

The Influence of Using Online Learning Media on Learning Outcomes of Simulation and Digital Communication for Vocational High School Students

Shelty D M Sumual¹, Harol R Lumapow¹, Philoteus E A Tuerah¹, Sherly D Tendean^{1*}, Moh Qowi¹,
Yohanis Namsa¹

¹Educational Management Doctoral Study Program, Universitas Negeri Manado, Indonesia

*Corresponding author: sherlytendean@gmail.com

ARTICLE INFO

Article history:

Received: April 21, 2024; Received in revised form: May 23, 2024; Accepted: June 07, 2024;

Available online: June 08, 2024;

ABSTRACT

Study This aim is to know the influence use media online learning Edmodo on simulation learning outcomes and digital communication class X student at SMK Negeri 1 Kakas. The population in this study were all students Class X of SMK Negeri 1 Kakas has 92 students. The sample in this research is class X TKJ with 20 students as the experimental class, and class X TKR amount 20 students as the class control. Study This uses an experimental method study Pre-Test, Post-test research type Control Group Design. Method analysis data use test normality Liliefors obtained $F_{count} = 0.137$ And $F_{table} = 0.19$ with level significant 0.05, showing data distribute normal, test Homogeneity use F-test showing sample Which researched obtained $F_{count} = 1.55$ And $F_{table} = 2.17$ based on criteria testing $F_{count} < F_{table}$ so class experiment And class control Variance Which The same or Homogeneous And test hypothesis use T-test obtained $T_{count} = 7.13$ and $T_{table} = 2.20$ based on the test criteria $t_{count} > t_{table}$ shows that the experimental class learning outcomes are greater than the classroom learning outcomes control. Thus it can be concluded that there is an influence of the use of online learning media Edmodo on simulation and communication learning outcomes.

Keywords: Media Online Learning, Simulation Digital, Vocational High School Students

INTRODUCTION

Education is very important for everyone in our time Now This is moreover in Wade's life the more day level education the more proceed. Various efforts have been made so that education can be successful, therefore the quality of education must be improved. The role of the school as an educational institution and miniature society is very important, so teachers as teachers need to develop methods to teach so that students are more enthusiastic about studying. With technology man will very be easy to carry out all activities moreover in activity learning, technology can used as a learning medium that is expected to improve student learning outcomes (Sandre et al, 2021). Several technologies can used as media learning, among them media learning based computer, based games, based multimedia, and based web (e-learning).

This development can be seen from the increasing diversity of learning methods used. The method used by Lots utilizes various media to improve the quality of learning outcomes. Development of various learning media This is in line with increasingly rapid technological advances. Technological dynamics are currently achieving incredible acceleration. Technology studied for several years which has started to be replaced with new technology including various methods of learning in a way conventional. Form development technology information that can be used as a learning medium by using e-learning. E- E-learning is an innovation that can be utilized in the learning process, not only in the delivery of material learning but Also in the ability of various competent participants to educate. Through e-learning, participants not only just listen to the teacher's explanation of the material but also actively observe, do, demonstrate, and so on. Teaching materials can be virtualized in various formats so that they are more interesting and more dynamic and they can motivate participants to educate more deeply in the process of learning.

Based on observation done in vocational school Country 1 Kakas, there are problems in student learning outcomes in Digital Simulation subjects. Following research conducted at SMK Negeri 1 Kakas, KKM on simulation subjects digital is 75, whereas the average mark students only around 20% reach KKM. Therefore, to improve student learning outcomes, the author wants to try implementing media learning Which is more interesting And expected can increase results Study students, namely by conducting research with the title "The Influence of Media Use Online Learning on Student Learning Outcomes in Simulation and Subjects Communication Digital Vocational School Students".

