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Cooperative learning jigsaw and student achievement division teams results of hang style long jump

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Abstract
This research is a field experiment because it is done in a real situation, the two variables is given to the treatment of existing conditions through a training program systematically arranged. This study using pretest and posttest design. The subject of 34 students. From the analysis of the data obtained from the value Tarithmetic jigsaw 5,454 and 7,587 STAD Tarithmetic with Ttabel df = 13 degrees of freedom and a 0.05 earned Ttabel 1,771 so it can be concluded that Jigsaw =5,454 > 1.771 and STAD = 7,587> 1.771. From the analysis of the differences obtained -0,651 with df = 30 degrees of freedom and a 0.05 earned Ttabel 1.6973, we can conclude -0,651 <1.6973

Keywords: Cooperative learning, jigsaw, STAD, long jump style dangling

Introduction

In the sports world is known for many sports, including athletics, games, gymnastics, and martial arts. Of athletic sports have an important role because of the basic movements of other sports. Athletics consisting only of roads, running, jumping, and throwing can be said to be the same old sport as the world's first human era. This is perfect because humans today have to walk, run, jump, and throw to sustain life. Roads, jogging, jumping and throwing are forms of movement that are priceless to humans. This is very different from the development of modern athletics which is taken care of by Utilizing science and technology. Exercise is a body exercise that gives effect to the body as a whole. Exercise helps strengthen muscles and other body parts to move. Sports is a systematic process which is an activity or activity that can encourage, develop, and maintain the physical and spiritual potential of an individual as a member of society in the form of games, races, and intensive physical activity to gain recreation, victory and peak performance in the context of the formation of the Indonesian man Quality based Pancasila. Sport for the needs of people who are sporty, honest and healthy. Not to give birth to a citizen who brings, sadistic, brutal not to create a means of business spekualan, gambler. In physical education at the school one of the athletic athletic majors. Schools are still active in activities that are often provided to students. Under no circumstances, the school can arrange the physical education learning activities with the subject of athletic discussion. Of course teachers must have motivation and enthusiasm for this athletic learning does not interest students.

Materials and methods

The long jump is one of the most popular and most contested athletic sports numbers in the world class, including the Olympics. The long jump is a movement to jump over the peak in an effort to carry the weight as long as possible in the air that is being done quickly and the path of repulsion on one leg to get as far as possible. This Jigsaw learning model is also known as a cooperative expert. Because members of each group are faced with different problems. One thing is the same, we call a team of experts who are discussing the ongoing problem, then the results of discussion under the group (Rusman, 2012: 219) [10]. Slavin (in al-Tabany, 2014: 118) [1] states that STAD students are placed in a 4-5 member learning team that is a mixture of achievement, gender and ethnicity.
Cooperative Learning Model STAD is a Cooperative Learning approach that emphasizes the activities and interactions between students to motivate each other and help each other in

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achieving the material that can achieve maximum performance. Teachers using STAD present new academic information to students each week using verbal or text presentations. Because in teaching many teachers who do not understand about cooperative learning. Based on observations made by researchers in SMP Negeri 51 Palembang built teachers who have implemented various learning models, will disrupt the teacher does not know what learning model they apply to learners. Therefore, the variation of the teaching model by the teacher so uneven the lesson becomes material.

The influence of the learning model will be felt by the students themselves, and their ability to learn the material according to the way the teacher teaches and the students' desire to receive the material. When teachers teach in the usual way then the long jump material is the style that is appropriate for the standard by the learners. From the observations made the researchers also saw that the lack of knowledge of students with the style that existed in long jump like hanging style, students prefer the distance leap only and do not make moves in accordance with what is taught. Based on the description, the researcher will research about "The Influence of Cooperative Learning Jigsaw And Student Teams Achievement Division To The Longest Dista Distance Style Of Hanging'.

