E-Learning Media with the Blended Learning Model Using Google Classroom in Subjects Network System Administration

Indra Wijaya*[1], Faeza Rezi [2]

[12] Universitas Putra Indonesia YPTK Padang - Indonesia

*Email: indrawijaya25@gmail.com

Abstract

This research aims to determine the effectiveness of E-Learning Media using the Blended Learning Model in the Class XII Network System Administration Subject, TKJ major at Vocational High Schools (SMK). The research subjects were 69 people based on Purposive Sampling selection. The type of research used is Research and Development (R & D) with the ADDIE development model. There are three tests carried out in this research, namely: Validity Test, Practicality Test and Effectiveness Test. In these three tests, researchers conducted research for the effectiveness test, where the results of the overall effectiveness assessment of the E-Learning Media with the Blended Learning Model using Google Classroom were 95.82% so that the level of effectiveness can be interpreted as very effective when used in accordance with Ngalim Purwanto's statement where the range is 86%-100% in the Very Effective category. Based on this, it can be concluded that the assessment along with expert input and the results of field trials of E-Learning Media with the Blended Learning Model as a learning medium have been tested for its feasibility, effectiveness, and can be used in the learning process in the Class XII Network Systems Administration subject in the TKJ School department. Vocational Middle School (SMK).

Keywords: Media, E-Learning, Blended Learning, Google Classroom, Network System Administration

INTRODUCTION

Rapid Development of ICT (Information, Communication and Technology) has an impact on all fields including education. ICT is able to become a media and learning resource that can enable students to learn independently. This media will stimulate students' abilities and performance to the maximum so that ultimately it will give rise to learning that is electronic learning or what we often call e-learning. E-learning is a learning media with several learning methods and models such as blended learning , mobile learning, web-based learning, virtual learning, internet learning, networked learning, distance learning. Utilization of e-learning media as a learning technology needs to be done in order to carry out effective learning, and improve student learning outcomes in achieving learning goals. According to Rini Sefriani & Rina Sepriana (2020) " Using online media as a means of assisting tools in the learning process will provide variation in the learning process. This also has a positive impact on students, namely being able to improve student learning outcomes and hone students' digital literacy skills. One of the Learning Management System applications (LMS) which is not paid is a schoology application". One use of e-learning in learning is using the Blended learning model. Blended learning is learning that combines learning delivery strategies using face-to-face activities, computer-based learning (offline), online (internet and mobile learning) (Dwiyogo, 2018). The main aim of blended learning is to provide opportunities for various student characteristics so that they can learn independently, sustainably, and not only in the classroom.

The application of learning in Blended learning does not completely replace face-to-face learning in online classes . The composition can be determined by the institution as a user according to needs. Blended learning is used as a learning medium to complement and overcome material that has not been conveyed in learning when students study in class.

Basically, there are three basic stages in the blended learning model which refers to ICT-based learning, as proposed by Grant Ramsay (in Tao, 2011), namely: (1) seeking of information , (2) acquisition of information , and (3) synthesizing of knowledge.
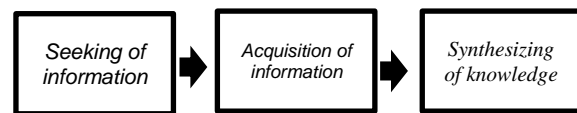

Figure 1. Basic diagram in the blended learning model which refers to ICT -based learning

Several efforts have been made to overcome obstacles in learning using the blended learning model , especially in increasing student motivation, lack of student enthusiasm in learning, so it is necessary to develop learning methods that pay attention to students' learning styles and abilities, which can support independent and group learning. One alternative solution to the problem above is by utilizing e-learning media with a blended learning model using Google Classroom , so from this problem it is hoped that this e-learning media can help and make it easier for students and teachers in learning both online and offline. Based on these problems, researchers conducted research on the Effectiveness of E-Learning Media with

the Blended Learning Model using Google Classroom in Network System Administration Subjects.

RESEARCH METHODS

Development of E-Learning Media ¬Using the Blended Learning Model This uses research and development or what is usually called R&D (research and development), namely research methods used to produce certain products, and test the effectiveness of these products (Sugiyono 2014:297).

The media development used refers to the ADDIE development type which consists of five stages, namely Analysis , Design , Develop , Implementation and Evaluation , which can be seen in Figure 2.

Figure 2. ADDIE Development Model

Determining the research subjects was carried out using a purposive sampling technique and the research subjects were 69 students in class XII TKJ at SMK Negeri 6 Padang. Validity instruments are used to determine whether the E-Learning Media being developed is valid or not. In other words, all instruments that have been designed will be validated first to determine the level of validity of the instrument. The validation sheet in this

research is validation carried out by the validator.

