Implementation Of An Open Ended Learning Model Assisted With The Mentimeter Application To Improve Students' Cognitive Learning Outcomes

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Abstract. This research was motivated by the low cognitive learning outcomes of some students in thematic learning. An alternative learning method for students' low cognitive learning outcomes is to apply an open ended learning model assisted by the mentimeter application. This research aims to determine the average difference in cognitive learning outcomes of class VI students in thematic learning using an open ended learning model assisted by the mentimeter application and image media. The population of this study were all class VI students at SDN Sapan for the 2022/2023 academic year. The samples taken were class VI A and class VI B using purposive sampling technique. Data collection techniques are carried out using tests and observations. The data analysis technique uses an independent t-test with a significance level of 5% with the hypothesis that there is a difference in the average increase in cognitive learning outcomes between students who follow the open ended learning model assisted by the mentimeter application and students who follow the open ended learning model assisted by image media. The research results obtained: Cognitive learning results before and after implementing the open ended learning model assisted by the mentimeter application improved. Cognitive learning outcomes before and after implementing the open ended learning model assisted by image media did not improve. There is no difference in the average increase in cognitive learning outcomes between students who follow the open ended learning model assisted by the mentimeter application and students who follow the open ended learning model assisted by image media.

Keywords: open ended learning model, mentimeter application, image media.

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INTRODUCTION

Humans face various problems and challenges in the process of their lives. People who are able to overcome difficulties and challenges in their lives well are successful people. However, to be able to overcome the difficulties and challenges of life in a good and wise way, humans need an educational process. In encouraging quality human resources, education is a very important position in order to become knowledgeable and achieve goals so that the nation's life can be prosperous (Ubaidillah, 2020). Education is an effort to prepare the younger generation to face changes in the global era. In order to create quality education and increase the quality of human resources (Nurrita, 2018). Therefore, the importance of elementary school level factors is because the potential for children's development is found at the elementary level, and is also the initial basis for learning abilities at the next level of education (Kosilah & Septian, 2020).

The learning process is an activity to achieve learning objectives carried out by students and teachers (Wahid, 2018). The learning process means a way to cause students to learn, these activities become learning events. The learning carried out at the Elementary School or Madrasah Ibtidaiyah (SD/MI) level is one of the foundations for the research process at the next level so it can be said that this learning must be carried out optimally ((Nurazizah, Carlian & Marthyane, 2019). Thematically, the readiness of educators is very influential in encouraging students to observe, ask questions, discuss, communicate and present after receiving learning material. Subjects are very important for students, because they help students understand lessons combined into one theme more easily. Then it is also more efficient to use time. Thematic learning in schools makes students more creative and active because it can develop students' thinking abilities. Variations in methods that are adapted to the conditions of the material and subject matter being taught increase the level of learning success. Thematic learning is the process of

integrating teaching materials or between subjects and all aspects of child development and the needs of the child's social environment in one learning theme (Yusma, 2019).

The results of interviews on January 9 2023 at SDN Sapan with the principal and homeroom teacher of class VI showed problems with thematic learning outcomes, namely that in the learning process, educators found it difficult to convey thematic material, because during the learning process in the classroom teachers tended to apply the lecture method, so learning tended to teacher-centered. Then students are also less able to concentrate for long periods of time so learning in class tends to get boring quickly. Students find it difficult to differentiate thematic learning which tends to blend into several subjects.

The lack of student cognitive learning outcomes can be found at SDN Sapan. During the learning process in class, the daily learning results in thematic learning contained several students' scores which were less than the predetermined KKM, namely 70. The average learning result in class 6 A was 71, but individually in class 6 A there were 7 students. Of the 20 students who got a score less than the KKM, while class B obtained an average learning result of 70, but individually there were 9 students out of 20 students who got a score less than the KKM.

Students' lack of mastery of the material that has been explained by the teacher causes minimal learning outcomes to be obtained. So teachers must provide additional assignments to improve students' grades and also as a benchmark for teachers to find out whether the material can be understood by students or not. With teacher learning that is less varied, it results in low student interest and they tend not to pay attention to the teacher's explanations.

Based on these problems, alternative solutions are needed to deal with low student cognitive learning outcomes. Researchers will implement a learning model assisted by learning media. In conducting research, researchers will apply an open ended learning model assisted by the mentimeter application in the experimental class and apply an open ended learning model assisted by image media in the control class.

According to (Sholikhah, Kartana & Utami, 2018), the open-ended learning model is an individual learning process that openly sets and achieves its goals and desires. This learning model is expected to develop students' creativity because they are more actively involved in their learning and there is more hope of applying overall knowledge and skills. Apart from using models, researchers will use Mentimeter learning media as a forum for delivering material to students. There are many media that teachers can apply, namely website-based learning media that can increase students' cognitive learning outcomes during learning, namely Mentimeter learning media. The advantages of this media are that it is a means that can influence students' interest in learning, a means of collecting data, and a means of expressing opinions. (Putri, Wijoyo, Herlambang, 2021).

