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THE IMPLEMENTATION BLENDED LEARNING METHOD USING ARTICULATED STORYLINE IN CLASS 4 FRACTION LEARNING, MUHAMMADIYAH PRIMARY SCHOOL, PANGKALPINANG

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ABSTRACT

This study aims to describe the implementation of multimedia learning in blended learning in mathematics in grade 4 elementary schools on the topic of fractions. Articulated storyline is an effective medium for elementary school students that is easily developed as one of the multimedia blended learning used in the blended learning method. In our research we examined how the impact of implementation blended learning using multimedia articulated storylines, In this case, it is also discussed how the influence of multimedia articulation storylines as one of the multimedia that can be developed easily to help teachers in distance learning, especially mathematics learning in schools. Primary school related to fraction learning. In this research, students are taught how to interpret the understanding of the concept of fraction problems and proof in life related to mathematics learning problems, so that they can describe mathematical problems and can understand the concept of fractions using logical reasoning so that they are able to prove reasoning about fraction problems according to their abilities. The use of reasoning is needed to determine the concepts that have been made based on the understanding of the concept of fractions that the students have. This study was designed to see the effect of blended learning which is applied as a learning model used to teach logical reasoning in mathematics learning, especially about fraction problems, and how the effect of the application of blended learning on learning outcomes of primary school students at Muhammadiyah Elementary School Pangkalpinang

1.INTRODUCTION

The use of information and communication technology for learning activities in Indonesia is increasing. The process of using technology in learning is usually called electronic learning or e-learning. Blended learning is a formal education program that allows students to learn (at least partially) through content and instructions that are delivered online (online) with independent control over the time, place, sequence, and speed of learning (Karaca & Ocak, 2017). People who have independent learning know when to need help and when they don't need help from others in learning. The concept of independent learning rests on the principle that individuals who learn will arrive at the acquisition of(Dron, 2018) the importance of the blended learning strategy in the use of e-learning in

the digital era is currently an important choice today. (Wildavsky & Wildavsky, 2018)reveals that the main weakness of e-learning, namely the intensity of meeting between students and teachers is very minimal and it is difficult to be able to socialize between students. Information and Communication Technology (ICT), which is developing so rapidly, has provided convenience to various problems faced by the community and especially students (Ameliola & Nugraha, 2015). At the primary school level, mathematics is one of the compulsory subjects taught to train students to think logically, analytically, systematically, critically and creatively. Studies show that there is a significant correlation between creative thinking skills, learning achievement and overall educational implications(Yoon et al., 2014). Inappropriate learning processes can make students not develop and have less reasoning based on their thinking, but instead accept knowledge passively(McDougle et al., 2015). Thus, the step of using blended learning as a learning model in the learning process is one of the common alternatives made by teachers at school, because it can make students become active individuals. To reduce the weakness of the ability to understand concepts and reasoning in mathematics learning, students need to be accustomed to logical reasoning. To be able to achieve these learning standards, a teacher should be able to create a learning atmosphere that allows students to actively learn by constructing, finding and develop his knowledge. Because teaching mathematics is not just arranging the order of information, but it is necessary to review its relevance for the use and interests of students in their lives. By learning mathematics, students are expected to be able to solve problems, find and communicate ideas that arise in students' minds.

2. LITERATURE REVIEW

Benefit of multimedia for education with blended learning method

The overall quality of the educational process was not only depending on the quality of the curriculum, but also on the ability to realize it. The main factor that affecting the quality of the curriculum is the basic elements in the implementation process. The main implementation elements are: (a) adequate conditions; (b) the ability of teachers to convey the objectives and expected outcomes of the curriculum; (c) inform the curriculum structure and its role in the teaching process; (d) preparation of relevant learning materials; (e) ability in managing the learning implementation process; (f) monitoring and evaluation of instructional process realization; and (g) connect with companies and other social partners(Lestari et al., 2015). The teacher as a teacher, must be able to choose the right learning method , To achieve the goals according to the curriculum selection of methods is very important, so that the potential of students can be developed. One of the potentials that must be developed is the activity in learning because in the learning process students need to strive to develop activity, creativity, and motivation of students in the learning process. One alternative is to combine face-to-face learning models with e-learning-based learning models. This learning model is called the Blended Learning

