E-Learning Model to solve the problem for learning programming

Tri Ana Setyarini
STIKOM Information Systems UYELINDO Kupang
trianasetyarini@gmail.com

ABSTRACT

One lecture learning system algorithms that can increase student participation and to facilitate the learning uses E-Learning web-based learning.
This study aims to determine whether there is influence e-learning Model to solve the problem for learning programming. This experiment was conducted in STIKOM Information Systems UYELINDO Kupang. The timing of this study is the first semester of the academic year 2015/2016; with a population in this study were all students of Information Systems STIKOM Uyelindo Kupang. The sample used in this study that all students Information Systems as part of a real programming of the three classes. The results obtained based on the analysis of variance (ANOVA) to test the significance of regression at the significance level of 5% (α = 0.05) was obtained F (regression) = 115.46, while F table to 1:28 dk (numerator = 1; and denominator = 28) for a significance level of 5% = 4.20. This means, the price of F> F table is 115.46> 4.20, so the null hypothesis is rejected and the alternative hypothesis is accepted, so the price of F is significant, in other words there is a significant functional relationship between variable model of learning E-learning (X) and problem solving ability variable (Y) the results of calculation of the correlation coefficient and the coefficient of determination obtained determination coefficient of 80.04%, which means problem-solving ability of students 80.04% influenced by the design of E-learning learning model while the rest influenced by other factors.
***Key words**: e-learning Model, Problem Solving, Learning Programming*

A. BACKGROUND

In the world of education and learning is an activity that cannot be separated. Learning can mean the process of seeing, observing, and understand something. Learning activities carried two of the perpetrators are faculty and students. Teaching behaviour and learning behaviour associated with learning teaching materials. To achieve success in activities in the learning activities, there are several components that can support the objective component, the component materials, components Strategy, teaching, and evaluation components. However, in practice there are still many problems that there are in the world of education, particularly Indonesia. One of the problems that occur in the world of education in Indonesia is the weakness of the learning process. Many businesses that have made our government to improve and enhance the quality of education systems as well as existing, namely the renewal of curriculum, development of learning models are usually prepared on a variety of principles or theories as a foothold in its development. Experts create a model for learning based on the principles of education, theories of psychological, sociological psychiatry, analysis system, or any other theory.

Lectures practical algorithm programming language is a compulsory subject in the study program Informatics system STIKOM Uyelindo Kupang. Programming subject are

subject to support final student's task. Programming subject includes the introduction of the basic components of programming, algorithms and programming workflow, as well as the introduction of programming language tools. In this course applied practicum e learning.

Opinions Haughey (Rusman, 2007) on the development of e learning is there are three possibilities in the development of internet-based learning system, the web course, web-centric courses and web-enhanced course. Web course is the use of the Internet for educational purposes, in which students and faculty are completely separated and no need for face-to-face. The entire teaching materials, discussion, consultation, assignments, exercises, tests, and other learning activities entirely delivered over the internet. In other words, this model uses the system remotely.

Web centric course is the use of the Internet that combines distance learning and face-to-face (conventional). The material is delivered via the internet and in part through face to face again. Its function is complementary. In this model, the lecturer can provide clues to the students to learn the lecture's material through the web that has been made. Students are also given referrals to find other sources of relevant websites. In face-to-face students and professors is more discussion of the findings of the findings of material that has been learned through the internet.

Web enhanced course is the use of the internet to support the quality of learning in class. Internet functions is transform and provide enrichment and communication between students and lecturers, fellow students, members of the group, or students with other participant. Therefore, the role of the faculty in this case are required to master the techniques to find information on the internet, guiding students search for and find websites that are relevant to the substance of lectures, presenting the material through a web an attractive and desirable, airport guidance and counselling via the internet, and the skill of other required.

Strategy by Kemp (1995) is a learning activity that must be done professors and students so that learning objectives can be achieved effectively and efficiently. In line with its opinion Kemp, Dick and Carey (1985) also mentions that the learning strategy is a set of learning materials used procedure together to cause learning outcomes of students. Efforts to implement the learning that has been compiled in real activity for the objectives that have been developed can be achieved optimally; we need a method used to implement strategies that have been set. Thus, there could be a learning strategy using several methods. Therefore, the strategy is different from the method. Strategy shows on a plan to achieve, while methods that can be used to implement the strategy. In other words, the strategy is a plan of operation achieving something, while the method is a way in Achieving something.

The approach can be interpreted as a point of departure or point of view to learning prose. The term refers to approach the notion of a process that is still very common. Roy Kellen (1998) criticize that there are two approaches to learning, the teacher-centered approach (teacher centered approaches) and student-cantered approach (student cantered approaches). Teacher-centered approach lowers the learning strategy directly (direct instruction), or expository deductive learning. Meanwhile, the approach student-centered learning and inquiry learning strategy lowers discovery and inductive learning.

