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ANALYSIS THE BLENDED LEARNING MODEL WITH THE MOODLE APPLICATION ON UNDERSTANDING MATHEMATICAL CONCEPTS

Chelsea Maythree[1] , Edy Surya[2]

Medan State University[1,2]
Chelseamaythree30@gmail.com

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui hasil analisis menggunakan aplikasi Moodle terhadap pemahaman konsep matematika dengan menggunakan model blended learning. Penelitian ini merupakan penelitian kepustakaan sehingga data yang diperoleh berasal dari kumpulan literatur yang relevan yaitu jurnal-jurnal terkait untuk dibaca dan dipelajari. Pengumpulan data dilakukan dengan mengumpulkan jurnal-jurnal terkait kemudian membaca dan mereviewnya. Setelah data terkumpul, dilakukan pengujian dan perbandingan data yang ditemukan. Teknik analisis data dilakukan secara kualitatif dengan mengutip pendapat yang sesuai. Hasil penelitian menunjukkan bahwa dapat disimpulkan bahwa pembelajaran model blended learning dengan aplikasi Moodle memiliki tingkat penerimaan yang baik dan penguasaan konsep peserta dalam pembelajaran Matematika dengan Blended Learning menggunakan aplikasi Moodle termasuk kategori baik. Dengan demikian Model Blended Learning menggunakan aplikasi Moodle dapat diterapkan dalam pembelajaran. Pembelajaran dengan menggunakan model blended learning berbasis Moodle memiliki pengaruh yang besar sekaligus berpeluang memberikan pengaruh positif berupa peningkatan k Kapasitas pemahaman konsep matematika siswa.

Keywords :
Model analysis; Blended learning; Moodle app; Mathematical concepts

ABSTRACT

This study aims to determine the results of the analysis using the Moodle application on understanding mathematical concepts using a blended learning model. This research is library research so that the data obtained comes from a collection of relevant literature, namely related journals to be read and studied. Data collection is done by collecting related journals and then reading and reviewing them. After the data is collected, testing and comparison of the data found are carried out. The data analysis technique was carried out qualitatively by quoting appropriate opinions. The results of the study indicate that it can be concluded that learning the blended learning model with the Moodle application has a good acceptance rate and the mastery of the participants' concepts in learning Mathematics with Blended Learning using the Moodle application is a good category. Thus, the Blended Learning Model using the Moodle application can be applied to learning. Learning to use the blended learning model based on Moodle has a great influence as well as the opportunity to provide a positive influence in the form of an increase in k Capacity of students' understanding of mathematical concepts.

INTRODUCTION

Education is an essential factor in obtaining the dignity of a country. With a good education, the next generation, intelligent and competent in their fields, will undoubtedly create so that the nation's condition will continue to improve with future generations of countries with various knowledge. Putri (2018) explained that:

"The quality of education in Indonesia is currently very concerning. This is evidenced by the 2000 UNESCO data on the Human Development Index, namely the composition of the rankings of educational attainment, health and income per head which shows that Indonesia's human development index is decreasing. in the 174 countries in the world, Indonesia ranks 102 (1996), 99th (1997), 105 (1998) and 109 (1999). According to the Political and Economic Risk Concultant (PERC) survey, the quality of education in Indonesia ranks 12th out of 12 countries in Asia. Indonesia's position is under Vietnam. Data reported by The Wirl Economic Forum of Sweden (2000), Indonesia has low competitiveness, which is only ranked 37th out of 57 countries surveyed in the world. And still according to a survey from the same institution , Indonesia is only predicated as a follower not a technology leader from 53 countries in the world. "

Mathematics is one of the sciences as a tool in developing a way of thinking. Mathematics is indispensable in the world of education and everyday life to advance science and technology. According to Cornelius (in Abdurahman 2018: 204) states five reasons for the need for students to learn mathematics, because mathematics is:

1. A means of clear and logical thinking
2. A means of solving daily life problems
3. Ameans of recognizing patterns of relationships and Generalization of experiences,
4. A means of developing creativity, and
5. A tool of increasing awareness of Cultural development.

LMS is a software or software used to facilitate online learning activities and is connected to the internet. Until now, there are various kinds of LMS products that can be selected and used. One of the most popular LMS is Moodle (Modular Object Oriented Dynamic Learning Environment).