Test data for the effectiveness of using E-Learning Media with the Blended Learning Model were analyzed using a formula with percentage techniques stated by M. Ngalim. Purwanto (2010: 112) as follows:

$$NP = \frac{R}{SM} \times 100 \quad (1)$$

Information :
NP = The percent value sought or expected
R = Raw score obtained by students
SM = Ideal Maximum Score from the test in question
100 = Fixed Number

After the percentage is obtained, grouping is carried out according to the criteria in Table 1.

No	Average Value	Rated aspect
1	86% - 100%	Very effective
2	76% - 85%	Effective
3	60% - 75%	Effective enough
4	55% - 59%	Less effective
5	≤55%	Ineffective

Table 1. Validity Assessment

Then determine the validity frequency distribution value modified from Prof. Dr. H. Agus I. Irianto (2016) as follows:

R= highest data – lowest data
K = 1+3.3log n

$$P = \frac{R}{K} \quad (2)$$

Where P is the length of the interval class, R is the calculated distance or range, and K is the number of classes.

RESULT

E-Learning Media with a Blended Learning Model Based on Google Classroom is designed to make it easier for teachers in the teaching and learning process and make it easier for students to understand the subject matter of Network Systems Administration . This Network System Administration E-Module contains learning materials that are in accordance with KI/KD, just like a printed book but in electronic form. In the E-Module there are not only learning materials but there are also interesting pictures and practice questions, which can be seen in Figure 3 :

Figure 3. Upload Tutorial Video on Google Classroom

Material Summary

Summary This material contains summaries (conclusions) in each chapter of the Network System Administration learning where the summary of this material is presented in the form of a photo (jpg/png) with the aim that later the summary of this material can be saved directly on a smartphone . We can see in Figure 4.

Figure 4. Upload Material Summary on Google Classroom

Effectiveness Test was carried out on 69 students. The assessment of 69 students with a total of 25 questions showed an effectiveness value of 95.82 %. It can be said that the level of effectiveness of e-learning media with the blended learning model is stated to be very effective in use in Figure 5.
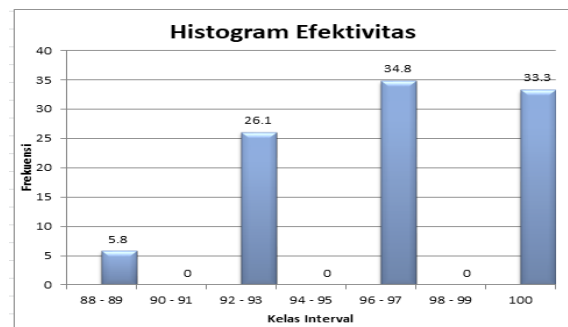
Figure 5. Effectiveness Test Histogram

E-Learning Media with a Blended Learning Model has been developed and then validated to determine the suitability of the media. E-Learning Media with the Blended Learning Model is validated and then tested on students in the form of practicality trials and effectiveness trials.

CONCLUSION

E-Learning Media with the Blended Learning Model follows the procedures and development (Research and

Development) Sugiyono (2014:298). Based on the description, data analysis and development of E-Learning Media with the Blended Learning Model , it can be concluded as follows: The effectiveness of the E-Learning Media with the Blended Learning Model is 95.82% so the level of effectiveness can be interpreted as very effective in use.

BIBLIOGRAPHY

[1] Nadziroh, Faridatun. 2017. Analysis of the Effectiveness of E-Learning Based Learning Systems.Vol. II, No. 1.

[2] W. Handoko., Blended learning theory and its application. West Sumatra: Information and Communication Technology Development Institute (LPTIK) Andalas University, 2018.

[3] I Made Sujana, et al. 2019. Development of Google Classroom "Content" for Mataram City English Teachers and Students. Vol. 2, No. 4.

[4] Mina Syanti Lubis , 2015 . Development of an Indonesian Language Learning Module Assisted by Mind Maps on Paper Writing Material for Class Xi High School Students. journal of language, literature and learning vol 2 no 1 (2015).

[5] Ministry of National Education. 2003. Republic of Indonesia Law No.20 of 2003 concerning the national education system.

[6] Sugiyono. 2014. Educational Research Methods (Quantitative, Qualitative and R&D Approaches). Bandung: Alphabeta.

[7] Sefriani, Rini, and Indra Wijaya. "Adobe Director Based Interactive Multimedia Learning Module in Vocational High School Operating Systems Subjects." INTECOMS: Journal of Information Technology and Computer Science 1.1 (2018): 60-71.

