healing wound by creating a protective surface barrier or temporary skin that is flexible while producing oxidative capacity at the surface of the wound, which in turn promotes healing. The present invention is also suitable for the treatment of skin and tissue bums through the creation of a protective surface or crust over the bum area and promoting natural tissue healing under the damaged tissue area.

One advantage of the present invention is that it is easily applied to an open wound. Particularly when the composition is in paste, gel, or powder form, it can be readily removed from sterilized packaging and deposited directly at the points from which blood emanates to dress the wound. Alternately, the composition can be incorporated into a bandaging system and applied in conjunction with the bandaging system. By incorporating the composition into the bandaging system, the wound is treated and covered in a single step.

It is also possible to do collaboration work between fisheries industries as provider of fish bones waste and pharmaceutical industry as the developer in forming fish bones as coagulant substance to dry the wound.

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STUDY OF HOME PHYSICAL CONDITION CHARACTERISTICS AND PERSONAL HYGIENE IN THE LEPROSY PATIENT AND SURROUNDING ENVIRONMENT IN WEDING VILLAGE

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Abstract

Based on a preliminary study in a public health center in Bonang village II, it was obtained that there were 16 lepers in 2014 and 7 in 2015. This research aims to identify the descriptions of the characteristics of the lepers' homes and personal hygiene and surrounding environment. This is descriptive research using cross-sectional approach. The number of samples taken is 87 respondents in Weding village. The instruments used are questionnaire and measurement sheet. The data are analyzed using univariate technique. The results of the data analysis show that the descriptions of physical conditions and personal hygiene around the lepers' homes are poor lighting (85,1%), good temperature (51,7%), poor humidity (85,1%), unwell types of floors (56,3%), poor ventilation system (85,1%), good residential density (57,5%), and bad personal hygiene (57,5%). The writer suggests that Department of Health should cooperate well with the head of public health center and chief of the village to hold and improve health education program and health education seminars for the community about clean and healthy life periodically, and also build the houses that meet healthy requirements. For the respondents, they should be able to uphold clean and healthy life patterns as well as keep the cleanliness of themselves and their surrounding environment.

Keywords: leprosy; physical conditions of homes; personal hygiene

INTRODUCTION

Development in the field of quality health care is the most important programs in which communities, nations, and countries can live in the environment and clean and healthy life behavior in an effort to improve health. One of the efforts is the global strategy of WHO, namely the elimination of leprosy and establish indicators primarily in the form of the discovery rate of new patients or Newly Case Detection Rate (NCDR) with indicator $<5 / 100,000$ population replaces indicator its core discovery rate of patients registered or prevalence rate of leprosy with indicators $<1 / 10,000$ population (WHO, 2009)

Leprosy is a contagious disease that can lead to a very complex problem. The problem is not only in terms of medical, but extends to social, economic and psychological. This is because leprosy provide enormous stigma in the community, not because it causes death, but more because of permanent disability caused (Awaludin, 2004).

Leprosy germs usually attack the peripheral nerves of the skin and other body tissues. The cause of leprosy is a bacterium called *Mycobacterium lepraemycobaterium*. Source of disease transmission are lepers leprosy multibacillary or wet. If the bacillus *Mycobacterium leprae* into the body of a person, can be clinical symptoms in accordance with the vulnerability of the person. Clinical types depending on the form of the cellular immune system of the patient. Good cellular immune system will look toward Tuberculoid clinical picture (including the type of leprosy pausibasiler),

otherwise low cellular immune system provides an overview of lepromatous. Multibacillary means it contains a lot of basil that is the type of lepromatous (Hiswani 2001, Kosasih, 2007).

World Health Organization (WHO) noted early in 2011 reported worldwide prevalence of leprosy at 192 246 cases with the highest number of leprosy patients in the Southeast Asian region amounted to 113 750 cases. The top three countries with the highest number of leprosy cases are India, Brazil, and Indonesia. The countries included in the endemic area of leprosy (WHO, 2011).

Although nationwide Indonesia has reached leprosy elimination in June 2000, but until now the number of leprosy patients in Indonesia is still quite high. This is evident from the prevalence of leprosy patients in 2010 amounted to 19 785 patients, the number of new cases detected as many as 17 012 cases, of which 13 734 cases were patients of type multibacillary (WHO, 2011).

Leprosy cases in Central Java to increase every year, in the year 2008 amounted to 1,564 new cases of leprosy cases with multibacillary leprosy type that is 1,346 cases. In 2009 increased to 1,574 cases with 1,348 cases of leprosy that multibacillary. In 2010 increased to 1,659 cases with multibacillary leprosy types of 1,344 cases and in 2011 increased to 2,026 cases with multibacillary leprosy patients reached 1,678 cases (Central Java Provincial Health Office, 2009 and 2011).

Central Java province has reached elimination at the national level, with a prevalence rate of $<1 / 10,000$ population in 2000. However, until now there are 8 districts / cities which is a high endemic area of leprosy because they have prevalence above $5 / 100,000$ population is the City Pekalongan (25.5), Rembang (15.6), Blora (13.4), Pekalongan (15.4), Tegal (16.1), Brebes (17.1), Demak (19.3), and Kudus (17.7) (Central Java Provincial Health Office, 2012).

