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THE EFFECT OF BLENDED LEARNING ON STUDENT LEARNING OUTCOMES IN MULTIMEDIA LEARNING IN HIGHER EDUCATION

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Abstract

Learning is a basic need for everyone in meeting educational needs in the educational hierarchy. However, in the learning process itself, there are often various kinds of obstacles in the learning process. In learning multimedia courses at STT Payakumbuh, the problem is that the achievement of student learning outcomes is still low, to overcome these problems, a blended learning model is used so that the achievement of multimedia learning can increase. and to determine effect of applying blended learning in multimedia learning, a quasi-experimental study was conducted with purposive nonequivalent control groups, The research was conducted at Sekolah Tinggi Teknologi Payakumbuh (STT Payakumbuh) in the Multimedia course with a sample class of class 2017 as an experimental group using blended learning and class 2018 as a control class using traditional learning in the classroom. The study was conducted for 7 sessions with data collection techniques in the form of multiple-choice tests consisting of pretest and posttest. After that, the calculations were carried out using the t-test in both classes and obtained a value of 0.000 or sig < 0.05 (5%), then it can be interpreted that H0 is rejected and H1 is accepted. So this study shows that there is an effect of blended learning on student learning outcomes in multimedia courses at STT Payakumbuh.

Keywords: *Hierarchy, Blended learning, Control groups, Exsperimental*

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INTRODUCTION

Learning is a basic need for every student to gain valuable knowledge and experience in life as a learning experience to achieve optimal development. Students who have succeeded in maintaining a constant desire to learn to achieve all levels of education will always strive to achieve every level of education as the goal of the learning process to be carried out (Barkah, 2013). By learning through various levels of education and creating learning experiences to achieve optimal results, students need to be supported with more motivation to achieve all learning goals.

Based on the pre-research conducted at STT Payakumbuh, it is known from lecturers in multimedia courses that the achievement of student learning outcomes so far is still low. So far, the method in delivering the material used is the conventional method, so that students are less active in the learning process, for example, it tends to be only the lecturer who is dominant in explaining from the beginning to the end of the material without any interaction with students, even though there is interaction with the students very small. Reality in the field shows that students have low learning outcomes, students still think learning activities are not fun and choose activities outside the context of learning such as hanging out with peers.

One of the learning models that can overcome this problem is to use the Blended Learning (BL) model. Blended learning is a flexible approach to programming that supports different combinations of learning times and locations. According to Jordan (Singh et al., 2021), The blended learning model basically combines the benefits of face-to-face learning and virtual learning. Online learning in blended learning is a natural extension of face-to-face learning. In addition, according to (Jusoff & Khodabandelou, 2009), Blended learning can increase interaction between lecturers and students and not only reduce distance. However, the stages of blended learning according to (Carman, 2013) are: (1) Live Event; (2) Self-Paced Learning; (3) Collaboration; (4) Assessment; dan (5) Performance Support Materials. According to Castle (Castle & McGuire, 2010) E-learning can improve your learning experience by allowing students to study anywhere, under any conditions, as long as they are connected to the internet without attending face-to-face classes.

Literature Review

1. E-Learning

E-learning is an abbreviation for electronic learning and is a new way of teaching and learning processes that uses electronic media as a learning system, especially the Internet (Muslem & Friadi, 2021).

2. Traditional Learning

Conventional learning methods are traditional learning methods or also known as lecture methods, because long ago this method has been used as a means of verbal communication between lecturers and students in the learning and learning process (Ucu et al., 2018). In learning, the history of conventional methods is marked by lectures accompanied by explanations, as well as the division of tasks and exercises

3. Blended Learning

Blended Learning is a formal educational program that allows students to learn (at least in part) through online content and instruction, with independent control over time, place, order, and pace of learning (Staker & Horn, 2012). Furthermore, John Merrow in (Widiara, 2018) states "blended learning is some mix of traditional classroom instraction (which in itself varies considerably) and instraction mediated by technology". In other words, blended learning is a combination of traditional classroom learning with technology-based learning (modern). A similar opinion was also expressed by who stated that blended learning is a learning system that combines face to face learning (face to face/classical) with online learning (through the use of internet facilities/media). Based on the explanations of the experts above, it can be defined that Blended learning is an educational and learning strategy aimed at achieving learning goals by combining face-to-face / face-to-face education with technology-based and information-based online learning. So that the meaning of blended learning can be seen in Figure 1 below:

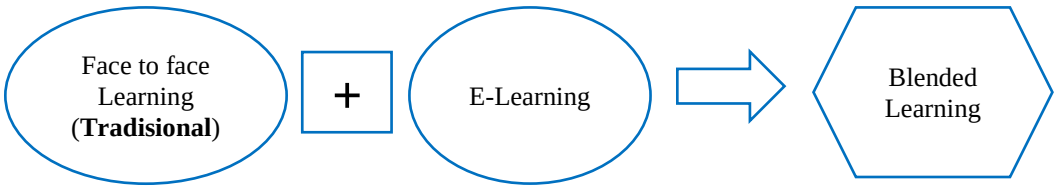


Figure 1. Meaning of Blended learning

METHOD

The method in this study is an experiment, namely a research procedure carried out to reveal a causal relationship between two or more variables by controlling the influence of other variables. The form of research used in this study is the form of Pre-Experimental Design because there are still external variables that also influence the formation of the dependent variable. While The study design is a pre-test and post-test design for one group. This design has pre-test before treatment and a posttest after being given treatment. More details can be seen in Figure 2 which illustrates the stages of research design. So the results of the treatment are more accurate because they can compare the results before being given treatment. Population is an area of generalization that consists of: objects / subjects with specific qualities and characteristics that researchers apply to study them and draw conclusions (Nugraha et al., 2019). The population that became the research material were students who took multimedia courses at STT Payakumbuh which consisted of 2 classes, namely the 2017 class and the 2018 class. The sample in this study was the Class of 2017 with 17 students in the experimental class. The technique used in sampling is cluster random sampling technique.

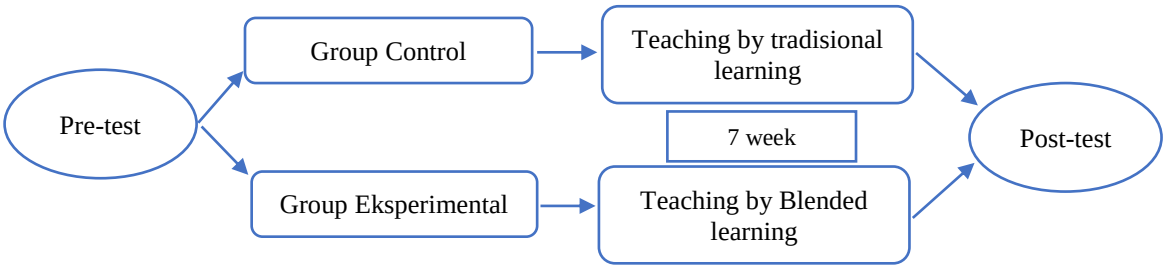


Figure 2. Experimental Research Design

Based on Figure 2, it can be seen that each control class and experimental class were previously given a pre-test to find out the students' initial knowledge. After that, learning was carried out where the control class was given traditional learning with 2-dimensional drawing material and animation, while the experimental class was given blended learning with 2-dimensional drawing and animation, after 7 sessions, both classes, both control class and experimental class, were carried out Post-test.

RESULT AND DISCUSSION

The results of this study were to determine the effect of the use of the Blended Learning learning model on student learning outcomes in multimedia learning with 2-dimensional images and animations in Multimedia courses at STT Payakumbuh. The dependent variable data in this study was student learning outcomes data. The sample used in this study was one class, namely the class of 2017 class for multimedia subjects, which amounted to 17 students and was selected as a trial class. The sample in this study was determined by cluster random sampling with the research design of one-group pretest-posttest design. Research data obtained include learning outcomes. The data was analyzed to determine whether there was an effect of the Blended Learning-based learning model on student learning outcomes in 2-dimensional drawing and

animation material in the multimedia course majoring in informatics at STT Payakumbuh. The results of the pre-test and post-test can be seen in table 1 and figure 3 below:

Table 1. The results of the pre test and post test control group and experiment group

Test yang dilakukan	Pada Control Group	Pada Experimental Group
Pre-test	66,52	67,53
Post-test	78,60	85,76

From table 1, it can be seen the difference between the pre-test and post-test scores of the control group where the pre-test average value is 66.52 and the post-test average value is 78.60.

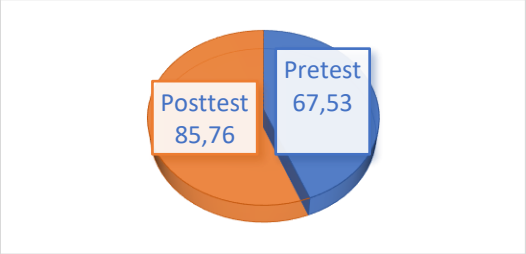


Figure 3. Pretest and Posttest Experiment Class

And based on Figure 3, there is a difference between the pretest and posttest experimental class values, namely where the posttest average value is 85.76 while the pretest is 67.53. So it can be concluded that students who are given learning using the blended learning model have increased from students who have not been given blended learning.