[8] Wijaya, Indra, and Rini Sefriani. "Interactive Multimedia CD Design Chemistry Lesson In Concept Training Material and amendment For Class X Vocational High School (SMK)." JOURNAL OF DYNAMICS (International Journal of Dynamics in Engineering and Sciences) 1.1 (2016).

[9] Kurniawan, D. (2017). Development of Learning Tools using Screencast- O-Matic Media for Calculus 2 Course Using Thiagarajan's 4-D Model. Siliwangi Journal, 3(1).

[10] Purwanto, Y. (2013). Implementation of Multimedia as a Learning Media (Case Study: Subnetting Material on IPv4). Journal of Undergraduate Information Engineering, 1(1), 201-208

[11] Supardi, S. (2012). Development of Learning Media and Learning Interest in Physics Learning Outcomes. Formative Journal, 2(1), 71- 81.

[12] Sefriani, Rini, and Rina Sepriana. "Development of Schoology-Based E-Learning Media in Technology and Vocational Education Curriculum Learning." Educatif: Journal of Educational Sciences 2.1 (2020): 9-14.

[13] T. Aminoto and H. Pathoni, "Application of Schoology-Based

E-learning Media to Improve Activities and Learning Outcomes in Business and Energy Materials in class XI SMA N 10 Jambi City," Journal of Physics Education, 2014.

[14] Kosasi, Sandy. "E-Learning Design to increase teacher and student learning motivation." National Seminar on Informatics Engineering Education . 2015.

[15] Widiantoro and L. Rakhmawati, "Development of Schoology-Based E-learning Media on the Basic Competency of Understanding the Atomic Model of Semi-Conductor Materials at SMKN 1 Jetis Mojokerto," Journal of Electrical Engineering Education, vol. 04, no. 02, pp. 501-506, 2015.

[16] Jafnihirda, Lika, Diani Diani, and Rini Sefriani. "Module, 3D Pageflip Professional, development of a graphic design learning module based on 3D pageflip professional." Journal of PTI (Education and Information Technology) Faculty of Teacher Education, Universitas Putra Indonesia "YPTK" Padang 6.1 (2019): 45-54.

[17] Widada, Fariz Budi, and Sri Waluyanti. "Development of a Workshop Work Engineering Learning Module as Teaching Material for Class X Audio Video Engineering." Elinvo (Electronics, Informatics, and Vocational Education) 4.1 (2019): 92-97.

[18] Fransisca, Monica. "Testing the validity, practicality and effectiveness of e-learning media in vocational high schools."

VOLT: Scientific Journal of Electrical Engineering Education 2.1 (2017): 17-22.

[19] Firmansyah, F. (2021). Learning Motivation and Student Response to Online Learning as a Learning Strategy during the Covid-19 Pandemic. Educative: Journal of Educational Sciences, 3(2), 589–597.

[20] Firman, F., & Rahayu, S. (nd). Online Learning in the Midst of the Covid-19 Pandemic. Indonesian Journal of Educational Science (IJES), 2((2),), 81-89.

[21] Sefriani, R., Sepriana, R., Wijaya, I., & Menrisal, M. (2021). Effectiveness of Online Learning during the Covid-19 Pandemic. EDUCATIVE: JOURNAL OF EDUCATIONAL SCIENCE , 3 (6), 4731-4737.

[22] Andrizal, A., & Arif, A. (2017). Development of Interactive Learning Media in the Padang State University E-Learning System. INVOTEK: Journal of Vocational Innovation and Technology , 17 (2), 1-10.

[23] Mariani, I. Gusti Ayu Nyoman, Dessy Seri Wahyuni, and Gede Saindra Santyadiputra. "EFFECTIVENESS OF E-LEARNING MEDIA USING THE BLENDED LEARNING MODEL ON THE SUBJECT OF NETWORK SYSTEMS ADMINISTRATION IN CLASS XI OF SMK NEGERI 3 SINGARAJA." Journal of Technology and Vocational Education 17.2 (2020): 275-285.
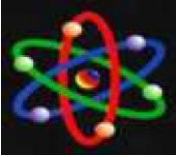
[24] Sefriani, R., Sepriana, R., Wijaya, I., & Radyuli, P. (2021). Blended Learning with Edmodo: The Effectiveness of Statistical Learning during the COVID-19 Pandemic. International Journal of Evaluation and Research in Education , 10 (1), 293-299.

[25] Diat, Prasojo, Lantif, Educational information technology, Gava Media, Yogyakarta, 2011