In Demak there are 14 districts and 27 health centers with a population of 1.17672 million inhabitants in 2014. The geographical location of the area is an agricultural area, so most people in Demak livelihood as farmers. The incidence of leprosy in Demak from year to year fluctuations in which the incidence of leprosy in 2014 to the previous decline in 2013, this illustrates that the handling of leprosy is still lacking.

Public health center Bonang II Demak is one area with leprosy cases continues to increase from year to year with the number of cases of leprosy in 2012 by 2 cases in 2013 as many as 5 cases in 2014 as many as 16 cases. By 2015, there were 7 new cases per January to March with most occurring in the village Weding with a very high population density that is equal to 2,033 families (Public health center Bonang II, 2015).

Construction of houses and the neighborhood does not meet health requirements are risk factors for the transmission of various types of diseases, especially diseases based environment. According to WHO, the house is not enough and too narrow resulting in a high incidence of the disease for the residents. The house should be able to meet the technical requirements and the hygiene is not too dense occupant, state good ventilation (cross ventilation), adequate lighting, humidity houses eligible to the provisions of the type of floor and wall of the house watertight, and roof of the house in good condition to prevent leakage (Central Java Provincial Health Office, 2010).

The risk factors associated with the incidence of leprosy studied Adhi (2010) found that factors associated with the incidence of leprosy is the density of population, economic status, contact status, and type of flooring. Type floor with plaster cracks or dusty potential for the presence of bacteria. *Mycobacterium leprae* was able to live outside the human body and can be found in soil or dust around the home environment of the patient. Outside the human body (in tropical

conditions), leprosy bacteria from nasal secretions can last up to nine days. Optimal growth leprosy germ in vivo in mice is at a temperature of 27-30 ° C (Gancar 2009).

The observation and direct interviews conducted door to door to every house around lepers on 11-13 September 2015 to 10 houses can be seen house sanitation condition of 60% of homes are included in the solid state for habitation because inhabited by more than 2 per 8 m², 60% of homes have a floor is not watertight and easy to clean, 70% of homes have a vent less than 1/10 of the floor area of the room, 80% of sunlight into the house less qualified. Sugiyantoro study (2012) found that factors associated with the incidence of leprosy is natural lighting, ventilation, humidity, temperature, type of floor and wall types.

Mycobacterium leprae can only lead to leprosy in humans and in animals. Transmitted through prolonged contact for association meetings and repetitive, because it is diseased can be prevented with improvements in personal hygiene. According to research Yudied et al (2008), personal hygiene risk factors that influence the transmission of leprosy include sleeping together community practice, wear clothes and towels alternately, and defecate in gardens (Entjang, 2000, Yudied et al, 2008)

Based on interviews conducted by the researchers randomly to the public in September 2015 found that villagers in Weding still do not know what it is leprosy, even the name of his own leprosy is still commonly heard by the public, including the causes and symptoms of leprosy. Moreover Weding Village community considers this disease is a hereditary disease. This is an issue that needs to be addressed in view of leprosy is an infectious disease. In addition, in the health center II DemakBonang main Weding village is a steady source of patients with leprosy every year.

Based on this background, it is necessary to investigate the extent of the risk of transmission of leprosy in Demak, so that can know what steps should be taken to reduce the incidence of leprosy. Based on previous studies it is known that the risk factors associated with the incidence of leprosy very much. Based on the above, the author is interested in conducting research on the "Study of Home Physical Condition Characteristics and Personal Hygiene in the Leprosy Patient and Surrounding Environment in Weding Village Bonang District Demak Regency in 2016".

METHOD

This study is a descriptive study is a research method that is carried out with the aim of making a picture or a description of a situation objectively (Soekidjo, 2007). Using a case study with cross sectional approach, the type of research that the measurement of the variables is done only once, at one time because the sample taken many regions and have different characteristics (Sastroasmoro, 2011). In this study, the focus of his research is the lighting, temperature, humidity, flooring, ventilation, density residential homes, and personal hygiene.

The population in this study were lepers and the surrounding village Weding namely RW 02 with 379 families, with 250 households RW 03, RW 04 with KK 169 and KK 178 RW 06 and the total number there are 976 households. Samples in this study is on rural communities Weding to see the physical environment and personal hygiene as much as 87 respondents. The samples in this study was conducted using proportionate stratified random sampling (Sugiyono, 2010).

In this study, the data collection methods used are primary data obtained from studies conducted by researchers in the study were collected includes data respondents' identities (name,

age, gender, education level, family size, type of work), physical environment (lighting, temperature, humidity home, home flooring types, home ventilation, density residential), and personal hygiene.

Data collection through two ways, namely primary data obtained by giving questionnaires to the subject of research, and made observations to the respondent on home physical environmental observation and interviews using the checklist sheet regarding personal hygiene. In addition, interviews were also conducted in at the time of observation with documentation by shooting at the home of respondents currently in progress and current observations provide information as research subjects, and secondary data is data obtained apart from survey respondents. Secondary research data obtained by looking at the medical records of respondents from Demak district health office and health center Bonang II. The analysis is performed using a frequency distribution table that includes the independent variables and the dependent variable. This analysis is to describe the frequency distribution and the proportion of each of the variables studied (Soekidjo, 2010).