Learning is modifying or reinforcing behavior with experience. Understanding this, learning is a process, an activity and not a result or goal. Learning is not just a remember, it will be more extensive than that, is experiencing. The learning outcome of a culture mastery of the results of the practice of managing the change of behavior (Hamalik, 2001: 27) [4]. According to Winkel, Learning is all mental activity or psychic that takes place in an active interaction within the environment, resulting in changes in the management of understanding. According to Ernest R. Hilgard in (Haryanto: 2010) learning is a deliberate process, which then leads to change, which is different from the changes caused by others. While Understanding Learning by Gagne in his book Learning Conditions in (Haryanto: 2010) is a change that is shown in the change of behavior, which is different from before the individual is in a learning situation and making love A similar action It's a change due to an experience or a workout. In contrast to changes are also the result of reflexes or behavior that is very instinctive.

According to Khomsin (2011: 2) [6], Athletics is a physical activity or physical exercise, containing natural movements such as roads, running, jumping, and throwing. This word is derived from the Greek "athlon" meaning "contest". Athletics at that time was closely related to the race in Greece which experienced its golden age between 500 and 400 BC. In the 12th century BC, athletics was still unknown to the public, but entering the 18th century began to form various athletic associations in England, as well as the beginning of the resumption of the athletic race. Even after the United States set up an athletic society in 1860 at Sun Fransisco the more vibrant athletic activities in the world, so it could be incorporated into modern Olympiads (Suherman *et al.*, In Widodo, 2013: 2) [17].

The term "athletic" is derived from the word (Athleliek-Dutch; leicht-athletic-German; Track and Field-English and American), is one of the sports that consists of street numbers, running, throwing and jumping. From distance traveled can be distinguished into short spirint (spirint), medium distance (midle distance), and long distance (long distance or marathon). When viewed from the number of perpetrators run can be grouped into individual run and run team. When viewed from the field used can be grouped into hurdles, run 3000 meters steeple chase, run relay, and cross country run (Khomsin, 2011: 3) [6].

The jumping number consists of long jump, jump jump, high jump, high pole jump. The throwing number consists of a javelin, discus throw, shot shot, and hammer lontar. As for the fast road number consists of a 10km fast road princess, 20km son and Daughter as well as 50km special for son.

High jumps, long jumps, and jump jumps are quite related in the introduction and the introductory activity is very similar. However, these numbers require different regulatory values, it is much easier to keep large numbers of groups active in long jumps and jumps than high jumps. Pole high jumps require gymnastic skills and of course courage. Due to the specific physical demands, high jump vaults are usually taught as a place activity for a select group. The high jump is one of the numbers in the athletics, by jumping with one leg aimed at passing the prescribed rule, the athlete is said to have passed the rule, if the ruler does not fall by the athlete (Khomsin, 2008: 77) [7].

When you want to jump high there are some techniques to watch out for, there are 4 stages of position you should know before doing the long jump technique:

The Prefix position is with the movement running towards the ruler.

1. Position Preparation is with the footstool movement on the ground floor to raise the body towards the ruler.
2. Floating Position is the style when the position of the body is above the rule or in the air.
3. The Landing Position is the Fall of the body while on the mat.

The long jump is one of the offshoots of athletic sports. This sport is a game that uses the feet and then jumps as far as possible and the median on the sand surface.

The purpose of the long jump number is to get a leap as far as possible. To get a great leap, it takes a basic technique of mastery that consists of four kinds, namely prefix, repulsion, drift, and how to land (Wahyuni dkk, 2010: 56) [16]. Jump jump is a complex skill, involving the coordination of the prefix velocity with some repulsion and landing. The three types of movements that are inserted are in the form of tip (hop), step (step) and jump (jump). The technique he did was to heal on a strong leg (left) or (right) to tiptoe, after the foot of the foothills landed followed by the other foot stepped forward and with the stepping legs also jumping movement done and finally landed in a second sandbox Foot (Khomsin, 2008: 55) [7].

A high jump gaff is a leap done with the help of a pole to achieve the highest jumping goal. Although this athletic branch is not particularly well known, the gala jump has a special difficulty level. When the jump technique is wrong, the gala used may affect the athlete's body Can cause serious injury.Gala which has a length of 4-5 meters made of fiberglass, formerly made of bamboo. Each jumper has three occasions to get past the ruler which is raised 8-15 cm. When the third jump fails, the jumper is disqualified. Over the last few years, long jump has become the number frequented by sprinters as a variation of sprints. Now athletes specialize in long jumps, although it is still common for sinterers to be good jumpers and vice versa (Hartati 2000: 59) [5].

