

Application of Web Engineering Method (Web E) At the School of Information Systems: Case Study E-learning Vocational High School Yadika Lubuklinggau

Rudi Kurniawan, Lin Yan Syah, Afriyudi

Bina Darma University
e-mail: rurudi_20@yahoo.com
e-mail: linyansyah@gmail.com
e-mail: babeyudi@mail.binadarma.ac.id

Abstract

In this thesis will be designed an e-learning system based website where web design analysis using Web Engineering Method. This system allows for the teaching and learning process through the internet as a learning center . The discussion is conducted in this thesis is how to optimize the design of e-learning system with methods WebML (Web Modeling Language). In conventional methods of learning activities in the classroom by using the manual media like chalk and blackboards began boring perceived by the students that were created an e- learning made for subjects included in the exercises. In e-learning will be built various facilities ie chat , forums , and may download material and tasks. E-learning school aims to assist in the learning of students in Vocational School Yadika Lubuklinggau. E-learning can help teachers to deliver the materials, assignments and can provide learning exercises for students.

Keywords : *Web Engineering, E-learning*

1 INTRODUCTION

Technology invented and developed for various purposes , among others, that human activity becomes easier, faster, tremendously effective, and efficient. One area of technology that is experiencing rapid and continuous development is the Information and Communication Technology (ICT). Some media ICT is widely used telephone / mobile phone, computer, TV, and radio . E-Learning can improve the efficiency and flexibility of learning. Due to the E - Learning, learning can be done anytime and anywhere as long as there is a media supporter of E-Learning. Learning-based E-learning can be combined with conventional learning. This means that there are specific proportion between E-learning and conventional learning. Learning Based E -learning can contribute to learning which tends to the maximum theoretical (cognitive nature). Learning that are emphasized in the affective and psychomotor less can be maximized with the E-Learning.

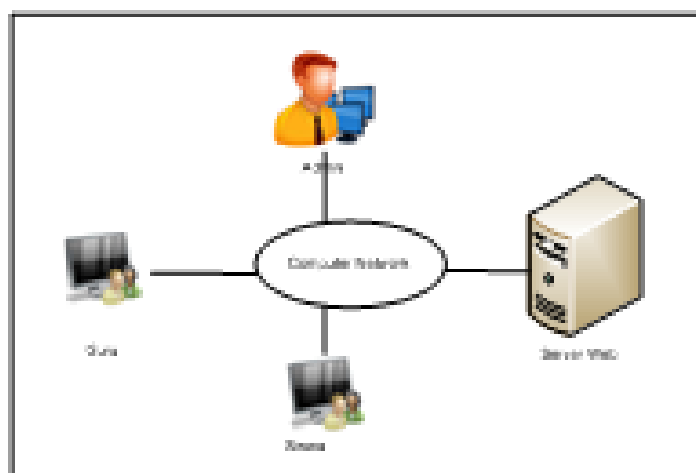


Figure 1: E-learning System

Vocational High School Yadika Lubuklinggau is a formal education institution under the auspices of the Foundation 's work Abdi engaged in education and health, vocational High School Yadika Lubuklinggau is one vocational Featured in City Lubuklinggau accredited A. so on this basis that the author wants to develop an Information System web-based learning school that is dynamic, flexible, and can be accessed anywhere that can provide ease and comfort to the students in improving the quality of vocational learners in Yadika Lubuklinggau.

Seeing the above conditions, the authors are interested to make improvements to the development of student learning by creating an online learning media that can be accessible to students and teachers. E-learning schools will be developed interactively and dynamically that can be updated again in accordance with the changing times. To realize that the author will conduct a study entitled " Application of Web Engineering Method (site E) In the School of Information Systems : A Case Study of E-learning vocational High School Yadika Lubuklinggau.

1.1 E-learning

Many experts will provide a definition of E-learning . According to Zhang Xiao Cong, et.al (2010:111), "E-learning is pedagogy empowered by digital technology". The opinion emphasized that e-learning empowered by digital technology. Aidin and Tasci provide a more specific sense, according to them, through e-learning, content/ learning materials and learning experiences can be sent or supplied by electronic technologies such as computers and computer networks. Meanwhile, according to Albert Sangra (2011), an e -learning management and learning activities using the internet, which uses new communication mechanisms learning resource wealth of information technology with the aim of acquiring new learning. However, the internet does not just rely on the internet as proposed Gilbert & Jones (2001). According to them, " ... The process of extending learning or delivery of learning materials to remote palces to the internet, audio, satellite, CD-Rom, etc" (Sangra, 2011). The opinion explains that the learning materials can be sent or provided through an internet media, audio, video,

satellite, CD-Rom, and others. Of the various definitions, we can conclude that e-learning is learning through the medium of ICT management, both in the form of computers and the Internet, radio, satellite, or television, or other forms of ICT media, with the aim of learning can be done anytime and anywhere.