The development of science and technology is felt so quickly in the era of globalization that is occurring in recently. Likewise, this development has an impact on the world of education, where In a learning process teachers are required to master and incorporate technology into the teaching and learning process with the aim of creating effectiveness learn based on the goals you want to achieve. Basic education level has potential most strategic in instilling moral values, norm values, and moral values can build a superior generation (Prastyo, Puspita & Nurmalasari, 2021). According to (Zulfa & Huda, 2021) mentimeter is an interactive learning media that can be carried out online or face to face. This media can be applied as a medium for presentations, quizzes, or even used as a game. After the material is presented by the teacher, this media can be used as a test tool to measure student understanding. Using the Mentimeter study tool is very important because this tool can be used by anyone. For teachers, this tool helps deliver learning material more effectively. Apart from that, this tool is also beneficial for students because during the learning process, they are required to be more actively involved. This research will carry out a comparison by applying an open ended learning model assisted by the Mentimeter application and an open ended learning model assisted by image media during learning to measure whether there is a difference in the average cognitive learning outcomes.

METHOD

This research uses a quantitative approach, which is a type of research that produces several findings that can be used using several measurement methods or statistical procedures and using objective theory (Jaya, 2020). The research method the author uses is quasi-experimental (Payadna & Jayantika, 2018). This research uses a Nonequivalent Pretest-Posttest Control Group Design. This design is a design that is similar to the pretest posttest control group design, but in this design the two groups are not chosen randomly (Alpansyah & Hashim, 2021). Data was tested using statistical tests, namely normality test, homogeneity test, hypothesis test, and N-Gain test.

The research was conducted at Sapan SDN. The population in this study were 2 class VI students at SDN Sapan. The sample was class VI A with 20 students and class VI with 20 students. Then it was determined which experimental class was the class that used the open ended learning model assisted by the mentimeter application, namely class VI A and the control class which used the open ended learning model assisted by image media. The sampling technique in this research uses purposive sampling. Samples were selected in a planned manner.

RESULTS

This research is a quantitative experimental study by providing treatment to two different samples, namely the experimental class and the control class in class VI of SDN Sapan. The open ended learning model assisted by the mentimeter application was given treatment for the experimental class and the open ended learning model assisted by image media was given to the control class. Each class was given a pretest and treatment 4 times and after that a posttest was given which aims to obtain data on learning outcomes from each sample. The results of data analysis for the experimental group and control group are presented in table 1.

Table 1. Description of Data on Improvement of Thematic Learning Outcomes for Experimental and Control Classes

Data Description	Experimental Class	Control Class
N	20	20
Mean	0,2	0,0
Varians	1,26	1,25
Standard Deviation	160,1444	158,667

Based on Table 1, the data is compiled and analyzed in several stages, namely normality test, homogeneity test, and hypothesis test. The first step carried out in the normality test for the experimental class and control class was testing using IBM SPSS version 16, namely the Shapro Wilk normality test. The condition for the Shapiro Wilk normality test is that in making a decision a conclusion has a category, namely if the significance is < α = 0.05 then it is rejected, namely the data is not normally distributed, and if the significance is ≥α = 0.05 then it is accepted, meaning the data is normally distributed. After the experimental class and control class data were calculated, it was found that significance was greater than α = 0.05 so that both data on increasing thematic learning outcomes in the experimental class and control class had a normally distributed population.

After obtaining normally distributed data, the next step is to test the homogeneity of the experimental class and control class. The decision making criteria is if the significance is < α = 0.05 then it is rejected, namely data with non-homogeneous variance and if the significance is ≥α = 0.05 then it is accepted, namely data with homogeneous variance. After calculating using IBM SPSS version 16, a significance value of 0.72 was obtained. This value is greater than the significance of α = 0.05. Because the significance is ≥α=0.05, it is accepted. Thus, the test results using IBM SPSS version 16 provide the conclusion that the two classes have homogeneous variances.

The hypothesis was tested that there was no difference in cognitive learning outcomes in thematic learning between students who used the open ended learning model assisted by

mentimeter media and students who used the open ended learning model assisted by image media. Based on the results of the normality test and homogeneity of variance test, the experimental group data and control group data were normally and homogeneously distributed. In accordance with the previous explanation, the statistical test used is the independent t-test. The hypothesis criterion is rejected if this value is greater than the significance of α = 0.05.

Table 2. Analysis of Independent T-test Test Data on Increasing Thematic Cognitive Learning Outcomes for Experimental and Control Classes

No	Sample	Mean	Df	N	t_{count}	t_{table}	Conclusion
1	Experimental class	0,028	38	20	0,762	2,021	H_0 Accepted
2	Control class	0,028		20			

Based on the table above, the results of the analysis using the independent t-test obtained 0.762 with dk = 20+20-2 = 38 at a significance level of 5% obtained = 2.021. Because (0.762 < 2.021), it can be concluded that there is no difference in the cognitive learning outcomes of thematic learning between students who use the open ended learning model assisted by mentimeter media and students who use the open ended learning model assisted by image media.