In the long jump technique, we are focused on the best possible use of the prefix, repulsion, drift in the air and landings. Long jump has four phases of movement, namely prefix, repulsion, float and landing and there are three kinds

of styles that distinguish between one style with another style when flying in the air. In this study the researcher took a jump style technique from 3 existing styles that is style hanging style long jump (Hang style or Schnepper).

Here the jumper, after a movement refuses to straighten his body in a floating stage. Once the free legs are swung all down, the leg is lowered and moved backward. This at the same time the foot rejects and immediately the two feet follow the next body straightened with both hands gained. The inertia about the lateral axis of momentum is raised and some forward turnover is increased upon reject, the next being slowly lowered. When movement over air is entirely and both legs are in the fore to land, the natural body rotation is preferred at the time of repulsion will open again by itself

a. Prefix
The technique prefix style hang like take the distance square, run fast, when approaching the start line running speed must remain stable.

b. Please
Hanging style repulsive techniques such as using one of the strongest legs as the main pedestal, the initial stage is located on the heel and ends with the tip of the sole of the foot, the position of the rear leg should be styled from belakng forward along with both hands.

c. Floating
Positioning technique when in air style Hanging like the position of both hands is on the side of the ear in a straight state, the back legs are tightened with Front legs, chest puffed forward, body and knee when the air should be pushed forward.

d. Landed
The technique of landing the hanging force as the position of both knees is straightened to the front, both hands should be pushed forward, when it is approaching the landing site, the position of the foot must be in front, the initial pedestal landing is the heel of the foot, when both feet have been in the sand, Slightly bent and In weakness (pinched).

Cooperative Learning
Cooperative learning is a learning strategy that involves the participation of students in a small group to interact with each other (Nurulhayati in Rusman, 2012: 203) [10]. According to Slavin (Rusman, 2012: 201) [10], cooperative learning encourages students to interact actively and positively in groups, (Teti Sobari in Rurman, 2012: 201), the theory underlying cooperative learning is the theory of constructivism. Basically constructivism theory in learning is an approach where students must individually find and transform complex information, check information with existing rules and revise them when necessary.

In a cooperative learning system, students learn to work with other members. In this model students have two responsibilities, ie they learn for themselves and help their fellow group members to learn. There are several different types of models in cooperative learning, although the basic principles of cooperative learning are not changed, the types of models are as follows: Student Teams Achievement Division (STAD), Group Investigation, Think-Piar-Share (TPS), Expert Team (Jigsaw).

Jigsaw
Jigsaw type cooperative learning is a type of cooperative learning that consists of several members within a group responsible for mastery of the learning materials section and able to teach that part to other members of the group. These students working together to complete cooperative tasks in studying and becoming an expert in the sub-section of his section, planning how to teach his sub-section to his original group members.

Jigsaw model of cooperative learning model is a cooperative learning model that focuses on small group work of students (Rusman, 2012: 218) [10]. As expressed by Lie (Rusman, 2012: 218) [10], that "cooperative learning model Jigsaw is a cooperative learning model By means of students studying in small groups of four to six people heterogeneously and students working together positive and responsible interdependence independently ". From the above study it can be concluded that the jigsaw cooperative learning model is one of the group learning model that uses the expert team to be responsible for understanding the topic discussed and then explain it again to the group. The steps are as follows: students are grouped with members of ± 4 persons, each person on the team is given different materials and tasks, members of different teams with the same assignment form a new group (expert group), after expert group discuss, each member Go back to the original group and explain to the group members about the sub-section they are mastering, each expert team presents the results of discussion, discussion, closing.

Student Teams Achievement Division (STAD)
STAD type cooperative learning method is one type of cooperative learning model by using small groups with the number of members of each group of 4 to 5 students. It is started with the delivery of learning objectives, delivery of materials, group activities, quizzes and group awards (Tabany 2014: 118) [1]. STAD model cooperative learning steps of delivery of goals and motivation, group division, percentage of teachers, team learning activities (Teamwork), evaluation, team achievement awards.