DISCUSSION

Results of univariate analysis aims to look at the distribution characteristics of respondents. The results of the univariate analysis are shown in Table 1.

Table 1. Distribution Characteristics of Respondents

No.	Characteristics of Respondents	Frequency N = 87	Percentage (%) F = 100 %
Respondents Age			
1.	20 - 35 Years Old	30	34,5
2.	36 - 56 Years Old	46	52,9
3.	57 - 77 Years Old	11	12,6
Gender Respondents			
1.	Man	36	41,4
2.	Women	51	58,6
Respondents Education Level			
1.	Junior High School	14	16,1
2.	High School	10	11,5
3.	Completed Primary School	30	34,5
4.	Don't Have Education	14	16,1
5.	Can't Completed Primary School	19	21,8
Job Type Respondents			
1.	Factory Workers	12	13,8
2.	Housewife	26	29,9
3.	Fisherman	10	11,5
4.	Farmer	14	16,1
5.	PNS	1	1,1
6.	Private	9	10,3
7.	Does Not Work	5	5,7
8.	Entrepreneur	10	11,5
Lighting			
1.	Good	13	14,9
2.	Poor	75	85,1
Temperature			
1.	Good	45	51,7
2.	Poor	42	48,3
Humidity			

No.	Characteristics of Respondents	Frequency N = 87	Percentage (%) F = 100 %
1.	Good	13	14,9
2.	Poor	74	85,1
Types Of Floors			
1.	Good	38	43,7
2.	Poor	49	56,3
Ventilation System			
1.	Good	13	14,9
2.	Poor	74	85,1
Residential Density			
1.	Good	50	57,5
2.	Poor	37	42,5
<i>Personal Hygiene</i>			
1.	Good	37	42,5
2.	Poor	50	57,5

Source: Research data, in 2016.

The results showed that based on Table 1 it can be seen that most respondents are in the age group 36-56 years with a number of 46 respondents (52.9%). The minimum age of respondents was 22 years and the maximum age of respondents was 75 years. Most of a sample of respondents were female as many as 51 respondents (58.6%), while respondents were male sex as much as 36 respondents (41.4%). Of the 87 respondents showed that most respondents are educated SD by 30 respondents (34.5%) and only 10 high school-educated respondents (11.5%). Respondents most housewives are 26 respondents (29.9%) and only 1 respondent with civil servant status (1.1%).

As for the results of home physical condition and personal hygiene show that the poor lighting in the home of respondents as many as 75 respondents with a percentage of (85.1%), including 9 of the 13 responder patients, the temperature inside the house respondent as many as 45 respondents with a percentage of (51.7%), including 9 of the 13 responder patients, the humidity inside the house bad respondents as many as 74 respondents with a percentage of (85.1%), including 12 of the 13 respondents patient, the type of floor respondents were not good in the house as many as 49 respondents a percentage of (56.3%), including 9 of 13 respondents patient, ventilation respondents are less well inside the house as many as 74 respondents with a percentage of (85.1%), including 12 of the 13 respondents patient, residential density in a good house as many as 50 respondents with a percentage of (57.5%) including 6 of 13 respondents sufferers, poor personal hygiene, namely seb M any of 50 respondents with a percentage of (57.5%), including 8 of the 13 responder patients.

Table 2. Distribution of respondents by Factor Lighting and Temperature

No.	Characteristics of Respondents	Frequency	Percentage (%)
Lighting			
1.	Good	13	14,9
2.	Poor	75	85,1
Temperature			
1.	Good	45	51,7
2.	Poor	42	48,3

Source: Research data, in 2016.

According to the table 2 it can be seen that most respondents have the lighting conditions in the poor house as many as 75 respondents with a percentage of (85.1%), including 9 of the 13

responder patients, while respondents who have a home in the lighting conditions were good as many as 13 respondents with a percentage of (14.9%) including 4 of 13 respondents patient.

These results indicate that respondents who have a home with natural lighting in the living room does not qualify (<60 lux), sunlight can not enter with either into the house because of the access gaps or holes sun that very little can be found in the homes of respondents who researched , it is supported by the Central Java Provincial Health Office in 2005 which states that direct light from the sun plays an important role in inhibiting the growth of microorganisms such as M.Leprae that thrive in humid conditions without sunlight so the family room which is not eligible (<60 lux) have a greater risk of the occurrence of the incidence of leprosy. The results are consistent with a study done by Dwina (2012) where the results show that respondents with natural lighting in the home are not eligible having 4.295 times greater risk of suffering from leprosy when compared to respondents with natural lighting in the home are eligible.

According to the table 2 it can be seen that most respondents have conditions good temperature inside the house as many as 45 respondents with a percentage of (51.7%), including 9 of the 13 responder patients, while respondents who have a home in the lighting conditions are unfavorable as many as 42 respondents with a percentage of (48.3%) including 4 of 13 respondents patient.

The temperature in the room is a factor that affects the growth of bacteria and viruses. Temperatures in addition to affecting growth, also affects the number and durability of bacteria and viruses themselves. According to the Department of Health (2006), outside the human body (in tropical conditions) leprosy bacteria from nasal secret can last up to nine days. Optimal growth leprosy germ in vivo in mice is at a temperature of 27-30 ° C. In addition imbalance between the area of the house with the number of inhabitants will cause the temperature in the house is high and it can accelerate the spread of a disease. The statement is in accordance with the findings that the density of residential homes - each respondent obtained a good result so that the result is directly proportional to temperature conditions showed good results.

