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The Influence of YouTube Learning Media with Observation Method and Self-Confidence on Learning Outcomes of Heavy Equipment Technology

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ABSTRACT

This study aims to determine the effect of YouTube media with the observation method and self-confidence on learning outcomes of Heavy Equipment Technology. The population in this study were students in 2019 in the Automotive Engineering Department, Faculty of Engineering, Universitas Negeri Padang with a sample of 32 students in the experimental group and 32 students in the control group. Samples were taken by cluster sampling technique. Data were collected through validated tests. The data analysis technique used the two-way variance test (ANOVA) and Tukey test. Before testing the hypothesis, the normality test and homogeneity test were carried out first. The results of data analysis showed that YouTube learning media and confidence in learning outcomes in the Heavy Equipment Technology course obtained a higher interaction with the results of the analysis of variance for the calculated F value = 4.24> F table = 3.97 at a significant level = 0.05. Thus, YouTube learning accompanied by high self-confidence obtains better learning outcomes compared to learning the observation method.

Keywords: YouTube, Observation Method, Self-Confidence, Learning Outcomes, Heavy Equipment Technology

INTRODUCTION

Advances in science and technology increasingly encourage innovative efforts to use technology in the learning process. The industrial revolution 4.0 has changed the teaching system, mindset, and student actions in developing creative and innovative ideas in various problems, so an educational revolution must be carried out [1]. Technological developments in the era of the industrial revolution 4.0 have changed the pattern of people's lives, every individual must follow technological developments and know how to use it so as to facilitate everyone's life [2]. The development of technology has become a potential in various fields, especially in the field of education so that it must be responded positively and adaptively in responding to the challenges of the 21st century which is full of complexity [3], the use of technology in education has become a very important issue and is often discussed in various activities [4]. The existence of technology for the world of education is a means that can be used as a medium for delivering learning programs both unidirectional and interactively [5]. In addition, the use of technology has enabled the emergence of distance learning and is driving greater innovation in creating teaching methods inside and outside the classroom [6]. In the field of education, lecturers are required to be able to use the equipment provided by the university. Lecturers can at least use efficient tools, but it is a must so that the expected goals can be achieved. Lecturers are also required to be able to develop skills in making learning media. One of the factors that influence learning outcomes is motivation and interest. The low motivation and interest of students during the Covid-19 pandemic, among others, during online learning activities, students actually showed an unenthusiastic attitude towards learning. Technology can be used to simplify the learning process, support notifications, evaluate learning activities, manage resources and create learning materials [7][8]. Several studies have been conducted to explore students' readiness to study online in a higher education environment [9]. The results of previous research conducted by [10]. It can be said that in the midst of the COVID-19 pandemic that has hit the world, this is not the reason why students are so motivated to learn. While shortcomings have been found in practice, there is no choice but to optimize online learning, because in such an emergency situation, there is only Technology that becomes a bridge to transfer knowledge from lecturers to students. Another study shows that there is a significant relationship between academic independence and face-to-face and distance learning outcomes [11]. With high curiosity, this desire will encourage students to find what they want to know so that it can affect learning outcomes [12].

The student's interest in learning is still low because the lecturer only provides learning material in the form of PDF on e-learning which

is used in lectures. This is in accordance with research conducted by [13]. States that the learning media is still limited to books whose presentation of material is dense and the appearance is not attractive and the number of questions and tasks given by educators makes students bored to learn.

The Heavy Equipment Technology course seems to focus more on theory due to the Covid-19 pandemic. This is in line with research conducted by [14] also stated that lessons on Heavy Equipment Technology seem to focus more on theoretical problems, in the realm of learning methodologies it still seems conventional and innovation is rare. It is clear that the learning media for Heavy Equipment Technology courses still uses PDF as the only source of learning and there are rarely innovations that make students' interest in learning low so that it affects learning outcomes.

Therefore, every educational institution has started implementing online learning using YouTube [15] Zoom Meeting [16] Google Meet [17] and other android apps. YouTube is the most popular social media today. Its popularity is projected to continue to increase along with the number of users. Previously, YouTube recorded the number of monthly logged-in users of 1.5 billion in mid-2017. In fact, market research institute statistic estimates that the number of users will reach 1.8 billion in 2021 [18]. The use of YouTube media in Heavy Equipment Technology courses during the covid-19 pandemic to help learning that cannot be done offline.