model Mosa (Rachmadtullah, 2020). said that mixed learning patterns are two main elements, namely learning in class with online learning. In this online learning there is learning using the internet network in which there is web-based learning. Blended Learning is a combination of multimedia technology, CD-ROM, video streaming, virtual classes, e-mail, voicemail and others with traditional forms of classroom training and training for everything it needs. The point is combining or mixing the two learning approaches used so that new learning patterns will be created and will not cause boredom to students. In this learning model, the learning process is carried out face-to-face in the classroom enabling teachers to assess students 'affective competencies, transfer values, and monitor students' moral growth. On the other hand interactive learning facilitates students during the learning process so that the benefits of learning can be achieved maximally, Blended learning as a method solution in learning improves the relationship between technology and face-to-face learning, with a blended learning method teaching teachers to share content in teaching and understanding learning math is mainly about fractions.

Blended method make easy teacher to teaching student

(Farrell et al., 2015) found that the learning process requires a lot of teacher and student interaction and communication. The condition that there is a lack of face-to-face time in learning. Lack of time required in the learning process can be overcome by additional learning and schools. In learning, students are taught how to interpret mathematical proof problems so that they can describe mathematical problems and can understand the concept of fractions using logical reasoning so that they are able to prove reasoning on fraction problems according to their abilities. Mathematics learning in elementary school is the basis for the application of mathematical concepts at the next level. Therefore, in the implementation of mathematics learning in elementary school, students should be able to organize and lay the foundation for students' mathematical knowledge that can help clarify problem solving in everyday life and the ability to communicate with numbers and symbols, and develop a more logical, critical, careful attitude. disciplined, open, optimistic, and respect mathematics. One of the main problems in learning elementary mathematics in Indonesia today is the low understanding of mathematical concepts. In order for students to increase their understanding of concepts, it is necessary to improve the learning process. To overcome this, the learning process is used through the blended learning method, where blended learning is in line with mathematics learning in the 2013 curriculum which emphasizes the search for knowledge. Students are directed to find out for themselves various facts, build concepts, and new values needed for their lives and the focus of learning is directed at developing student skills in processing knowledge, finding and developing their own facts, concepts and values that are needed(Kemendikbud, 2017).

Blended learning Addresses the Affective Need of Student Learning in covid 19 era

The mathematics that students learn in school is obtained through notification (by way of lectures / expository), reading, imitating, seeing, observing and so on, not obtained through

discovery. This can lead to student errors in understanding mathematical concepts. One of the students' mistakes is that students forget (wrongly) use the formula to be used in solving the problem. Furthermore, the error is caused by the tendency of students to only memorize formulas, not to understand how the formula occurs, so that what they learn is easily forgotten. This can happen because learning does not encourage students to understand mathematical concepts.

Concept understanding is the most basic skill in mathematics.(Ponomarov & Holcomb, 2009) states that this skill greatly affects other mathematical skills. In other words, the understanding of the ability of mathematical concepts will affect the level of quality of student learning and ultimately affect the overall student achievement in mathematics. A student will not be able to solve a problem according to the procedure if he does not have a good understanding of the concept. Likewise, in developing learning strategy components. If the level of understanding of the concept is still low, students will not be able to develop these components. Therefore fostering and developing conceptual understanding is very important for students, especially for elementary students. Besides In the covid era, education requires solutions in teaching that are not limited to face-to-face but also cannot be separated from the benefits of teaching, with blended learning that combines face-to-face and online learning, it is hoped that the ability to maximize the ability of students(Fitri, 2017)students like maths lessons, this can be seen when students are still in the low class and they think mathematics is easy, but the longer they feel less happy and even afraid because they feel difficulties and do not understand how to complete tasks. From these facts, the researcher felt the need to develop the ability to understand mathematical concepts for elementary students.