Table 3. Distribution of respondents by humidity factor and Type Floor

No.	Characteristics of Respondents	Frequency	Percentage (%)
Humidity			
1.	Good	13	14,9
2.	Poor	74	85,1
Types of Floors			
1.	Good	38	43,7
2.	Poor	49	56,3

Source: Research data, in 2016.

Based on table 3 it can be seen that most respondents have a moisture conditions in the poor house as many as 74 respondents with a percentage of (85.1%), including 12 of the 13 responder patients, while respondents who have humidity conditions inside the house were good as many as 13 respondents with a percentage of (14.9%). In this study, respondents who experienced the incidence of leprosy does not have adequate ventilation in fact most do not have the patented ventilation only window that can not be opened and resulted in the room being damp. This will lead to an environment that can support the development of germs because no alternation of clean air with a dirty air so it will be stuffy and smells that make the bacteria can develop optimally. In

addition, insufficient ventilation will lead to an increase in humidity of the room because the process of evaporation and absorption of fluid from the skin

This is in line with what was written by Gould and Brooker (2003) that the house does not have a qualified health humidity will take effect for the residents. This study is in line with the results Faturahman (2010) about the physical environmental factors homes associated with the incidence of leprosy in Cilacap district in 2010 stated that the air humidity of the house is one of the risk factors associated with the incidence of leprosy with values obtained ($p = 0.001$, $OR = 6.00$).

Based on table 3 it can be seen that most respondents have any kind of floors in the house are not good as many as 49 respondents with a percentage of (56.3%), including 9 of the 13 responder patients, while respondents who have any type of floor in a good home as many as 38 respondents with a percentage of (43.7%) including 4 of 13 respondents patient. This happens because in this study almost all respondents have a floor of the house that are not waterproof, of course, this condition will facilitate the proliferation of bacteria in the soil because of the floor that her condition can not be cleaned with a disinfectant or lisol, because it is made from the ground or plaster that has been broken and cracked.

This is in line with the written Department of Health (2006) that the floor is a room the bottom wall coverings, floor construction house must be watertight and always dry for easy cleaning of dirt and dust. This study is in line with the results Faturahman (2010) about the physical environmental factors homes associated with the incidence of leprosy in Cilacap district in 2010 stated that the floor of the house is one of the risk factors associated with the incidence of leprosy with values obtained (p value = 0.001 , $OR = 6, 44$). This study is also consistent with research Gancar (2009) states that there is a relationship between the incidence of leprosy in the house characteristics are the type of floor house with $OR = 5.47$.

Table 4. Distribution of respondents by Factor and Density Residential Ventilation

No.	Characteristics of Respondents	Frequency	Percentage (%)
Ventilation System			
1.	Good	13	14,9
2.	Poor	74	85,1
Residential Density			
1.	Good	50	57,5
2.	Poor	37	42,5

Source: Research data, in 2016.

Based on table 4 it can be seen that most respondents have a vent inside the house is not good as many as 74 respondents with a percentage of (85.1%), including 12 of the 13 responder patients, while respondents who have good ventilation in the house as many as 13 respondents with a percentage of (14.9%). In this study, respondents who experienced the incidence of leprosy does not have adequate ventilation in fact most do not have ventilation window only patented, so it can not open and resulted in the room being damp.

This will lead to an environment that can support the development of leprosy germs because no alternation of clean air with a dirty air so it will be stuffy and smells that make the bacteria can develop optimally. According to the theory advanced by Susanta (2001) stated that the presence of vents in the open state during the day is one of the conditions that determine the quality of the air that is not stuffy and humid which causes potentially life of microorganisms.

Based on table 4 it can be seen that most respondents have a density of occupancy in a good house as many as 50 respondents with a percentage of (57.5%) including 6 of 13 respondents patient, while respondents who have a home in the residential density unfavorable as many as 37 respondents with a percentage of (42.5%) including 7 of 13 respondents patient. In this case, according to research illustrates that residential density conditions for all the respondent's house to meet the requirements, according to the Ministry of Health which, occupancy density requirements for the entire house is usually expressed in m² / person. Likewise house inhabited by a lot of people and the size of the area of the house is not proportional to the number of people it will cause adverse effects to health and the potential for disease transmission and infection. Increasing the number of occupants of the house, it will separate polluted air in the house, because of the number of inhabitants is growing.

Table 5. Distribution of respondents by Factor Personal Hygiene

Personal Hygiene	Frequency	Percentage (%)
Personal Hygiene		
1. Good	37	42,5
2. Poor	50	57,5

Source: Research data, in 2016.

According to the table 5 it can be seen that most respondents have a poor personal hygiene as many as 50 respondents with a percentage of (57.5%), including 8 of the 13 responder patients, while respondents who have good personal hygiene as many as 37 respondents with a percentage of (42.5%) of respondents terasuk 5 of 13 patients. This has led to high rates of leprosy that behavioral factors clean and healthy living. Based on observations turned out to lepers living in slums and densely populated areas, where customs and sanitary facilities are very less so that a clean and healthy life behavior of the lepers away than expected, so it gives the stronger signal leprosy events will occur.