The advantage of learning with YouTube videos is that it presents image and sound representations of an idea or event to students in the classroom. In this study, what is meant by the use of YouTube media is a learning media made by researchers based on the Heavy Equipment Technology learning syllabus. Most of this YouTube media content is in the form of a combination of material in the form of power points and animations as well as video clips that have been summarized by researchers as teaching materials every week. While outdoor learning (field observation) can be applied in formal education and adapted to the areas of learning outcomes to be achieved. Mentioned, students can learn to observe, classify, conclude, understand, describe, evaluate, compare, and analyze data through outdoor learning. This study aims to determine whether or not there is an influence in the use of YouTube media and the Observation Method as a learning resource on student learning outcomes.

RESEARCH METHOD

This research was conducted using an experimental method by comparing the YouTube learning media and the Observation learning method with the moderator variable being self-confidence. While the instruments used in this study were questionnaires and learning outcomes.

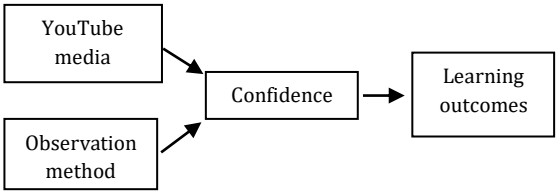

Figure 1. Research paradigm

The design used in this study is a treatment by level 2x2 design. The design of this study is divided into three variables with details of the independent variables formed into two parts, namely the treatment variable using YouTube learning media and the Observation learning method. Meanwhile, self-confidence as a moderating variable consists of high self-confidence and low self-confidence, while the dependent variable is learning outcomes in the Heavy Equipment Technology course.

This research was conducted in Automotive Engineering, Faculty of Engineering, State University of Padang with a sample of 32 students in the experimental group and 32 students in the control group. Samples were taken by cluster sampling technique. Data were collected through validated tests. The data analysis technique used two-way variance test (ANOVA) and Tukey test. The instrument grid is divided into two, namely the non-confidence test instrument grid and the Heavy Equipment Technology learning outcome test instrument grid.

RESULTS AND DISCUSSIONS

The data of this study consisted of three types of variables, namely independent or treatment variables, attribute variables and dependent variables. The independent variables or treatments in this research are the YouTube learning media and the Observation learning method. The moderator variable in this study is high self-confidence and low self-confidence, while the dependent variable is learning outcomes in the 2019 entry year Heavy Equipment Technology course that students get after studying with the learning process.

After learning with the learning process that applies the YouTube learning media and the Observation learning method, student learning outcomes will be obtained in the form of scores. The results are in the form of a collection of data obtained after each group is given treatment, which will then be used as material for analysis.

The description of the research data from the three variables will be expressed in the form of a measure of data concentration, including: a) the average, b) the standard deviation, (c) the mean, d) the highest frequency that appears. The distribution of data that will be described in a table in the form of a range of score and frequency records, will then be presented in the form of a frequency distribution table and histogram.

The data collection of central tendency analysis of Heavy Equipment Technology learning outcomes is as shown in the following table:

Table 1. Description of central tendency analysis data

	Experiment (YouTube) Learning Media	Control (Observation learning method)
High self confidence	N =16 Mean =83.06 Median =82.5 Modus =81 SD =2.26	N =16 Mean =77.06 Median =77 Modus =81 SD =1.76
Low self confidence	N =16 Mean = 76.06 Median =76 Modus =75 SD =2.23	*N =16* Mean =72 Median =72 Modus =73 SD =1.43

Normality Test

Table 2. Summary of overall data normality test results

Group	N	Lcount	Ltable	Conclusion
A	32	0.0837	0.1566	Normal
A	32	0.0864	0.1566	Normal
B	32	0.1385	0.1566	Normal
B	32	0.1341	0.1566	Normal
A1B1	16	0.1805	0.2128	Normal
A1B2	16	0.1202	0.2128	Normal
A2B1	16	0.2016	0.2128	Normal
A2B2	16	0.1453	0.2128	Normal

The results of the calculation of the normality test on all research group data are known that the L count for all groups is smaller than the L table, this means that all research groups are normally distributed. The results of the calculation of the normality test with the Liliefors test as a whole.

Table 3. Summary of two-way ANOVA calculation results

Source of variance	JK	Db	RJK	Fcount	a=0.05	Ftable
Between A	400	1	400	104.46		3.97
Between B	576	1	576	150.42		3.97
Interaction AXB	16	1	16	4.23		3.97
in	229.75	61	3.76			
total	1221.75	64				

From the results of the analysis, it is known that the Fhit value = 104.46, and Ftable = 3.97. From the list table – H at db (A)/db (D) = 1/61, and = 0.05, it is known that Fhit > Ftable so that Ho is rejected. Thus there is a difference in the average learning outcomes of Heavy Equipment Technology between students who learn to use Youtube learning media and the Observation learning method.

