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Two-Dimensional Figure Learning Through Problem Based Learning in Class V Students of Primary Schools

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Abstract: *The problem of this research is the low student learning outcomes in mathematics subject class V Pai State Primary School. The purpose of this study was to improve mathematics learning outcomes through problem-based learning in fifth grade students. This type of research uses a Class Action Research that includes cycles of planning, implementation, observation, and reflection. The research subjects were teachers and fifth grade students with a total of 20 students, consisting of 9 men and 11 women. Data collection techniques used were observation, testing and documentation. Analysis of the data used is qualitative and quantitative. The results showed an increase in student learning activities and outcomes. This increase can be seen from each cycle. In the teaching activities of teachers and student learning activities have increased. In the first cycle, the teaching activities of teachers and students were in the moderately increased category in the second cycle being a good category. Improvements also occurred in student learning outcomes. In the first cycle, the classical completeness which has not been determined and is in the inadequate category has not yet been achieved. In cycle II student learning outcomes have improved, it is seen from the average value that has increased and is in the very good category. The conclusion of this study is that the existence of teacher teaching activities and student learning activities in learning mathematics by applying problem-based learning can improve student learning outcomes in mathematics subjects in Class V Pai State Primary School.*

Keyword: problem based learning, two-dimensional figure

INTRODUCTION

Improving the quality of education cannot be separated from the improvement of all components of education involved in the learning process (Sudadio, 2012). One of the components referred to is the teacher. The success of learning is determined by the teacher, because the main function of the teacher is to design, manage, and evaluate learning (Darmadi, 2015). This is revealed by Djamarah (2000) indicating that teachers are tasked with: (1) transferring an organized set of knowledge so that this knowledge becomes part of the student's knowledge system, (2) Forming a harmonious personality, according to the ideals and foundations of the Indonesian nation state Pancasila; (3) As an intermediary for learning for students. Along with its development, teachers must have the expertise to select and use learning that is appropriate to the subject and know the condition of students in addition to mastering other skills so that students are more interested in following the lesson. In addition, the implementation of learning cannot be separated from its relationship with the surrounding environment (Kumullah dkk, 2020). As for one of the main subjects in the primary school education curriculum, namely mathematics.

Mathematics is a study material has abstract objects and is built through deductive reasoning process, mathematics too as the basic science of all science through a stage that must be had students after going through the process stages of the program learning (Syafik, 2009). Mathematics taught at every level of education, so that mathematics is

expected to have a meaningful contribution to the nation in the present and which will come. Mathematics education in Elementary school level has a role very important because this level is very decisive foundation in shape attitude, personality, and intelligence child. The importance of mathematics education in elementary level requires teachers to be more creative in mathematics learning process. This matter caused mathematics is one of the subjects that scares most student.

Mathematics learning must have a link between previous student learning experiences. A concept becomes a prerequisite for other concepts, therefore students must be given more opportunities to make these connections. Students must be able to connect what they have in their thinking structures in the form of mathematical concepts with the problems faced. So that students' activities link or link it to knowledge in the form of concepts they have.

Learning conditions above need to be considered to use models that can provide opportunities for students to reconstruct their own knowledge, because many findings indicate that conventional mathematics teaching has a negative effect on students. Because the presentation starts from giving information / concepts by the teacher, then the teacher demonstrates the skills in applying a formula after which the teacher gives examples of questions about the use of a concept. That, makes students passive and active teachers in the learning process.

Based on observations at Pai State Primary school District Makassar City, showed that student learning outcomes in mathematics are still low. Based on daily test scores, the average absorption value of students is only 37, while the Minimum Completion Criteria (KKM) of students is 65. Of the 23 students, 17 of them did not reach the KKM or 73.91% of students classically did not reach the KKM which means that only 6 students in the class have achieved the KKM or 26.08% of the total number of students. In general, students whose grades are low lack the correct conception in understanding concepts from mathematics itself. Based on the results of interviews with Pai primary school Class V teachers, it was found that student learning outcomes in mathematics are still relatively low. The aforementioned can occur due to several factors, including: 1) The learning process is not attracting students to think critically; 2) The learning process does not provide opportunities for students to solve problems by themselves; 3) The learning process does not encourage students' interest to learn independently; 4) Lack of linking subject matter with students' daily lives; 5) The learning process does not give students an understanding of how to find formulas.