According to Blum environment is the biggest contributing factor to the incidence of the disease, and behavior, health care and genetics. Environment can become breeding grounds for a variety of bacteria, including bacteria leprosy because Home is part of the physical environment which may affect the health of individuals and communities.

CONCLUSIONS

The results showed a picture of lighting conditions inside the house bad respondents as many as 75 respondents with a percentage of (85.1%), including 9 of the 13 responder patients, the temperature inside the house respondent as many as 45 respondents with a percentage of (51.7%) included 9 out of 13 respondents patient, the humidity inside the house bad respondents as many as 74 respondents with a percentage of (85.1%), including 12 of the 13 respondents patient, the type of floor respondents were not good in the house as many as 49 respondents with a percentage of (56.3%), including 9 of 13 respondents patient, ventilation respondents are less well inside the house as many as 74 respondents with a percentage of (85.1%), including 12 of the 13 respondents patient, residential density in a good house as many as 50 respondents with a percentage of (57, 5%), including 6 of 13 respondents sufferers, poor personal hygiene as many as 50 respondents with a percentage of Sebes ar (57.5%), including 8 of the 13 responder patients.

In this study examines the picture yet of water conditions, the condition of walls, as well as interaction with the community of lepers. Suggestions for further research associated with this study

are expected next researcher to add variables that are more diverse so that a picture of leprosy in the leper increasingly obvious, such as water conditions, the type of walls, and others so that the risk of the spread of leprosy can tackled as early as possible. This study can be used as an additional reference and similar studies of basic data and conduct further research on leprosy, the risk factors that can lead to leprosy, and this research can be continued using multivariate analysis.

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MERGING ENGLISH INTO SPORT IN AEROBIC EXERCISE BASED ON CONTENT BASED INSTRUCTION, RESEARCH, SPORT SCIENCE DEPARTMENT, SEMARANG STATE UNIVERSITY

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Abstract

A research on merging English into Sport in Aerobic exercise based on content based instruction (CBI) was conducted related to the need of the aerobics instructor who can lead the class in English especially with the present of Asean Economic Market in the end of 2015. The problems being evaluated in this paper was “is there any difference influence between CBI learning model and conventional learning model to the aerobics instructor performance in English? The aim of this research is to evaluate the different influence between CBI learning model and conventional learning model to the aerobics instructor performance in English. 40 students of Semarang State University and Wahid Hasyim University were grouped into 2 groups. One is CBI group and the other ones is conventional group. The treatment was conducted for 6 weeks. The result showed that the significant score for CBI group is $0,005 < 0,05$, meaning H_1 is accepted. Therefore there is a significant difference between those who have been taught using CBI to those who have been taught using conventional learning for the aerobics instructor performance in English.

Keywords: Aerobic Instructor, English, ESP, CBI, Communication

INTRODUCTION

The strategy that are integrated between language and content subject knowledge is Content Based Instruction (CBI), because in CBI students are taught and learn the subject knowledge using English, so unconsciously they learn the language by doing it (Lu, 2014; Davies, 2003). CBI is best implemented with two lecturers teaching the class, those are the subject lecturer and the English lecturer, in order to improve the students understanding to the subject as well as to the English vocabulary being learnt (Davies, 2003; Lu, 2014). Students are expected to use English as the communication tools and as a medium to deliver the content subject knowledge (Shang, 2006). This is linear to the demand of KKN (2015): students are expected to apply knowledge they gained to their field of study. One of the direct applications is by integrating English subject to the Aerobic Class. In this case, the aerobic class is the pilot project since it is combined choreography and music that are guided by instruction in English language (Dolan, 2009). In addition to that, aerobic also being taught step by step, logical, and need enough repetition (NETA, 2005) in line with the need of language learning which need a lot of repetition.

Those, the problem being studied in this research was; “is there any difference influence between CBI learning model and conventional learning model to the aerobics instructor performance in English? The purpose of this study was to evaluate difference influence between CBI learning model and conventional learning model to the aerobics instructor performance in English. The study was conducted to strengthen the argumentative reason on the importance of merging English to any subject knowledge.

METHOD

An experiment research method pretest -post test designed were implemented to 48 university students. 20 students of Semarang State University were taught using CBI method (Experiment group) and 20 students of Wahid Hasyim University were taught using conventional method (control group). The treatment was conducted for 6 weeks from 5 September 2016 to 10 October 2016 with the duration of 2 x 60 minutes per meeting.

The hypothesis was there is significant different in the students' performance as an aerobics instructor between those who are being taught using CBI method compare to those being taught using conventional method. The independent variables are CBI method and conventional method; whereas the dependent variable is students' performance as an aerobics instructor in English.

The research instruments were Paper Based Toefl test (PBT) for pre-test and an analytical assessment rubric as aerobics instructor in English for the post-test. The students were given a set of paper based Teofl test to determine their level of English proficiency. The PBT consisted of three test namely listening, structure and reading. There were 50 questions for listening in 35 minutes, 40 questions for structure in 25 minutes and 50 questions for reading in 55 minutes and the total pre-test time was 115 minutes (Pyle dan Page, 2005). There were 4 score level: 310 – 420 = basic; 420 – 480 = low intermediate; 480 – 520 = high intermediate; 525 – 677 = advance (geniustoeft, 2016). The pre-test showed that all students were in the same level of English proficiency, which was in the basic level.