LITERATURE REVIEW

The learning outcomes are the result of something interaction of learning actions and teaching actions (Dimyati and Mudjiono, 2013). From the teacher's side, the teaching act ends with process evaluation results Study. From the side student, the results Study is the end cut-off And peak process Study. The results Study the level of mastery achieved by students in following the teaching and learning process following the objective education set (Hamalik, 2004). The learning outcomes are proof of the success that has been achieved by someone (Winkel, 2009). Learning outcomes are measurements of the assessment of learning activities or the learning process expressed in symbols,

letters, and sentences that tell the story of the results achieved by each child in a certain period. The change happens to self-students, Good concerning aspect cognitive, affective, And psychomotor as a result of learning (Susanto, 2013).

Before the teaching/learning process, there are many factors involved and each other influences Of course just determines success or not something process learning. According to there are seven components Which influence (Hamalik, 2004). The teaching and learning process, namely: (1) Teaching objectives; (2) Students who study; (3) Teacher who teaches; (4) Teaching methods; (5) Teaching aids; (6) Evaluation assessment; and (7) Teaching situation. In another part, Purwanto (2002) states the characteristics And principles of study. Characteristic features Study the covers four matters Which almost The same as the previous expert opinion that is:

- 1) The study is Change Act in Demand.
- 2) The study is changed through exercise.
- 3) For in call it learning so deed That must relatively stay.
- 4) Act in-demand experience changes because of studies concerning various aspects of personality, both physical and psychological.

Media Online Learning

Studying online (also known as electronic learning or e-learning) results from teaching Which be delivered in an way electronic using computer-based media. The material is often accessed through a network, including websites, internet, intranet, CDs, and DVDs. E-learning not only accesses information (for example, laying out a web page) but also helps learners with specific results Which Specific (for example reaching an objective). Besides conveying teaching, e-learning Can monitor the performance of learners And report the progress of learners (Smaldino et al, 2012). In line Also with his opinion Rusman (2012) that Elearning means learning with the use of service-help electronic devices. So in the implementation of e-learning using the device computer or device electronic other. Definition According to Rosenberg, e-learning is one of the uses of internet technology in delivering learning in a range Which wide Which based on three criteria that are:

- 1) E-learning is a network with the ability to renew, keep, distribute, and share teaching materials or information.
- 2) Delivery to a user is final through a computer with the use of technology Internet Which standard.
- 3) Focus in view Which most wide about learning behind paradigm learning traditional.

Edmodo

Zwang (2010) in his article entitled Edmodo: A Free, Secure Social Networking Site For School, states that Edmodo is A site of education-based social networking Which in there is various content For education. Teachers can post learning materials, share links and videos, assignments projects, and live student grade notifications. Apart from that, Edmodo can keep And share all content digitally including blogs, links, pictures, videos, documents, And presentations. According to Gruber (2008) in the article entitled Edmodo: Microblogging for Education, Edmodo provides convenience for users to

make groups by file sharing, links, videos (embed videos), And pictures equipped with a warning (alert), assignments, and agenda activity (events).

Features Edmodo includes Assignments, Files and Links, Quizzes, polls, Gradebook, Libraries, Awards Badges, and Parents Codes. Excess Edmodo includes user interfaces. Adapt appearance like Facebook, in a way simple Edmodo is relatively easy to use even For beginners though. Compatibility. Edmodo supports previewing various types of format files like pdf, pptx, html, swf, etc. Edmodo can be accessed with the use of a PC (laptop /desktop) and can also be accessed using gadgets based on Android OS. Lack Edmodo among them: Social Media. Edmodo is not integrated with any type of social media, like Facebook, Twitter, or Google Plus. Whereas on moment Now, almost every website is integrated with media social so its users can share (sharing). Moreover, Indonesians are more familiar with typing the words Facebook.com rather than Edmodo.com. Language. Use a Language program That is Still English that sometimes difficult for Teachers and students. Video Conference is not yet available. This is quite important for interaction with students If teachers don't can attend direct in-room classes.