Moodle includes internet-based technology media and makes it easy for teachers to organize and organize online learning. Thus, blended learning performed well when using Moodle as an LMS.

Moodle is formally known as the media package used by teachers in presenting online learning activities. In addition, the module has a function to organize students and organize learning activities in an online environment.

Blended learning is a combination of the advantages of traditional learningand electronic learning (e-learning). This learning maintains a balance between the accessibility of electronic learning knowledge and human interaction with traditional methods. professional development, teaching rooms, and preparation time (Bower et al., 2015; Catalano, 2014). Learning by integrating constructivist and collaborative models into a blended learning environment aims to educate more creative and curious students who read, write and produce (Güzera & Canera, 2014). The teacher's perception is not as a knowledge carrier and supervising the subject of knowledge, but as a coordinator, organizer of children's independent informative activities. Cooperative training, use of group forms, collectives and work partners,joint reflection and discussion.

The characteristics of *Blended Learning* are:

1. Learning that combines various ways of delivery, educational models,learning styles, and various technology-based media.
2. As a combination of direct education (face to face), independent learning,and independent learning via online.
3. Learning that is supported by an effective combination of modes ofdelivery, modes of teaching and learning styles.
4. Educators and parents of students have an equally important role:facilitators and parents as supporters.

The objectives of *Blended Learning* according to Husamah are as follows:

1. Helping educators to develop better in the learning process, according to learning styles and learning preferences.
2. Provide realistic practical opportunities for teachers and educators to learn independently, be useful, and continue to grow
3. Increased scheduling flexibility for educators, by combining the best aspects of face-to-face and online instruction. Face-to-face classes can be used to engage students in interactive experiences. Whereas online classes provide educators, while the online portion provides students with rich multimedia content of knowledge at any time, and anywhere as long as theeducator has internet access.

In developing learning both by applying Blended Learning and conventionally, educators need to develop appropriate learning steps in a learning implementation plan (RPP) based on basic competencies - the basic competencies to be achieved in learning.

RESEARCH METHODS

Type of research this is a library research or study literature. Research literature or research library is one of the types of methods of research qualitative. Research libraries utilize the library resources to obtain the data penelitiann. Yes, the case is about the analysis of the blended learning models with the Moodle application on understanding mathematical concepts. The method that is used in research this is the research library (Library Research). Research literature is a series of activities that pertain to the method of collecting the data library , read and record and process the materials research to obtain data and information that is used in the discussion of issues and do a searchwith the periodic review of the some of the literature that has relevance to the topic of discussion . It is a research that utilizes library sources to obtain research data. The research location is the internet. Data is obtained an online database with many sources of reference that can assist researchers in analyzing the data relatingto the title of the research. Penelitian is done in April- May 2021 .

This procedure is applied in the data analysis process in order to obtain an overview of the research findings. In this study , to answer the formulation of the first problem,namely: How is the influence of the blended learning model media in understanding students' mathematical concepts . To find out the answers of the problems mentioned, which should be done are :

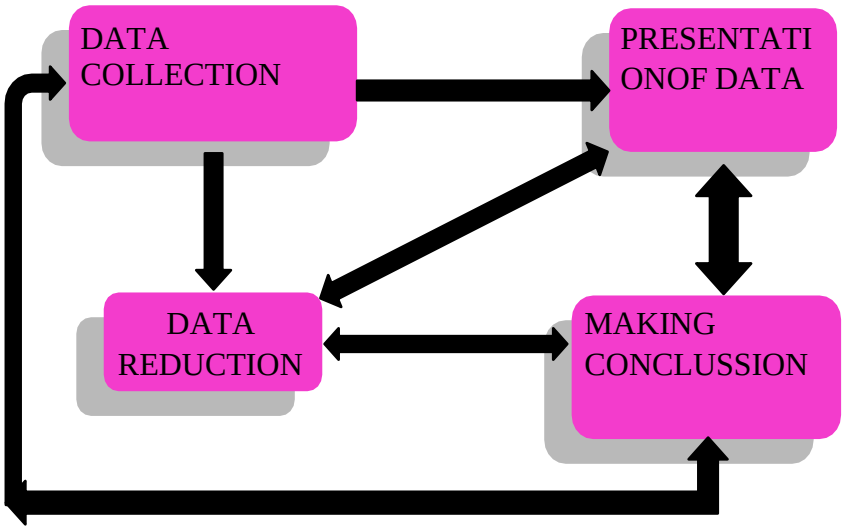
1. Gather information from several sources, namely journals, thesis, and thesis, which is associated with a modified and implementation model, which can affect the ability to understand mathematical students .
2. Analyzing the effect of implementing a modified model on student learning outcomes .
3. Describe student learning outcomes , especially in students' mathematical

understanding abilities .