The Data to measure the students' ability as an aerobic instructor in English were collected through post-test using a post-test analytical rubric. The instruction for post test was "Please perform as an aerobic dance instructor, within 5- 10 minutes in length, complete from introduction, warming up, 5 or more dance steps & cooling down." The technique being used to analyze the data was using Liliefors test.

RESULTS AND DISCUSSION

Table. 1 Tests of Normality

	Teaching Method	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Students performance	CBI	,181	10	,200*	,924	10	,391
	Conventional	,230	10	,145	,934	10	,491

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The table showed the result of normality test on aerobics instructor performance based on the teaching method. According to the normality test using Kolmogorov-Smirnov the significance score for aerobics instructor taught using CBI method was $0,200 > 0,05$ and according to Shapiro-Wilk test the significance score was $0,391 > 0,05$. On the other hand, in the conventional teaching method, the students' performance according to normality test of Kolmogorov-Smirnov the significance score was $0,145 > 0,05$ and according to normality test of Shapiro-Wilk the significance score was $0,491 > 0,05$. Because all have the significance score $> 0,05$ those that can be concluded that the students' performance data according to the teaching method has a normal distribution.

Table 2. Levene's Test of Equality of Error Variances^a

Dependent Variable: Performance as Aerobic instructor

F	df1	df2	Sig.
1,861	3	16	,177

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Design: Intercept + Method + ability + Method * ability

The above table was the homogeneity variance test using Levene's Test method. The significance score was 0,177 > 0,05 there could be concluded that the Varian data group were homogen.

Table 3. Tests of Between-Subjects Effects

Dependent Variable: Performance as Aerobic instructor

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	194,200 ^a	3	64,733	4,021	,026
Intercept	21912,200	1	21912,200	1361,006	,000
Method	168,200	1	168,200	10,447	,005
Ability	24,200	1	24,200	1,503	,238
Method*Ability	1,800	1	1,800	,112	,742
Error	257,600	16	16,100		
Total	22364,000	20			
Corrected Total	451,800	19			

a. R Squared = ,430 (Adjusted R Squared = ,323)

a. Students performance based on Learning Method

- Hypothesis

Ho : There are no differences between CBI method and conventional method to the students' performance as aerobics instructor in English

H1 : There are no differences between CBI method and conventional method to the students' performance as aerobics instructor in English

- Testing Criteria

Significance score > 0,05, therefore Ho is accepted

Significance score < 0,05, therefore H1 is rejected

- Conclusion

The significance score in teaching learning method is 0,005 < 0,05, therefore H1 is accepted. There that can be concluded that there is difference between CBI method and conventional method to the performance of aerobics instructor in English.

The result showed that there is difference between CBI method and conventional method to the performance of aerobics instructor in English. Overall the performance of the students who are being taught using CBI is higher than those being taught using conventional method.

Teaching of the content knowledge in English has been proven to be effectively increasing the students' ability either in the content knowledge or in English subject. This is linear to Stoller who argued that CBI priorities the students need in term of subject knowledge and language. (Stoller, 2004). Teaching English using material that are related to the content knowledge will better prepare the students in their academic field, because the academic material they have learnt in their subject

are also discussed in English subject. Therefore the students got the language theory and bring their theories into practice in their subjects. In line with the previous research that argues that merging language into subject knowledge could help increase both performances. (Demirdirek, 2010; Huang, 2011; Stoller, 2004; Song, 2006), In this case teaching aerobic based on CBI method were increasing the students performance as aerobics instructor as well as their language performance.

Language roles as instructional media in CBI, expose to the language were also emphasized in class. The lecturers in CBI should be those who are competent in subject knowledge as well as in English subject. (Swan & Johnson, 1997). Here, the language roles as the media of learning, therefore the basic language skill of students do not influence their performances since the CBI focus to the content and language related to the content. In this case, CBI will help the students to improve the language as well as the content in the same time.

CONCLUSION AND SUGGESTION

There are significant differences between CBI method and conventional method to the students' performance in Aerobic English. Students that are being taught using CBI method have higher performance compare to those being taught using conventional method.

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CONSTRUCTING PSYCHOLOGICAL TRAINING FOR INDIVIDUAL 100M SPRINTER**Miftakhul Jannah¹, Najlatun Naqiyah², Rachman Widohardhono³**

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Abstract

In addition of physical factors, techniques, and tactics, psychological factors also have contributed to the performance of athletes, included individual 100m sprinter. Therefore it takes mental exercises for athletes to have an adequate psychological skills. However, not all types of mental training suitable to be applied to athletes of all sports. The differences that exist in every number of sport make mental training required is different. This research was conducted with the aim to develop psychological skills training appropriate to the needs of the individual 100m sprinter. Participants of this study are 23 (Female=13, Male=10) whole of sprinter who are members of East Java Track and Field Training Centre. Training needs analysis in the form of interviews and observations carried out so that the needs of research subjects can be known and hereafter devised modules appropriate psychological skills training. Based on the results of training needs analysis, it is known that the individual 100m sprinter takes practice management three psychological skills: (1) managing anxiety, (2) regulation of emotion, and (3) the concentration. Therefore, psychological skills training given to individual 100m sprinter to improve their psychological skills.