WhatsApp Groups

Suryadi et al (2018) state that WhatsApp is a means of communicating by exchanging information, both text messages, images, videos, and even telephone. This opinion can be seen that WhatsApp provides convenience in conveying information. Opinion of Afniabar and Fajhriani (2020). state use of WhatsApp will make it easier for its users To convey information more quickly and effectively. So WhatsApp can provide effectiveness in communicating and interacting easily and quickly, especially in conveying learning information. Miladiyah (2017) stated that WhatsApp's features can be used by para its users that is: Photos, which are obtained from cameras, files manager, And media gallery. Videos, in the form of an image move Which recorded. audio, message recorded can be directed from videos, files manager, or music. Location, form message existence user with help facility Google Maps.

Contact can send contact Which is available from book phone or Honebook. View contact can see a list Name contacts who own an account on WhatsApp. Avatars are Photo profile users on WhatsApp. Add conversation Hotcut, several chats can be added to track the shortcut to the Home screen. E-mail conversations can be sent through e-mail. Group chat, The user Can make a conversation group. Copy/paste, every sentence conversation Also can be doubled, spread, and deleted by pressing and holding sentences on the screen. Smile Icons, Lots choice emoticons like expression man, building, weather, animal, musical instruments, cars, etc. Search, The user can look for a list of contacts through the feature This. Call / Calling, For doing calling voice with user other. Videos Call, besides calling voice, users Also can call videos.

Block, For block property number person other. Status works For announcement to contact other users the willing or not willing to have a chat (chat).

Excess And lack of WhatsApp

Besides excess WhatsApp Also own lack, Yensy (2020) states the lack of the application WhatsApp as follows: Existence location Which will influence Which different Also to signal strength. Lots of chats entered in WhatsApp Group will result in a full-memory cellphone, so the internet connection becomes slow. Chat Which piles up, will be difficult unique access Because one must scroll

one so that one Can follow the path discussion takes place. From several experts above it can be concluded that the existence of WhatsApp helps communication systems both long and short distances at low cost cheap and easy to use, not only in social life but Also in learning activities.

METHODS

Instrument Study

According to Sugiyono (2013), an Instrument study is "something tool used for measure phenomenon natural nor social observed." As for formulas used to test the authenticity of the test that is:

Validity

According to Sugiyono (2013), Test validity is the degree of accuracy between data That happens on the object study with Power Which can reported by a researcher. So, validity is something size for knowing the validity or validity of something instruments. For now, the validity item question, so use the formula Points Biserial Correlation in calculating the item validity coefficient matter. Results test the interpreted with criteria If t count > t table coefficient item question the valid And If t count > t table coefficient correlation the No valid. To obtain the size of the t table, use the t-student distribution table on level significant 0.05 (level of trust 95%) with degrees freedom (dk) = n-1.

Reliability

According to Arikunto (2014), Reliability is something instrument That shows a level of reliability instruments in revealing data that can trusted. To test the reliability of the instrument this research was carried out using the KR 20 formula (Kuder and Richardson). Before the data is entered into a formula, so must calculate the Variance in total Moreover formerly, after obtaining the Variance total new entered into formula KR. 20. To look for reliability with the formula

Technique Analysis Data

Analysis Descriptive Data

According to Sugiyono (2013), descriptive analysis is used to analyze data with methods describing or describing data That has been collected as is without intending to make conclusions that apply to the general public or generalization. Included in the descriptive analysis includes, among other things, minimum scores (min), score maximum (max), mark average (mean), variety (Variance), And deviation standard (standard deviation).

Test Precondition

Before testing a hypothesis use a t-test so moreover formerly data normality will be tested as well Homogeneity test.

Test Normality Data

A normality test is carried out to find out whether the distribution of the selected sample comes from a normal population distribution or not. This normality test was carried out with the use of approach statistics test Liliefors with level significant $\alpha = 0.05$. Hypothesis Which to be tested are:

H_0 = data came from distributed population normal

H_1 = data comes from a population with a non-normal distribution Criteria testing:

accept H_0 if $L_{count} < L_{table}$ reject H_0 If $L_{count} > L_{table}$.