Weaknesses and Pros
When compared with traditional learning methods, cooperative learning model has advantages and disadvantages.
Jigsaw has several advantages:
a. Facilitate the work of teachers in teaching, because there is already a group of experts assigned to explain the material to his colleagues.
b. Equitable mastery of material can be achieved in a shorter time.
c. This learning method can train students to be more active in speaking and opinion.
d. Weak students can be helpful in solving problems, applying peer guidance, higher student self-esteem and improving attendance.

The description of the advantages of the STAD model is:
a. Each student has the opportunity to contribute substantially to his group.
b. Promote interaction actively and positively and team members' cooperation for the better.
c. Helps students to gain more cross-racial friendships.
d. Train students in developing aspects of social skills in addition to cognitive skills.

However, sometimes at a certain point of view, the steps of the model do not close the possibility of opening a weakness, as described below:

Jigsaw has its weaknesses
a. Active students will dominate the discussion more, and tend to control the course of the discussion. To anticipate this problem the teacher should really pay attention to the discussion. Teachers should emphasize that group members listen first to explanations from experts. Then just ask the question if you do not understand.
b. Smart students tend to feel bored.
c. Students who are not accustomed to compete will find it difficult to follow the learning process.
d. To anticipate this the teacher must be good at creating an exciting classroom atmosphere so that the intelligent students are challenged to follow the course of the discussion.

STAD has disadvantages as below
a. Based on the characteristics of STAD when compared to conventional learning (which is only the presentation of the material from the teacher), learning using this model takes a relatively long time, taking into account three time-consuming STAD steps such as presentation of material from teachers, group work and individual tests / quizzes. The use of longer time can be minimized by providing student activity sheets (LKS) so that students can work effectively and efficiently. While the formation of groups and the arrangement of classrooms according to existing groups can be done before the learning activities implemented. Thus, in the learning activity there is no time wasted for group formation and spatial planning.

This model requires special skills from the teacher. Teachers are required as facilitators, mediators, motivators and evaluators. Assuming that not all teachers are able to be good facilitators, mediators, motivators and evaluators. Solutions that can be run is to improve the quality of teachers by the government such as conducting compulsory academic activities and does not charge the teacher and perform routine monitoring in insindental

Types of Research
The type of research used in this study is the type of experimental research with the design (quantitative). In experimental research there is treatment (treatment). Thus the method of experimental research can be interpreted as a research method used to find the effect of certain treatment against others in a constrained condition (Sugiyono, 2011: 107) [12].

Research Design
This study aims to determine the effect of Jigsaw and STAD type cooperative learning model on the long jump style that uses the pretest-posttest control group desaign. In this design there are two groups chosen at random, then given pretest to know the initial state is there any difference between the experimental group and the control group (Sugiyono, 2014: 76) [15].

Population and Sample
According to (Sugiyono, 2012: 80) [14] population is a generalization region consisting of: objects / subjects that have certain qualities and characteristics set by the researchers to be studied and then drawn conclusions. So the population is also not just the amount that is on the object or subject that is studied, but includes all the characteristics or properties possessed by the subject or object. The population of this study is all students of class VIII State Junior High School 51 Palembang. According to (Sugiyono, 2012: 81) [14] the sample is part of the number and characteristics possessed by the population. The samples taken can be representative or representative for the population. Samples can be used between 10%, 15%, 20%, 25%, 50%, 75%, and 100%. The sample used by researchers is 10% of the total population of students of SMP Negeri 51 Palembang class VIII taken from the school randomly.

Sampling Techniques
Sampling technique in this research is Cluster Random Sampling. Randomly selected 34 (thirty four) students of the sons and daughters of the total population to be used as samples, so obtained a sample consisting of 17 (seventeen) divided into experimental group 1 (One) with jigsaw type and 17 (seventeen) Divided into experimental group 2 (two) 1 with STAD type divided by ordinal pairing technique

Data Collection Techniques
Data collection techniques used in this study using distance. Implementation of long jump style of hanging is done after the end of the subject. The material used to evaluate the long jump style results hung in this study for the experimental group, ie performing the test (jump spacing), how far the jump took and doing with the correct technique.