Keywords: psychological skills training, performance, sprinter

INTRODUCTION

100m sprinter is one of a number of prestigious competitions in athletics. The world record holder for the fastest time in the race number is even dubbed as the fastest man (Locatelli, 2011). But the sprinter Indonesia achievement from year to year decreases. Indonesia recorded the best performance for individual 100m sprint is to qualify for the semi-finals at the 1988 Olympics (Mora, 2016). Ironically, at the 2004 Olympics sprinter Indonesia who occupy key positions in the first round and failed to qualify for the semi-finals (Kompas.com, 2012), it records the time into a new national record (Pradono, 2004). Therefore, the need for comprehensive training for sprinter Indonesia, particularly in the individual 100m race number, to improve performance.

Malisoux, Francaux, Nielens, and Theisen (2006) explains that there are four factors that affect the performance of sprinter: physical, technical, tactical, and psychological. So theoretically, it can be said that the athlete's readiness in four of these factors are more likely to show the best performance than less prepared. Therefore, development of these four factors should be equally given to athletes. But compared to the other three factors, the role of psychological factors on the performance of athletes are often overlooked (Bali, 2015). Coaches sometimes more focus on preparing for the physical factors, techniques, and tactics athletes forget about the importance of care and preparation of the psychological state of the athlete. Though the victory or defeat of athletes in high-level competition is determined by psychological factors, especially when the participants have the physical ability, technique and tactics are not much different (Malisoux, et al., 2006). Similar delivered by Lesyk (2007) that in addition to ready physically and master the

techniques, psychological skills that qualified are also required by the athlete to be able to achieve optimal performance.

Mental exercise needs to be given to the athlete to be able to manage and prepare the psychological condition, especially before and during the competition. However, not all types of mental exercises suitable for athletes of all sports (Sport New Zealand [SNZ], 2007). The differences that exist in the sports branches make mental exercise is given, too, is different, depending on the needs of athletes. Mental exercise that is appropriate for individual 100m sprinter certainly have differences with athletes from other sports. Compared provide only one type of mental exercise, a series of mental exercises systematically arranged more effectively to improve the performance of athletes. This is because of the psychological skills needed athletes diverse and more efficiently deliver a package of mental exercise called psychological skills training (PST). Stuart (2010) defines the PST as a series of exercises conducted to develop psychological skills needed by athletes to be able to show the best performance. Here the function of the PST is to prepare the athlete's mental state (Figone in Freitas, Dias, & Fonseca, 2013).

As well as the provision of mental exercise in the conventional (a type of mental exercise for one type of psychological skills), PST also can not be applied in general. PST should be drafted specifically based on the needs of athletes in each type of sport (Freitas et al., 2013). An analysis of the psychological skills that need to be improved in athletes where the results of its analysis serves as a guide the preparation of the appropriate PST (Vealey, 2007). Similarly to prepare timely and appropriate PST for individual 100m runner is required analysis of the psychological skills needed by athletes.

Based on the above explanation, the study has two objectives. First, analyze the needs of psychological skills 100m individual sprinter. Second, based on the analysis developed appropriate Psychological Skill Training (PST).

METHOD

Participants

Participants of this study are 23 sprinter, whole individuals 100m sprinter (Female=13, Male=10) who are members of the East Java Training Training Centre.

Procedure

This research is a development as it aims to devise or construct module of Psychological Skill Training appropriate for individual 100m sprinter. Broadly speaking, there are two main activities in this study. The first is an analysis of the need for mental exercise that right or so-called training needs analysis. The second is to develop module of PST based on the training needs analysis has been done.

a. Training needs analysis

Training needs analysis is an early stage before making the appropriate PST module. This stage determines the type of PST is needed by athletes. Not only the athletes, the coaches are also involved in this phase in order to further validate the data that has been collected. Interview and observation are two methods used to collect the data in a training needs analysis. In addition, data documentation is also used as additional data. Data documentation in question is the athlete's performance record including the log book owned.

b. Create module of Psychological Skills Training

Based on data from training needs analysis and comparing literature to create PST appropriate module. Once the module is ready, do due diligence and testing to find out the advantages and disadvantages. Based on the results of these trials, repaired PST modules in order to obtain the proper PST modules for individual 100m sprinter.

RESULTS AND DISCUSSION

The analysis is based on observation, interview, and documentation found that mental training is given to participants is conventional in which there is no structured mental exercises and programmed such as physical exercise, techniques, and tactics. This makes mental exercise given the often biased and mixed with exercises for three other factors (physical, technical and tactical).

In addition, the data training needs analysis found there were three types of psychological skills that most affect individual 100m sprinter. The first is to manage anxiety. The second is to manage emotions. The third is the concentration.