The learning model E-learning (Electronic Learning) is a learning system that is perfect for students because of the position of e learning in education is the pattern of alternative education that aims to enable the learning happens anytime, anywhere.

E-learning generally refers to the deliberate use of information and communication technologies networked in the learning process. Some terms refer to the same concept that online learning, virtual learning, distribute learning and web-based learning. Fundamentally, e learning is a process of education that utilizes information and communication technologies to mediate learning activities both synchronous and asynchronous.

Independent study, are classified into two, namely the online self-learning and self-learning offline. So also with the study group, classified into group be learned by synchronous and study groups are asynchronous.

1. Self-learning online

   Participants learn to follow the learning process (delivered) online through a network, either internet or intranet. For example, participants learn to acquire teaching materials in digital form (pdf, doc, ppt, flv etc), work assignments online, receive and collect assignments via e-mail, other information obtained through the milling lists, and others.

2. Self-Study offline

   Participants learn the learning process presented (delivered) without using a computer network (both internet and intranet). For example, participants learned studying the study material in the form of print media at home / at work, study material in the form of video delivered in DVD format and played through a DVD player at home, and others.

3. Study group in synchronous

   Participants learn the learning process as a group at the same time (real time). Examples of group participants learn to discuss something by way of chat or audio conferencing or video conferencing.

4. Study groups are asynchronous

Participants learn learning in groups via the internet but in time (unreal time) with feedback is delayed (delayed feedback). Examples participants learn to discuss something as a group via e-mail, bullet boards, discussion forums, and others.

Based on the above issues, then that becomes the problem in this research is: Is a Model design e learning to solve the problem for learning programming in Information Systems STIKOM Uyelindo Kupang T.A 2015/2016? The purpose of this research is to determine how much a design Model e learning to solve the problem for learning programming in Information Systems STIKOM Uyelindo Kupang.

B. RESEARCH METHODS

This research was conducted in STIKOM Uyelindo Kupang. The timing of this study is the first semester of the 2015/2016 academic year. The population in this study are all students STIKOM Information Systems study program Uyelindo Kupang. Samples used in this study were all students of Information Systems STIKOM Uyelindo Kupang who follow / take courses in programming, which consists of three classes. This type of research is an experiment; the research is intended to determine whether there is influence of e learning instructional design models to solve problems for learning programming imposed on the subject of students. Design of experiments in this study can be described as follows:

A O1 X O2

A O1 O2

Information:

A: The selection of random classes

O1: Test early (pre-test)

O2: final test (post-test)

X: Learning with eLearning

The experimental group was given treatment of learning with learning model Based Instruction. Then to each class observational study conducted to see the level of activity, was also given a pre-test and post-test (O) to see the achievement obtained the object of research (student).

Hypothesis in this study are:

H0: μ1 = μ2: no significant effect on the ability of a programming problem solving third semester students are taught by learning model E-Learning.

Ha: μ1 = μ2: no significant effect on problem-solving ability of programming the third semester students are taught by learning model E-Learning. The amount of the increase before and after the learning gain is calculated by formula normalized (normalized gain), which was developed by Hake as follows:

Gain normalized = $\frac{post\ test\ score - pretest\ score}{Maximum\ possible\ score - pretest\ score}$

The next two lines are used ANOVA followed by linear regression test for normal and homogeneous data to see if there is a significant effect on the ability of solving programming problems existing students grouped experiment, if the data is not normal, the data were analysed with simple rank correlation.

C. RESEARCH RESULT

Based on the average results of the programming problem solving capabilities by using model E-learning with the lowest score = 40 and a highest score of 100. The results of observation have the ability to average 85.66 with the lowest score and the highest score = 62 = 100. This indicates that the result of ability solving problems of students categorized as good programming. The results were obtained relationship between the two variables means that is expressed with t-count t-table is 14.82 2.048 > reject H0, thank Ha means no influence learning model E-learning to the programming problem-solving ability. Based on test results obtained regression correlation coefficient (r) = 0.897 including high category. These results indicate a strong relationship between learning model E-learning to the programming problem-solving ability. Then from the calculation, coefficient determinacy (r2) = 80.04% means that the influence between learning model E-learning to problem-solving ability of programming at = 80.04% and the rest is influenced by variables or other factors. Based on the calculation of regression analysis equation: Y = -23.10 + 1.0775 X. In this equation toward regression coefficient (b) = 1.0775 is positive, which means that the two variables have a linear relationship. Programming problem solving ability of students will be increased by the effect of learning with learning model E-learning at 1.0775.

D. CONCLUSION

Based on the results of data analysis using simple regression analysis of data obtained, it can be concluded that:

1. Design Learning Model e learning to solve the problem for learning programming have a significant impact on the ability Trouble shooting Student Information System STIKOM Kupang Uyelindo T.A 2015/2016

2. Effect of Instructional Model Design e learning to solve the problem for learning programming in Information Systems STIKOM Uyelindo Kupang T.A 2015/2016 amounted to 80.04% while the rest influenced by other factors.

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