Research Procedures
Things to do before the research:
1. Prepare and take care of permission to do research
2. Contacting teachers who play a role in this research
3. Prepare auxiliary staff during the research and when taking data
4. Preparing facilities and infrastructure needed in data collection include: whistle, stationery to record how the results of long jump style hanging, meter, trajectory, sandbox and subject.
5. Conducting tests on the variables studied through long jump style hanging.

The steps of data collection techniques research are as follows:
1. Pretest is by giving the first test and give instructions to avoid mistakes in doing the initial test. In this test the student will do a long jump style hanging.
2. Treatment is to provide treatment in the form of application of cooperative learning model Jigsaw and STAD for 2 weeks a week 12 times the exercise as proposed by Bompa (Mylsidayu and Kurniawan, 2015: 50) the increase in exercise occurs within 2-6 weeks but usually 4 weeks (1 month). The thing to note is the increase in exercise when exercising

Done at least 3x a week, and maximum 12-14x in a week (one day 2 session).
1. Posttest is the implementation of the final test after getting treatment for 4 weeks, the final test is done by students doing long jump style hanging

Research Instruments

Research instruments are tools or facilities used by researchers in collecting data to make their work easier and the results are better, in a more thorough, complete, and systematic meaning easier to process (Arikunto, 2010: 203) [2]. In this study using the initial test and the final test then used T test.

Test Instrument

To measure the presence or absence and magnitude of the ability of the object under study, used the test (Arikunto, 2013: 266) [3]. The test method to be used aims to measure the ability of learners in the form of learning results long jump style hanging, so that the test will be implemented in the form of practice tests.

In the execution of this research, the test instrument used is the long jump test. The long jump test aims to measure the ability or skill skill in the students by using a gauge of jump distance.

Sempel stands behind the starting line, then prepares to sprint, after the signal comes running as fast as it goes to the jumping tub, then before reaching the boundary of the sempel jump must jump by using the hanging style jump, then sempel to land perfectly.

Normality Test

Normality test is done to test the normality of data, then in need of frequency distribution list to determine the average mode and defiation standard with the steps as follows:

Compile data in the frequency distribution table.

a. Range = Largest Data - Smallest Data.
b. Multiple Class = 1 + 3.3 log n (n = number of data)
c. According to (Sudjana, 2005: 47) [12] to find the length of the interval class (P) by the formula:

$$P = \frac{\text{Many Clases}}{\text{Range}}$$

d. According to (Sudjana, 2005: 70) [12] for data that has been compiled in the frequency distribution list, the average is calculated by the formula:
e. According to (Sudjana, 2005: 70) [12] for data that has been compiled in the frequency distribution list, the average is calculated by the formula:

$$\bar{x} = \frac{\sum f_i \ X_i}{X_i}$$

f. According to (Sudjana, 2005: 77) [12] if quantitative data has been compiled in the frequency distribution data, the mode can be determined by the formula:

$$Mo = b + p \left[\frac{b_1}{b_1 + b_2} \right]$$

Mo: Mode
B: The boundary of the capital class region, the interval class with the most frequencies
B1: The frequency of the capital class is minus the smaller class
B2: The frequency of the capital class is subtracted from the larger class
P: Class length

g. According to (Sudjana, 2005: 95) if the data from the sample has been compiled in the frequency distribution list, then to determine the varian s2 used the formula:

$$s^2 = \frac{\left(n\sum f_i \cdot x_i^2 - (\sum f_i x_i)^2 \right)}{n_1(n_1 - 1)}$$

Information :
N: Average grade of class test
Xi: Interval class marks
Fi: Frequency corresponds to the class mark
N1: Number of data
S2: standard savings

h. According to (Sudjana, 2005: 109) to know the degree of a model's textimetry, a slope size is determined by:

$$Km = \frac{\bar{X} - Mo}{s}$$

Information:
Km: The slope of the curve
X: Average
Mo: Mode
S: Standard deviation
Based on the calculation of normality using SPSS series 16.0.