PST is based on the results of the training needs analysis. The literature study was also conducted additional data in the preparation of whole PST. After the draft modules PST are completed, tested the feasibility of the model development products through expert assessment (expert judgment) of 3 people. The PST Draft module passes the eligibility test conducted trials. After the draft module is fixed according to the results of testing, then performed the application of PST to research participants. The result of the application of PST known through interview to participants. All the participants expressed that they feel more relaxed and feel comfortable after doing PST. The coaches were also involved in this study stated that

“..... with this I felt helped, because before I just prayed together to reduce anxiety, athletes have to wait to be unaffected opponent in the field, and focus on the task of its own motion. I feel the need for this training as well have an impact on the psychological development of the athlete.”(Coach X)

Training needs analysis is conducted in this study found that there are three types of psychological skills needed by the individual 100m sprinter. The psychological skills are the ability to manage anxiety, managing emotions or emotion regulation, and concentration. These results are consistent with Edwards (2007), Heil and Zealand (2001), Freitas, et al. (2013), and Jannah (2014) that the management of anxiety, emotion regulation, and concentration has contributed to the success of the performance of athletes.

Anxiety is an unpleasant feeling caused by the situation which is considered threatening (Jannah, 2016). Existing pressure from the surrounding area to have the best performance can make a sprinter 100 m individual experiencing anxiety. This condition can degrade the performance of sprinters, especially during the game because it was difficult to concentrate (Potgieter in Edwards, 2007).

Concentration is an important capability that must be owned by an individual 100m sprinter. Fannin (2005) defines concentration as the ability to concentrate psychologically and physically to generate energy to be able to do something. The importance of concentration in the 100m individual sprint seen from the stage start-athletes. At the start, the athlete needs to respond on cue start as quickly and accurately as possible. The response should be appropriate to sprinter movement correctly footstool, and should quickly be able to reach the finish line as fast as possible without

going off track a predetermined trajectory. The more quickly reach the finish line, the better the achievement of a sprinter. Without a good concentration, sprinter can miss important moments of the stage start to affect the overall performance until the finish line.

In addition to managing anxiety and concentration, sprinter 100m individual must also have a good emotion regulation anyway. Deaner and Silva (2007) and Orlick (2000) explains that the ability to regulate emotions affect the performance of sprinter. Gross and Thompson (2007) and Richards and Gross (2000) defines as an emotion regulation strategy undertaken by someone either consciously or unconsciously to manage positive and negative emotions felt. In the 100m individual sprinter, emotion regulation in the form of reducing negative emotions and increase positive emotions (Jannah, 2014).

The ability to regulate emotions are important for individual 100m sprinters because they are required to feel relaxed so that all movements in accordance with orders that do not make a mistake at the start. Demands feel relaxed is because in the 100m individual sprint, when sprinter raced on the track, they must do it with all the strength but the movement itself must be loosened in which the tip-toe to the heel tread and only slightly touch the ground at the beginning of repulsion. When running, sprinter also have to breathe with the tempo as usual, because the breath hold will flex which would interfere with the movement of fleeing (LA84 Foundation, 2008). Here, the role of emotion regulation to make the muscles are not tense, so that the athlete is able to exert energy to run with ease but optimal.

Training needs analysis is required in our attempt to PST proper for individual 100m sprinter. This is because the PST should be prepared in accordance with the needs of athletes (SNZ, 2007; Freitas, et al., 2013; Vealey, 2007). Training needs analysis is used to determine the skills required psychological and mental exercises such as what is appropriate to apply.

PST was developed based on the results of training needs analysis and study of literature. The results of training needs analysis conducted found that there is no mental training is given in a structured and programmed to the participants. This is in accordance with the Bali (2015) which states that the often forgotten role of psychological factors on the performance of athletes. Research conducted by Freitas et al. (2013) found that the majority of the coaches being less attention to the readiness of the participants' psychological factors in athletes.

The lack of attention to the readiness of the athletes its means psychological factors may occur due to lack of knowledge and expertise in the mental training coach itself. Statement coach that he had been mentally preparing athletes care with "just prayed together to reduce anxiety, telling athletes to wait to be unaffected opponent in the field, and focus on the task motion itself" shows a lack of knowledge about mental exercises are structured and programmed it was like. Coaches who pay attention to the mental preparation of athletes-athletes often provide interventions based on his experience as a coach and at the time of an athlete, and not based on a proper scientific basis (Freitas et al., 2013). Freitas, et al. (2013) states that it is a proof of coaches lack the knowledge to mental exercise according to the rules of science.

Therefore, the PST in this study include the three psychological skills for individual 100m runners based on the training needs analysis, namely (1) managing anxiety, (2) regulation of emotion, and (3) the concentration. PST practiced in synergy with the physical exercise that a sprinter can associate the results of the PST with physical movements performed. This is in accordance with the opinion of Heil and Zealand (2001) that the psychological skills should be

integrated with the physical skills of athletes because it is the first step to practice the psychological skills with specific movements in the performance of athletes.

PST success in improving the athlete's performance can only be viewed by practicing constantly and continuously (Heil & Zealand, 2001). This research aims to develop PST only appropriate and proper for individual 100m sprinter. More research is needed and long-term effectiveness is more depth to determine in improving performance by up to individual 100m sprinter.

CONCLUSION AND SUGGESTION

Training needs analysis conducted in this study found that there are three types of psychological skills needed by the individual 100m sprinter. The psychological skills are the ability to manage anxiety, managing emotions or emotion regulation, and concentration. Improving the athlete's performance can only be viewed by practicing constantly and continuously beside physical, techniques, and tactics.

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