The average N-Gain value for the control class is 26.72 with low criteria. Meanwhile, the experimental class was 29.7 with low criteria. One of the factors for the low average N-Gain score obtained is that there are some students who have difficulty explaining the answers in answering the questions. In practice, some students can solve them. However, some other students face difficulties in solving the questions, so sometimes they ask for help from the teacher. to understand the meaning or answer to the question. This is in accordance with (Jelita & Putra, 2021) statement that thematic learning is quite difficult learning, but will be more easily accepted by students who have high memory and thinking power. However, students who have low thinking power will experience difficulties in the learning process and can cause problems, such as poor grades, falling behind, and not liking lessons.

Agree with the results of research carried out by (Anggraini, Murtono & Ismaya, 2021) with the title "Improving Learning Outcomes for Theme 4 Using the Open Ended Problems Model Assisted by Game Media in Elementary School Students". The research results show an increase in the use of open ended learning models supported by the ludo game media. In cycle I got a score of 85, meeting II got a score of 90, in cycle III the first meeting got a score of 93 while the second meeting got a score of 95 with an average of 94% very well. Students can play a full role directly in class, apart from that, in the learning process the teacher explains by connecting it with problems found in everyday life. During the learning process, apart from using the learning model, teachers also use game media, so that during learning students can learn while playing.

If students are able to relate learning material to the understanding they already have or to their daily life, then learning has progressed meaningfully (Gazali, 2016). The open-ended learning model allows students to have freedom when looking for answers given by the teacher and also the teacher uses several approaches to problem solving (Sofyan, 2021).

Apart from that, it is also in line with research carried out by (Rahayu, 2019) "Efforts to Improve Communication Skills through the Discovery Learning Model Assisted by Mentimeter Media in Class III Students of Selomoyo State Elementary School, Magelang, Academic Year 2020/2021". Shows increased learning outcomes. It can be seen from the completeness of students' KKM in pre-activities and each cycle, namely 15% of pre-activities. Around 5% for Cycle I, 50% for Cycle II, and 95% for Cycle III. This is related to an increase in the average pre-action student learning outcomes of 60%, cycle I 6%, cycle II 66%, and cycle III 76%. Therefore, it is concluded that the application of the discovery learning model supported by the Mentimeter media application in thematic learning can improve communication skills and student learning outcomes. Learning using the mentimeter application becomes more interesting if it is carried out in an interesting learning environment. One learning environment that can increase students' awareness and understanding (Andriani, Dewi & Sagala, 2019).

Learning in the control class is certainly not the same as the experimental class which uses an open ended learning model assisted by the Mentimeter application. In the control class which applies an open ended learning model assisted by image media, learning begins with students listening to the explanation given by the teacher, then paying attention to the problem explained by the teacher by paying attention to the image that matches the problem, then students in groups are given a problem that must be solved in groups, after solving the problem students explain the results of the discussion with their respective groups.

According to (Jaya, Wiarta & Wiyasa, 2014) with an open ended learning model assisted by image media, the learning process is procedural, so that students will know the development of learning outcomes in stages. However, there are also students who are not active and learning is only focused on the teacher. Of course, this makes learning less effective because of the lack of interaction between students and teachers, as well as students and other students, thus affecting the cognitive learning outcomes of students in the control class.

The influence of the open ended model is able to improve process skills and student learning outcomes. This influence is evident in the learning syntax/steps. For example, students are able to observe a problem, students can discuss a problem and students can solve problems by discussing in groups and can make conclusions from the learning results.

The use of an open ended learning model using the Mentimeter learning media or image media helps make the learning process easier, helps concentrate on learning and students can really understand the material provided because they are involved in the learning process and students have the opportunity to be creative and develop their potential. It does not rule out the possibility that using open ended learning media assisted by the Mentimeter application or assisted by image media may not always mean that there is no difference in the average increase in students' cognitive learning outcomes if the place and subject used are different. Because student learning outcomes are not only influenced by the learning media used but are also influenced by the students themselves.

Based on this explanation, the conclusion is that there is no difference in the average cognitive learning outcomes of class VI students in thematic learning using the open ended model assisted by the Mentimeter application and the open ended learning model assisted by image media.

CONCLUSION

There is no difference in the average cognitive learning outcomes of class VI students in thematic learning using the open ended model assisted by the mentimeter application and the open ended learning model assisted by image media. The open ended learning model can improve students' cognitive learning outcomes even though they are in the low category. This is because students are enthusiastic, responsible in groups working together to complete the project assignments given with a completion time agreed between the teacher and students and students discussing with each other so that no group member is not involved in the work. The supporting media assistance in this research is the Mentimeter application and image media, each of which provides convenience during the learning process.

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