From the results of the analysis, it is known that the Fhit value = 150.42, and Ftable = 3.97. From the list table – H at db (A)/db (D) = 1/61, and = 0.05, it is known that Fhit > Ftable so that Ho is rejected. Thus there is a difference in the average learning outcomes of Heavy Equipment Technology between students who have high self-confidence and students who have low self-confidence.

From the results of the analysis, it is known that the Fhit value = 4.24., and Ftable = 3.97. From the list table – H at db (A)/db (D) =

1/61, and = 0.05, it is known that Fhit > Ftable so that Ho is rejected. Thus, there is an interaction effect between Youtube learning media and self-confidence on learning outcomes of Heavy Equipment Technology according to the level of student self-confidence.

Table 4. Results of advanced calculation of Tukey's test

Group	N	Qcount	Qtable	Conclusion
A1B1 AND A2B1	16	12.36	4.05	Significant
A1B2 AND A2 B2	16	8.24	4.05	Significant

From the results of the analysis, it is known that the calculated Q value A1 B1–A2 B1 = 12.36. From the table of Critical Value OfQ (TUKEY) with = 0.05, k = 4 and n = 16, it is known that the value of Q table = 4.05. Because Q count 12.36 > Q table = 4.05 then Ho is rejected. Thus the learning outcomes of Heavy Equipment Technology students who learn to use the YouTube learning media who have high self-confidence are higher than students who learn to use the Observation learning method who have high confidence.

From the results of the analysis, it is known that the calculated Q value A1 B2 – A2 B2 = 8.26. From the Critical Value OfQ (TUKEY) table with = 0.05, k = 4 and n = 14, it is known that the table Q value = 4.05. Because Q count = 8.26 > Q table = 4.05 then Ho is rejected. Thus, the learning outcomes in the Heavy Equipment Technology course students who learn to use the YouTube learning media who have low self-confidence are higher than students who learn to use the Observation learning method who have low self-confidence.

The Effect of Interaction between YouTube Learning Media and Confidence on Learning Outcomes

The teaching and learning process is inseparable from the strategies, methods and media used by the lecturers. One of them is the use of YouTube learning media to make it easier for lecturers to deliver Heavy Equipment Technology Lecture material to students. Learning media is a messenger technology that can be used for learning purposes in supporting the success of the teaching and learning process [19]. YouTube learning media is a messenger component that contains subject matter used by lecturers in the learning process to support the success of the student learning process to be effective and efficient because the process of delivering information is easier, faster and accurate [20]. States that self-confidence is a complex and dynamic belief that a person has to achieve the expected goals. Self-confidence will strengthen the motivation to achieve success, because the higher the confidence in one's own abilities, the stronger the spirit to complete the work. His will to achieve what is the target of the task will also be stronger. It means that he also has a strong

commitment to work well, so that the completion of his work goes perfectly [21].

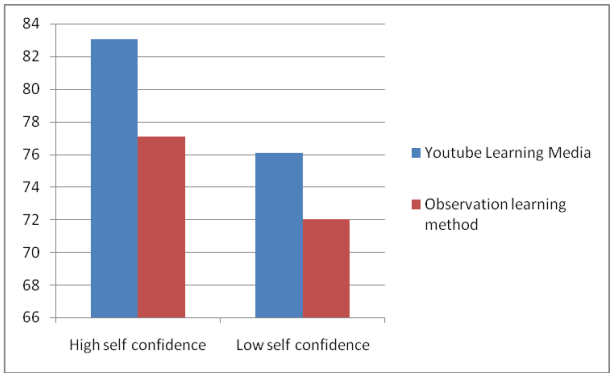

Figure 2. Comparison of learning averages using YouTube and learning the observation method

At the time of learning, students' self-confidence is influenced by campus environmental factors, one of which is the lecturer involved because the lecturer provides motivation, support and reinforcement to students. Student confidence is needed so that student activity in class will appear so that the class atmosphere will be conducive, there is feedback between lecturers and students, as well as between students and other students so that it will affect student learning outcomes. The use of YouTube learning media used by lecturers in the learning process to support, motivate students so that the emergence of self-confidence so that it affects student learning outcomes [22]. Student learning outcomes can be known through evaluations conducted by lecturers. Student learning outcomes are not only measured by the level of mastery of science, but also attitudes and skills. Assessment of student learning outcomes includes everything that has been learned on campus, relating to knowledge, attitudes and skills related to Heavy Equipment Technology courses that students learn.

CONCLUSION

Based on the results of the study, it can be concluded that the overall learning outcomes of Heavy Equipment Technology group of students who use YouTube learning media are higher than the group of students who use the Observation learning method. This is because the YouTube learning media can attract students' interest and make students understand faster. The use of YouTube learning media makes learning active, creative, effective and fun.

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