The initial stage of the research process is making learning tools and compiling instruments. The instrument in this research is in the form of test questions. The learning devices and instruments before being tested were validated by two lecturers of the informatics study program for the Multimedia course. After the learning tools and instruments were validated and declared feasible, a test test was carried out for students of the 2018 STT Payakumbuh multimedia class as a test instrument. After testing the reliability, discriminatory power, and level of difficulty of the test questions, the researchers chose 20 questions to be used as research instruments. The selected questions are questions that are valid, reliable, the number of questions with criteria is difficult, moderate, easy, balanced, and has distinguishing power.

The next stage is the implementation stage which takes place from March 09, 2020 to April 25, 2020 with 7 sessions involving 1 class as a sample, namely the Multimedia Class 2017. The first and second meetings gave a pre-test to the sample. the third to seventh sessions, namely the learning process in the experimental class using the Blended Learning learning model and giving the posttest to the sample.

Based on the results of data processing, there are significant average student learning outcomes using the Blended Learning learning model. This can be seen from the average pretest and posttest scores of students on 2-dimensional images and animations.

Information obtained that the average pretest score is 67.53 with a standard deviation of 7.74, while the posttest average for the experimental class is 85.76 with a standard deviation of 5.50. Based on the results of the pretest and posttest to see student learning outcomes that have been carried out in this study, it shows simply that there is an increase in student learning outcomes.

From the test results, using the SPSS application, it can be seen that in the pretest data the significance value 0,080 > α = 0,05 so that it can be said to be normally distributed and in the posttest data it is known that the significance value of the calculation 0,05 > α = 0,05 so it can be said that the posttest data is also normally distributed.

The increase in student learning outcomes is due to having strengths, namely students can participate actively in their learning activities, students can really understand a concept, this model allows scientific attitudes such as creating curiosity from students. The blended learning learning model limits researchers to add new material, if it turns out that students do not understand the material being studied.

From the results of the study, it can be seen that the average value of learning outcomes in the experimental class has increased significantly, where the average value of posttest learning is 85.76 greater than the value of pretest learning outcomes is 67.53. So that the blended learning learning model affects student learning outcomes more than other models. In this study it is clear that the blended learning model is able to provide changes in student learning outcomes, so that the blended learning learning model is one of the distance learning models that can be used for learning activities in order to create a new learning atmosphere by providing convenience for students through education long distance.

Through the t-test that was carried out, there was a significant difference, meaning that the difference was due to the treatment with the blended learning model. With a significant degree 0,000 < 0,05, so H0 is rejected and H1 is accepted.

Thus, it can be concluded that the application of the Blended Learning learning model has an effect on student learning outcomes in the 2017 STT Payakumbuh multimedia course on 2-dimensional drawing and animation. The influence of student learning outcomes can be achieved by applying several stages in the Blended Learning learning model, namely: (1) Live Event, direct or face-to-face learning synchronously in the same time and place or the same time but different places. Direct learning can be done while in computer labor so that the time and place of the teaching and learning process between students and lecturers occurs directly. While synchronous face-to-face learning occurs at the same time but in different places, for example, the lecturer in the lecturer's room monitors students who are pursuing assignments in the classroom application (2) Self Paced Learning, which combines with self-paced learning. which allows participants to learn anytime, anywhere online. Lecturers give assignments to students through the classroom application and these students can do assignments at home.

CONCLUSION

Based on the results of data processing, it can be concluded in general that learning using the Blended Learning learning model on 2-dimensional drawing and animation materials in multimedia courses at STT Payakumbuh is classified as good, because there is an increase in student learning outcomes using the Blended Learning learning model which is better than student learning outcomes. using conventional learning. Specifically, it can be concluded in several ways as follows: 1. The average student learning outcomes before the application of the Blended Learning learning model to the 2-dimensional drawing and animation material in multimedia courses at Payakumbuh STT is 67.53 with a standard deviation of 7.74. 2. The average student learning outcomes after applying the Blended Learning learning model to 2-dimensional drawing and animation in multimedia courses at STT Payakumbuh is 85.76 with a standard deviation of 5.50. 3. There is an influence on student learning outcomes after being taught with the Blended Learning learning model on 2-dimensional drawing and animation materials in multimedia courses at STT Payakumbuh.

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