Blended learning makes children learn independently

The use of reasoning is needed to determine the concepts that have been made based on the understanding of the concept of fractions that students have(Lalima & Lata Dangwal, 2017). The process of determining logical reasoning in mathematics is carried out by exploring the fractional problems that will be proven, which will then be used as data to be accounted for in conclusions in the form of formal evidence. By paying attention to the things above, the blended learning strategy is considered capable of improving the ability to understand logical reasoning in fractions. This study is designed to see blended learning as a learning model that can be used to teach logical reasoning for prospective teachers or prospective teachers. This shows that blended learning is one of the activities in learning mathematics that can develop students' mathematical abilities, because in blended learning, students both individually will get direct experience either face-to-face or online. In blended learning activities, students are guided either face to face or online to formulate or ask problems or questions based on the situations given by the teacher. In formulating a problem, students must think and reason, create and communicate mathematical ideas, cooperate and argue in formulating and solving problems with friends, use available

information to solve problems and think of the most appropriate and sensible way to solve problems which has been formulated.

Attention to lean use of blended learning in teaching mathematic more efectif

Learning mathematics with blended learning that has been experienced by students is a bridge to connect students from the introduction stage to the understanding stage of the concept of mathematical fractions. The use of this context can be used as a starting point that bridges student activities in understanding the concept of fractions to produce concepts for using fractions in everyday life, both addition or subtraction. In the process of learning mathematics, conceptual understanding is a very important foundation for thinking in solving math problems and everyday problems.(Syaiputra Wahyuda Meisa Diningrat et al., 2019)states that "mathematics lessons emphasize understanding concepts", meaning that in learning mathematics, students must first understand mathematical concepts in order to solve problems and be able to apply the learning in the real world (Herawati et al., 2013). In line with that, MohdSholeh Abu stated that if the understanding of concepts in mathematics learning is not achieved, it will reduce students' interest in learning mathematics itself and students will find mathematics difficult (Chee et al., 2017). Learning with problem posing means that students are taught to make their own problems according to the existing situation. Problems like this are not easy for students because in forming problems students have to think about, tell their ideas in the form of problems to the level of disclosure through classical discussion activities. The disclosure or comments of students in each learning process on problems that are formulated by themselves can improve learning outcomes and the more trained thinking skills are to understand the concepts being learned.