Test Homogeneity Data

If the data is normally distributed then a homogeneity test will be carried out. Test Homogeneity on study This uses the formula Test Fischer

Test Hypothesis

After the test precondition analysis data statistics were done and data stated that the distribution was normal And Homogeneous, so done testing hypothesis. Testing This research hypothesis uses the T-test (test) formula. The T-test is a statistical test that can be used to determine whether there is an influence of the learning-based model problem on the results of Study students. Data collected was Then analyzed with level significant $\alpha = 0.05$ Which was done with use t-test. If the number of members samples $n_1 = n_2$ and variants are Homogeneous then the formula.

Technique Analysis Data

1. Analysis Descriptive Data

According to Sugiyono (2013), descriptive analysis is used to analyze data with methods describing or describing data that has been collected as is without intending to make conclusions that apply to the general public or generalization. Included in the descriptive analysis includes, among other things, minimum scores (min), score maximum (max), mark average (mean), variety (Variance), and deviation standard (standard deviation).

2. Test Precondition

Before testing a hypothesis use a t-test so moreover formerly data normality will be tested as well Homogeneity test.

a. Test Normality Data

normality test is carried out to find out whether the distribution of the selected sample comes from a normal population distribution or not. This normality test was carried out with the use of approach statistics test Liliefors with level significant $\alpha = 0.05$. Hypothesis Which to be tested are:

H_0 = data came from distributed population normal

H_1 = data comes from a population with a non-normal distribution Criteria testing:

accept H_0 if $L_{count} < L_{table}$ reject H_0 If $L_{count} > L_{table}$.

b. Test Homogeneity Data

If the data is normally distributed then a homogeneity test will be carried out. Test Homogeneity on study This uses the formula Test Fischer.

Criteria results:

Ho: $\sigma_1^2 = \sigma_2^2$ (Homogeneous)
 H₁ : $\sigma_2^2 \neq \sigma_1^2$ (inhomogeneous) Criteria testing:
 Ho is accepted if $F_{\text{count}} < F_{\text{table}}$ Ho rejected If $F_{\text{count}} > F_{\text{table}}$

3. Test Hypothesis

After the test precondition analysis data statistics were done And data stated distribution was normal And Homogeneous, so done testing hypothesis was done. Testing This research hypothesis uses the T-test (test) formula. The T-test is a statistical test that can be used to determine whether there is an influence of the learning-based model problem on the results of Study students. Data collected was then analyzed with level significant $\alpha = 0.05$ Which was done with the use t-test. If the number of members samples $n_1 = n_2$ and variants are Homogeneous then the formula is used

RESULTS AND DISCUSSION

Description Data

This research was carried out at SMK Negeri 1 Kakas in class X. Number of samples in this study was 20 students of class X TKJ and 20 students of class X TKR. Results data Learning is obtained from student learning results tests given to both classes as tests initial (Pre-Test) and final ability test (Post-Test) on simulation subjects and communication digital.

a. Results Study Class Experiment

Simulation and Digital Communication learning outcomes for students taught using online learning media Edmodo in the experimental class taken from the post-test show that the score is highest 96 And score Lowest is 80. Based on this data, the average value (mean) was also obtained, namely 89.60, mode 96, median 92, standard deviation 5.86, and Variance that is 34.35. see Table 1 and Figure 1.

Table 1. Distribution Frequency Results Study Experimental Class

No. Class	Class Intervals	Frequency	Relatively
1	80 - 83	3	15.00
2	84 - 87	3	15.00
3	88 - 91	3	15.00
4	92 - 95	5	0.00
5	96 - 99	6	25.00
6	100 - 103	0	30.00
Amount		20	100%