4. Summing up the results of the influence of students on students' mathematical understanding abilities from the modified model .

Then to answer the formulation of the problem the second , How The na advantages of the media of learning blended in application Moodle tounderstanding the concept of mathematics students , are as follows :

1. Gather information from several sources , namely journals , thesis , and thesis, which is associated with a modified and implementation model, which can affect the ability to understand mathematical students .
2. Analyzing the advantages of applying a modified model to student learning outcomes .
3. Describe student learning outcomes, especially in students' mathematical understanding abilities.
4. Summing up the effect of the students in the ability of understanding mathematical students from the model modified.
5. In research kualiatif , conceptualization, categorization and description are developed on the basis of " events " were obtained when the activities of the field takes place . Therefore , the activities of collection of data and analysis of data is not possible separated one each other. Both take place in simultaneously , the process is shaped cycle and interactive , not linear. According to Miles and data, presenting data, and the withdrawal of the conclusions/verification. Activity reduction , presentation of data, and the withdrawal of keimpulan a series of activities analysis of the mutual succession followed or a process cycle interactive.



RESULTS AND DISCUSSION

Description of Research Results

Based on the results of research by researchers on several articles about factors that influence learning outcomes that can improve understanding of mathematical concepts with or without comparing the Blended Learning model with other models, it will be summarized as follows:

1. Blended Learning

This is the result of research findings on Blended Learning, where researchers will begin to collect data before analyzing the data. Therefore, the steps for collecting data according to the research procedure are, first the researcher will collect data related to Blended Learning then reduce the data so that the main things or important things related to the research are obtained, the two researchers will present the data sothat the data what is presented will be an overview based on the aspects studied by the formulation of the research problem, the last step the researcher makes conclusions based on the data presented which has been described. The results of research related to Blended Learning are as follows:

a. In J1, Several research First, research conducted by Fatwa and Djunaidi (2015) states that the implementation of the blended learning model can be used as a supplement to face-to-face learning activities, with online learning access to complete the delivery of material in a broad scope with theoretical and practical competencies. Second, research conducted by Pradnyawati, Suparta, and Sariyasa (2014) stated that the implementation of the blended learning model can increase motivation to learn mathematics. Third, the results of Eryilmaz's research (2015) show that in blended learning, students can learn more effectively in an integrated learning environment. Fourth, Marhendra, Suryaningtiyas, and Kristanti (2016) stated that blended learning had a positive and significant effect on students' mathematics learning outcomes. Although many studies related to the blended learning model have been carried out as previously stated, as far as the researcher's knowledge noresearch examines the effect of the blended learning model on understanding concepts and fluency of students' mathematical procedures. Thus, the purpose of the study was to describe the effect of the blended learning model in learning mathematics on the understanding of concepts and the fluency of students' mathematical procedures. The summary of the results of the descriptive analysis on the concept understanding score and the fluency of students' mathematical procedures in the experimental group and the control group is as listed in the Summary of Concept Understanding Data Analysis Results and Summary of the Results of Smooth Procedure Data Analysis. The summary of the results of Concept Understanding Data Analysis shows that the average concept understanding of students who are taught using the blended learning model is higher than that of students who are taught usingthe conventional model. In addition, in terms of the ability of mathematical procedures, students who are taught using the blended learning model have a higher average score when compared to students who are taught using the mathematics has a positive influence on understanding mathematical conceptsand students' mathematical procedural abilities.
b. In J2,Mastery of participant concepts in Basic Mathematics lectures with Blended Learning using the Telegram application is a good category. The category is based on the value of the final exam that has an average of 74, 85 with a standard deviation of 13.15. From these data can be interpreted to mean that a lot of value greater than 74, 85 arethus mastery of the concept of participants more than that do not master the concepts. Based on the description in the discussion, it can be concluded that the participant's activities during the learning process were active, the response of the participants, in general, had a good level of acceptance and the mastery of the concept of participants in Basic Mathematics lectures with Blended