1.2 Web Engineering

A web application is a software system based on the technology and standards of the World Wide Web Consortium (W3C) as the content and services through the web browser user interface. Web Engineering is the application of a systematic and quantitative approach (concepts, methods, techniques, tools) to cost effective needs analysis, design, implementation, testing, operation, and maintenance of web application quality (Kappel, 2004:7).

The stages in the engineering of web (Web Engineering), among others (Kappel: 2003) :

1. Requirement Modelling

Good communication with the user an effective means to make or translate what the user wants (requirements). One of the fundamental requirements modeling is planning.

2. Content Modelling

Provision of information by a web application one very important factor in the success of an application.

3. Hypertext Modelling

n contrast to the stages of content modeling, which uses diagrams E / R or class diagrams, special notation is used to construct a model of hypertext.

4. Presentation Modelling

Focus on design aesthetics, design a page view with a combination of colors, text, and images that match the content and purpose of the web application.

5. Customization Modelling

Customization Modelling addressed explicitly represent context information. In most cases, a model mix with customization of content, hypertext models, and presentations.

2 RESEARCH METHODOLOGY

2.1 Requirement Modelling

Of the proposed solutions for each problem, a new user interaction can be identified with a system based on user permissions. In this case the analysis is based on grouping user (user group) based on its function, respectively. Identification of the work and each user interaction is done with a modeling UML (Unified Modelling Language); Modeling of UML in this system using Use Case diagrams, Activity diagrams, and Sequence Diagrams.

Based on consultation and the identification of user needs to the principals, teachers, and students. Show in Figure 1.

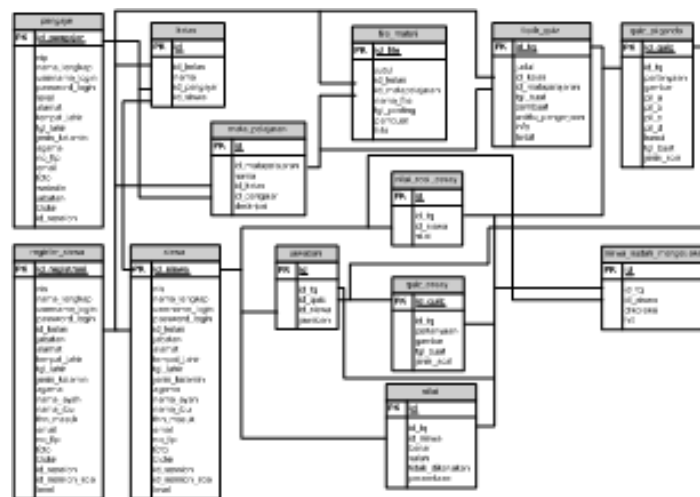


Figure 2: Relational Database for e-learning System

2.2 Content Modelling

1. Use case Diagram

A use case describes a sequence of interactions between one or more actors in the system. Actors on the e-learning system this is admin, teachers, and students.

2. Activity Diagram

Describes the functional analysis of the e-learning system using activity diagrams. The focus of activity Diagram to describe the flow of activities that are involved in a single process and show how activities are dependent on each other.

3. Sequence Diagram

sequence diagrams that describe the interactions between object in the vicinity and a message system which is described with respect to time.

4. Content Database

On this, the first modeling of web is designed to determine the content of the data from the web. Content data obtained from the relational database modeling. The Database system is designed has 14 main tables, among other things: admin, file_materi, answers, class, mata_pelajaran, value, nilai_soal_essay, lecturer, quiz_essay, quiz_pilganda, registrasi_siswa, students, siswa_sudah_mengerjakan, topic_quiz.

2.3 Hypertext Modelling

Focused on the look of a web page where there are hypertext linked to the contentnya page links.

Site view (site overlay) in hypertext design modelled into two sub-models, i.e. the model composition (Composition Model) and model navigation (Navigation Model). Show in Figure 3.