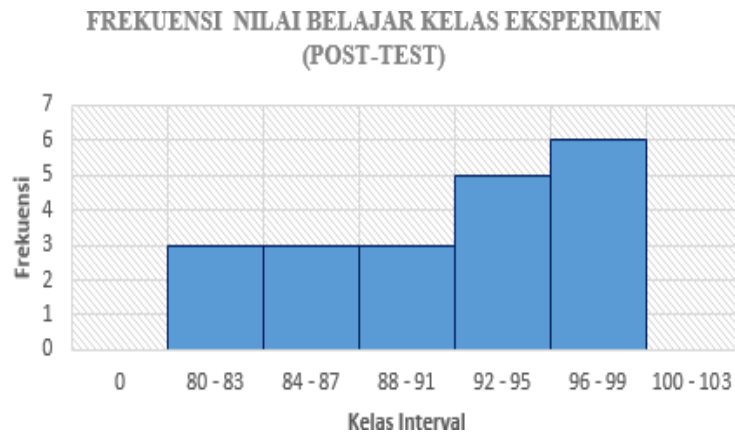


Figure 1. Histogram Post-Test Experiment

Results Study Class Control

Simulation and Digital Communication learning outcomes taught using media *online* learning WhatsApp Group in the control class shows that the value highest is 88 and the lowest value is 64. Based on this data, it has also been done obtained mark average (*mean*) is 75.20, mode 68, the median 76, standard deviation is 7.29 And the variant is 53.22. see Table 2 and Figure 2.

Table 2. Distribution Frequency Results Study Control Class

No. Class	Class Intervals	Frequency	Relatively
1	60 - 64	1	5.00
2	65 - 69	6	30.00
3	70 - 74	2	10.00
4	75 - 79	4	20.00
5	80 - 84	5	25.00
6	85 - 89	2	10.00
Amount		20	100%

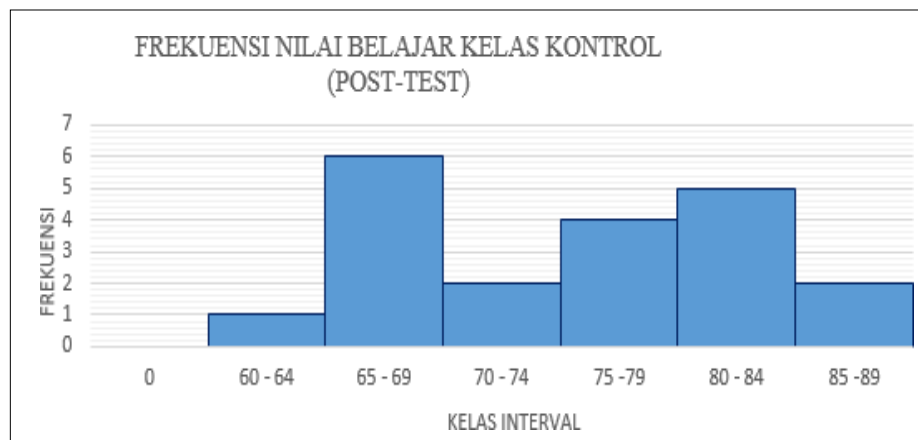


Figure 2. *Post-test* Histogram Control

Test Analysis Prerequisites

a. Test Normality

After the collection of data, so furthermore done test normality data using test *Liliefors* with the help of *software* Microsoft Excel 2013, Which aims to know whether the second group distributes normally or not. Normality test results can be obtained seen in Table 3 following

Table 3. Results Test Normality			
Class	F _{count}	F _{table}	Information
Experiment	0.137	0.19	Normal
Control	0.188	0.19	Normal

Based on table 3, shows the *Liliefors* test then in the experimental class obtained mark F_{table} = 0.19 And F_{count} = 0.137 with a level real significance of 0.05. Onclass control obtained mark F_{table} = 0.19 And F_{count} = 0.188 with a level of significant 0.05. So, H₀ accepted Because mark **F_{count} ≤ F_{table}**, and can be concluded that data from the experimental class and control class are normally distributed.

b. Test Homogeneity

Homogeneity testing is carried out to find out whether there is *variance* in the class experiment and class control nature Homogeneous or Not. Results test Homogeneityusing F-test can be seen in following table 4.

Table 4. Results Test Homogeneity		
Class	Experiment	Control
Amount	1792	1504
N	20	20
Variance	34.36	53.22

From the results of homogeneity analysis at the level $\alpha = 0.05$, it is obtained that F = 1.55 and Ft Abel 2.17 with db = n – 1 = 19. Based on criteria testing F_{count} < F_{table}, It can be concluded that the research data in the experimental class and control class has *Variance* Which is the same or homogeneous.