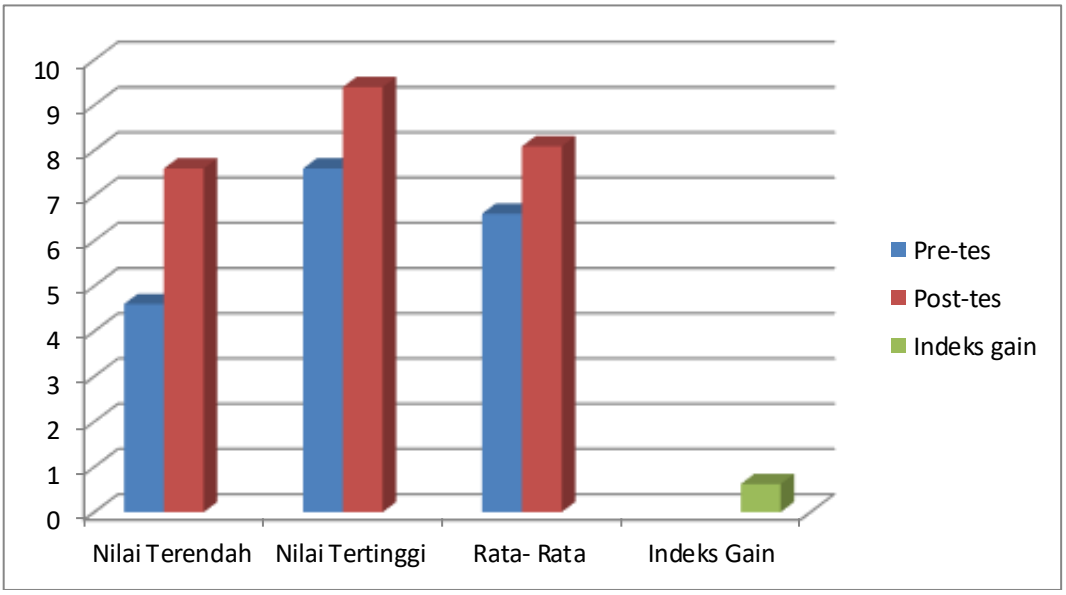
3. METHODOLOGY

This research is a quantitative research with a quasi-experimental approach. The design used is "Pretest-Posttest Non Equivalent Control Group Design". The population in this study were all students of class IV SD MuhammadiyahPangkalpinang as many as 40 people consisting of 2 classes, namely class A as many as 20 students and class B as many as 20 students. In this study, according toWiersma(Suhendri, 2015), a random assignment was used to determine the experimental class and the control class, namely the selection was carried out randomly to select the class (groups). By lottery using a small piece of paper written the name of each class. Through the lottery, the experimental class and control class were obtained. The result is that 20 students class A as the experimental class and 20 students as the control class. Both classes must come from a homogeneous population, this is shown from the results of the pretest homogeneity. This study involved two variables, namely the experimental variable and the dependent variable. The experimental variable is the treatment variable for the experimental class, namely LMS-based blended learning, and the treatment variable for the control class which is used as a comparison, namely online learning only. While the dependent variable is learning motivation and learning outcomes. Data collection techniques in this study were in the form of questionnaires and written tests given to students via google from before and after treatment in both classes. The validity of the instrument in this study includes the validity of rational judgment, namely by consulting the instrument with experts, in this case the media expert lecturers and other

competent lecturers by being asked for their opinions about the instruments that have been compiled. After the instrument has been consulted and has met the requirements, the next step is to conduct field trials to obtain construct validity. After the data were obtained and tabulated, the construct validity was tested by factor analysis. The data analysis technique was carried out by the following steps: (1) testing the analysis requirements with the normality test using the Kolmogorov-Smirnov method for the homogeneity test carried out by the levene test, and (2) hypothesis testing in this study for hypotheses 1 and 2 using the F test ANOVA for hypotheses 3 and 4 using paired samples t test(Schad et al., 2020).

4. RESULTS AND DISCUSSION

The results of the effect of using the developed blended learning are based on pre-test and post-test data. From the overall value of the pre-test, it can be seen that the students' initial ability was obtained a mean score of 66.03 and a mean of 80.93 after K was used. Based on the mean post-test and pre-test, there is an increase in the mean value of 14.9 after using blended learning method. The mean value obtained is then converted to the calculation of the gain score. Overall, in the calculation of the gain score, the mean value was 0.62 for 30 students. then the value of 0.62 is categorized as Moderate. The following are the results of the Pre-test and Post-test Beta test II are presented in the form of a graph in Figure 1 as follows.



Picture 1 . Comparison of Pre-Test and Post-Test and Gain Index

There is an effect of using the blended laerning learning model with these moderate criteria, it can be seen from the improvement in learning outcomes of fourth grade students of SD Muhammadiyah by comparing the pre-test and post-test scores to the KKM, which is

70. Based on attachment 5f it can be seen that the pre-test scores thesis student, with the lowest score of 47 and the highest score of 76 with an overall average score of 66.03 students. The average result of the pre-test score is still below the KKM. Based on the results of the pre-test, there are 14 students whose score is complete 33.8%.

5. CONCLUSION

Based on the research results, it can be concluded that: (1) there is a difference in learning motivation between students who are taught blended learning and students who are taught online learning; (2) there are differences in learning outcomes between students taught blended learning versus students taught online learning; (3) there is an increase in student motivation due to the application of blended learning; (4) there is an increase in student learning outcomes due to the application of blended learning

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