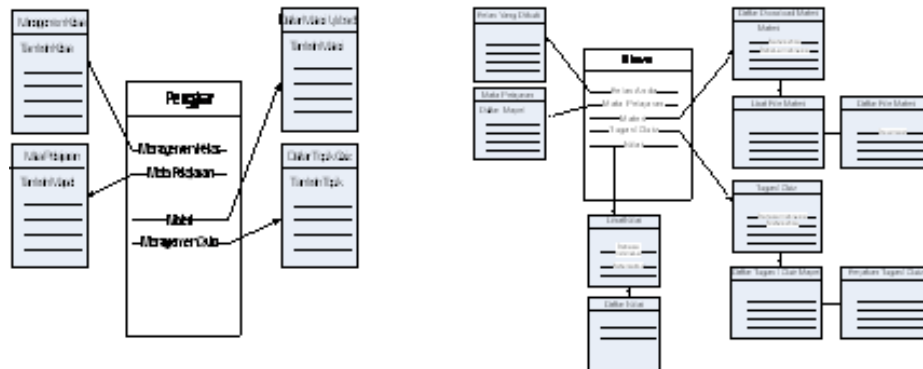


Figure 3: Navigation Model for Teacher, (b) Navigation for Student

2.4 Presentation Modelling

At this stage, the design of the website meet the form layout and graphics that are displayed in the form of pages. On the e-learning system, there are 3 user role, these include: Administrators, Teachers, and students. Show in Figure 4.

2.5 Costumization Design

At this stage, the design of the website meet the form layout and graphics that are displayed in the form of pages. On the e-learning system, there are 3 user role, these include: Administrators, faculty, and students. Each user role has a different task.

3 TESTING AND IMPLEMENTATION

3.1 System Implementation

The initial stages of the implementation of the system has been designed applicability. This implementation is intended to test whether the system runs as expected. The e-learning system is implemented on the localhost server multimedia computer labs at SMK Yadika Lubuklinggau.

3.2 System Testing

At this stage of testing is carried out with the blackbox testing. How to test by running e-learning and view its output has been in accordance with the expected results. Blackbox testing testing results served in multiple level admin, faculty, and students.

3.3 Delivery and Feedback

The handover and the response is done by means of a questionnaire to distribute user response form to get an assessment of each criterion as the evaluation results for the developer. The criteria are usually conducted usability, functionality, and reliability.



Figure 4: (a) Presentation model for Teacher, (b). Presentation model for Student

4 CONCLUSION

1. The E-learning system in SMK Yadika Lubuklinggau is useful as a means of supporting learning activities in the classroom. In this case the learning activities in the classroom remains a major thing. The e-learning system that can help teachers generated in conveying all material for lessons.
2. E-learning can be used as a supplement media online-based learning to help the learning process.
3. to get the e-learning system is good, the need for support from the various parties. At SMK Yadika Lubuklinggau, among others: the principal, vice principal areas of curriculum, Student Field School Deputy head, head of Department for individual departments, Board of teachers, as well as students.
4. E-learning Applications can manipulate materials as well as problems such as digitally from grade seven to nine classes according to the curriculum.
5. Application of e-learning has been providing on-site upload, download materials and discussion forum between teachers and pupils that can be accessed whenever and wherever.
6. Students can practise exam quis online.
7. E-learning Application that has been built to display the simulation-related material that is learned, and problems in the form of multiple choice so that the students are expected to understand that he had learned about the material as well as add interest to actively learn.

References

- G. Kappel, B., Proll, S., Reich, W., Retschitzegger.,(2003), *Web Engineering*, Heidelberg : dpunkt.verlag GmbH.
- Ceri, S., Fraternali, P., Bongio. A.,(2002), Web Modeling Language (WebML): a modeling language for designing Web sites. *IEEE Internet Computing*, 6(4).

- Booch, G., Rumbaugh, J., Jacobson, I.,(2005), *The Unified Modelling Language User Guide*, Second Edition. Addison Wesley Profesional.
- Ceri, S., Fraternali, P., Paraboschi, S., (1999), Design Principles for Data-Intensive Web Sites. *SIGMOD Record*, 28(1).pp. 8489.
- Nugroho, B., (2004), *Latihan Menbuat Aplikasi Web PHP dan MySQL dengan dreamweaver MX*,Yogyakarta.
- Nugroho, B., (2009), *Aplikasi Pemrograman Web Dinamis dengan PHP dan MySQL*, Yogyakarta.
- Fathansyah, (1999), *Basis Data*.Bandung : Penerbit Informatika.