Homogeneity Test

Sample test in this research using Bartlett test (Sudjana, 2005: 262-263) [12] using the following steps:

1. Find the combined variations by using the formula:

$$s^2 \left[\frac{\sum (n1 - 1)S1^2}{\sum (n1 - 1)} \right]$$

1. Find unit price B by using the formula:
B = (log S2) f (n1-1)
2. The Bartlett test uses the formula:
$X^2 = (In10)\{B-\sum(n1-1)\log S1^2\}$
With In 10 = 2.3026 is called the original logarithm of number 10. To calculate S2, B, X2 can use the table as follows:

Homogeneity Test Using Bartlett Tests

Sampel	Degree of Freedom	1/dk	S_1^2	Log S_1^2	(dk) Log S_1^2
1	(n_1-1)	$1/(n_1-1)$	S_1^2	Log S_1^2	(n_1-1) Log S_1^2
2	(n_2-1)	$1/(n_2-1)$	S_2^2	Log S_2^2	(n_2-1) Log S_2^2
	$\sum(n_1-1)$	$\sum 1/(n_1-1)$	-	-	$\sum(n_1-1)$ Log S_1^2

Based on the homogeneity calculation using Test of Homogeneity of Variances through SPSS series 16.0.

Hypothesis Testing

According to (Arikunto, 2013: 349-350) [3] to analyze, the results of experiments using pretest and posttest one group design, the hypothesis testing techniques in this study using t test (t-test) as follows:

$$t = \frac{Md}{\sqrt{\dfrac{\sum x^2 d}{N(N-1)}}}$$

$\sum x^2 d$ Can be obtained from

$$\sum x^2 d = \sum d^2 - \frac{(\sum d)^2}{N}$$

Information:
Md: Maen of the pretest and posttest differences
Xd: Deviation of each subject (d-Md)
Σx2d: Quadratic sum of deviations
N: Many subjects
Based on the results of hypothesis calculation using Paired Samples Test through SPSS series 16.0.

Results & Discussion

This study aims to determine the influence of cooperative learning jigsaw and STAD to the long jump style of hanging class VIII students SMP Negeri 51 Palembang. Through this exercise is expected to increase the distance leap and knowledge of students about the technique of long jump style hanging so that more motivate students to more diligent practice.

Exercises use two models of learning or two slightly different exercise models. This research has been done on 34 students in SMP Negeri 51 Palembang. Of 34 students were taken as a sample of research using random sampling technique. All samples perform pretest, then the result is randomized from the farthest to the closest. The sample is divided into two groups based on pretest ranking of 17 students as jigsaw group and 17 students as STAD group. Both groups were treated with an exercise program for 12 meetings from January 18, 2017 to January 30, 2017. After 12 meetings were conducted a posttest of two groups.

The result of pretest jigsaw is known that the students of SMP Negeri 51 Palembang the furthest jump is 3.68 m and the closest jump is 1.55 m, and the pretest jigsaw average is 2.83 whereas in the STAD group the furthest jump is 3.50m and the closest jump is 1.49m and the average pretest STAD is 2.82. After being given a long jump exercise the style of hanging for 12 meetings in the posttest can average jigsaw group value of 3.23 or increased 0.40, while posttest STAD group is 3.30 or an increase of 0.48. It is evident that the long jump style exercise hanging with the learning model gives a significant influence on the result of hanging style jump distance on the students of SMP Negeri 51 Palembang. In can t value for pretest and posttest jigsaw group is 5,454 While ttabel = 1.771 because 5.454> 1.771 then the hypothesis is stated there is a significant influence of jigsaw learning model to sport long jump style hanging.

In the t value can be calculated for pretest and posttest STAD group is 7,587 while ttable = 1.771 because 7,587> 1.771 then thus the hypothesis stated there is significant influence STAD learning model to sport long jump style hanging.

In can t value for posttest jigsaw and posttest STAD is-0,651 while ttable = 1,6973 because -0,651 <1,6973 hence thus stated there is difference of significant influence of jigsaw learning model with STAD to sport of long jump style hanging.

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