Test Hypothesis

Because the test precondition for testing, that's it fulfilled, testing a hypothesis using t-test statistics can be done. T-test uses the *Polled formula Variance* on real level significant 0.05, dk = n₁ + n₂ – 2 = 20+ 20 – 2 = 38. From the results of the hypothesis test described in Table 5, t is calculated = 7.13 and t table for $\alpha = 0.05$ with et al = 38 so obtained t table = 2,204. Because mark t count > t table = 7.13 > 2.204 then H₁ is accepted and H₀ is accepted. Thus, it can be concluded that there is an influence to use media learning *Edmodo* to results Studysimulation and communication digital.

Table 5. Results Test Hypothesis

Class	Experiment	Control
N	20	20
Mean	90	75.2
Variant (S^2)	34.35	53.22
Standard Deviation (S)	5.86	7.29
t count		7.13
t table		2,024

CONCLUSION

Based on the results study so can be concluded there is an influence use of online learning media on Simulation and Communication learning outcomes Digital on student class X vocational school Country 1 Kakas. Where results This can be seen further on results Study student, Where exists difference results Study between class Which taught use media learning on line Edmodo And class Which using online learning media WhatsApp Group, this is obtained based on results pre-test And post-test Which done. With thereby use of media learning online, Edmodo can increase results in Study Simulation And Communication Digital in class X N Vocational School 1 Kakas.

REFERENCES

- Afnibar and Fajhriani. (2020). Utilization of WhatsApp As Media Communication Between Lecturers and Students in Supporting Learning Activities (Study of Student Uin Priest Knurl Padang. Journal Communication And Broadcasting Islam.Vol.11(1).70-83.
- Arikunto, S. (2014). Procedure Study Something Approach Practical. Jakarta : Rineka Create.
- Dimiyati & Mudjiono. (2013). Study And Learning. Jakarta: Rineka
- Create Gruber, F. (2008). Edmodo: Microblogging for Education.
- Hamalik, O. (2004). Process Study Teach. Earth Script. Jakarta.
- Miladiyah, A. (2017). Utilization of WhatsApp Messenger Info in Learning Information And Enhancement Performance on Sub Part Program Government Province Sulawesi South. THESIS program postgraduate Communication Studies.
- Purwanto, N. (2002). Theoretical and practical educational sciences. Bandung: Youth Works
- Rusman, (2012). Models Learning: Develop Professionalism Teacher, King Grafindo Homeland, Jakarta
- Sandre, HI, Paat, WRL, & Pratasik, S. (2021). Online Learning Analysis in Vocational School. Edutik: Journal of Information and Communication Technology Education, 1 (3), 39- 45.
- Smaldino , S. (2012). Instructional Technology & Media For Learning. Pearson Education. Inc
- Sugiyono. (2013), Methodology Study Quantitative, Qualitative And R&D. (Bandung: ALPHABET)

- Sugiyono. (2015). Method Study Education (Approach Quantitative, Qualitative, and R&D) . CV Publisher. Alfabeta: Bandung.
- Suryadi, et al. (2018). Use of WhatsApp Social Media And its Influence on Discipline Study Participant Educate On Eye Lesson Education Religion Islam. Journal Education Islam. Vol.7 (1). 1-22
- Susanto, A. (2013). Theory Study And Learning in School Base. Jakarta: Kencana.
- Winkel, W. S. (2009). Teaching Psychology. Jakarta: Scholastic
- Yensy, N.A. (2020). Effectiveness of Learning Mathematical Statistics Through Media WhatsApp Group Viewed From Student Learning Results (Covid Pandemic Period 19). Journal of Education Rafflesian Mathematics. Vol. 5(2). 65- 74.
- Zwang J. (2010). Edmodo: A Free, secure social networking site for schools. <http://www.eschoolnews.com/2010/12/15/edmodo-a-freesecure-social-networking-sitefor-schools/>