Learning using the Telegram application was in a good category. Thus, the effectiveness of Blended Learning using the Telegram application can be applied to learning.

c. In J3,The instrument used is a description question that has been tested for feasibility by testing the validity, reliability test, level of difficulty, and differentiating power. The posttest instrument used is 7 questions about the description of the coordinate point material. This study applies 2 treatments, namely the first experiment using blended learningusing Google Classroom, the second experiment using e-learning using Google Classroom. Then get the conclusion that there is a difference in the average value of the blended learning model using google classroom, e- learning learning model using google classroom, and direct learning on the understanding of students' mathematical concepts. The results of the normalitytest and homogeneity test can be tested using a one-way ANOVA. The calculation result of ANOVA one direction at data analysis posttest has been analyzed shows that the value of 0000 <† = 0.005 ؛ rejected, then the ability to understand mathematical concepts learners with learning model of blended learning using google classroom there is an influence on the understanding of mathematical concepts dan rata average ability to understand mathematical concepts there are at least 1 pair of different classes, between the blended learning model and the direct learning model and the e-learning learning model with the direct learning model. Along with the development of science and technology in the field of education, it can improve the quality of direct learning models in the classroom with technology-based learning models.

d. In J4,Based on the results of data analysis, there are differences in the ability to understand mathematical concepts between students who learn with the Blended Learning learning model and students who learn using conventional learning. The results of the two-way ANOVA calculation show the value of F (A)n = 4.83 and F(A)t = 4.02 at a significant level of 5% fish. With the conclusion F(A)n F(A)t which means accepted and rejected. The differences are amplified more than the mean difference between the experimental class and control class, where the mean experimental class and control class mean in a row is 64, 89, and 57.43. This shows that the Blended Learning learning model is more effective in providing a positive influence onthe ability to understand mathematical concepts compared to classes using conventional approaches. There are differences in the ability to understand mathematical concepts between students who have learning independence in the experimental class and students who have to learn independence in the control class With the conclusion F (A) n ≥ F (A) t which means accepted and rejected. This means that there are differences in the ability to understand mathematical concepts between students who have learning independence in the experimental class and students who have to learn independence in the controlclass.

CONCLUSION

Based on the results of research and discussion, it can be concluded that concluded as follows:

1. Based on the results of the analysis through several literatures, it can be concluded that the blended learning model using the Moodle application has a good level of

acceptance and the participants' mastery of concepts in Mathematics learning with Blended Learning using the Moodle application is a good category. This happens because the blended learning model can stimulate students to learn independently through online materials and discussions so that learning can be done anywhere and anytime.

2. Some of the advantages of the blended learning model using the Moodle application that have been analyzed are as follows:
   a. Learning The blended learning model makes students more independent in understanding the material given by the teacher.
   b. Blended Learning Model learning allows students to have discussions with teachers or other students outside of face-to-face hours.
   c. Blended learning combines face-to-face and online direct learning activities offering the use of the internet in learning activities, providing flexibility and effectiveness in learning and teaching activities. With blended learning, it is easier for participants to access learning materials and activities. Through online learning activities, students can follow anytime and anywhere. In addition, various learning materials and resources can be provided through online media. Thus, learning materials and other resources can be accessed at any time.
   d. Blended learning combines face-to-face and online direct learning activities offering the use of the internet in learning activities, providing flexibility and effectiveness in learning and teaching activities. With blended learning, it is easier for students to access learning materials and activities. Through online learning activities, students can participate anytime and anywhere. In addition, various learning materials and resources can be provided through online media. Thus, learning materials and other resources can be accessed at any time.
3. Some of the advantages of the blended learning model using the Moodle application that have been analyzed are as follows:
   a. The media needed are very diverse, making it difficult to apply if the facilities and infrastructure are not supported.
   b. Unequal facilities owned by students, such as computers and internet access. Even though Blended Learning requires adequate internet access, if the network is inadequate, it will be difficult for participants to participate in online independent learning.
   c. Lack of public knowledge of the use of technology
   d. Unequal facilities owned by students, such as computers and internet access.

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