Based on some of the factors above to anticipate that it is not sustainable, researchers choose to apply problem-based learning, the model can be used by teachers in delivering material related to geometry. The use of problem based learning can help learn learning skills in learning (Kumullah, 2018). The application of problem-based learning has several advantages including being able to train students to be able to transfer new knowledge to solve mathematical problems and even to solve problems in daily life. Mathematics presented in the form of problems will provide motivation for students to study mathematics deeper. Students if faced with a mathematical problem, will try to find a solution through a variety of problem solving models faced and accompanied by a teacher, this is in line with Robert M. Gagne (Faturrahman et al, 2012: 7) states "Learning is a complex activity, and the results learning in the form of capabilities, the emergence of capabilities caused by stimulation that comes from the environment and cognitive processes carried out students ". Thus it seems clear that solving mathematical problems has an important position in learning mathematics in elementary school.

According to Barell (2007) Problem Based Learning can be defined as an investigation process who solve questions, curiosities, doubt, and uncertainty about the phenomenon complex in life. Problem Based Learning is presented as a way to motivate students actively

involved to looking for answers to their own questions, not only the questions that appear in the book. In line with Suyadi (2013) Problem based learning is learning centered on problems not just transfers of knowledge from teachers to students, but rather there is collaboration between teachers and students or between students and other students to solve the problem discussed.

Based on these various problems, the researcher carried out a classroom action research on improving mathematics learning on flat shape material for grade V elementary school students. With the hope that the learning outcomes of learning flat shapes can increase.

METHOD

The research method used is classroom action which is carried out to improve the quality of classroom learning practices (Arikunto, 2016) by describing the research data naturally according to the facts in the field. In line with Paizaluddin (2014) that a classroom action research is a deliberate action given by the teacher or based on the teacher's direction which is then carried out by the student. The focus of classroom action research (CAR) is that students' critical thinking skills improve after the learning process on flat-building material using problem-based learning. The research design used a classroom action research flow by Kemmis and Mc. Taggart (Arikunto, 2016) includes: 1) planning; 2) Action and observation; and 3) reflection.

Subjects in this study were teachers and students of grade V at Pai Primary School, with the number of students consisting of 23 students consisting of 12 male students and 11 female students. The research topic is two-dimensional figure.

Research data obtained from data collection in the form of test results of learning, observation of teacher and student activities during the learning process takes place, and documentation. The test is conducted to gather information about students' understanding in the learning of two-dimensional figure. The test is carried out at the beginning of the study, at the end of each action, and at the end of the study.

RESULT AND DISCUSSION

Student learning outcomes obtained after the first cycle in mathematics learning with the subject of flat build by applying problem-based learning, the average score obtained was 64.75 with a high value of 95 and the lowest 40 of the ideal score of 100, and the complete results the study of 12 students and the incomplete learning outcomes of 8 students. This is due to the lack of motivation to learn, the lack of student knowledge in completing story problems so that students are not interested in mathematics given even though the teacher gives instructions in groups, but in doing assignments is still dominated by students who are active (smart) only. Other students just watch and tell stories, they don't want to work together. Therefore, after learning is finished, the teacher gives more direction and guidance on how to solve mathematical story problems.

In the second cycle the implementation of learning is not much different from the first cycle, only the activeness of students in learning has begun to appear, seen from the activeness of each group in asking questions, working together in solving the questions given by the teacher. Judging from the process and learning outcomes of the final test that has been achieved, the average score of the final test shows an increase in cycle I which is 64.75 while in cycle II the average score is 75.25. Judging from the results of group discussions consisting of 4 groups that have been able to complete the worksheets well, it was concluded that the learning was successful. Thus the learning objectives have been achieved.

The following is a recapitulation of data on the results of the first and second cycle tests presented in the form of a diagram:

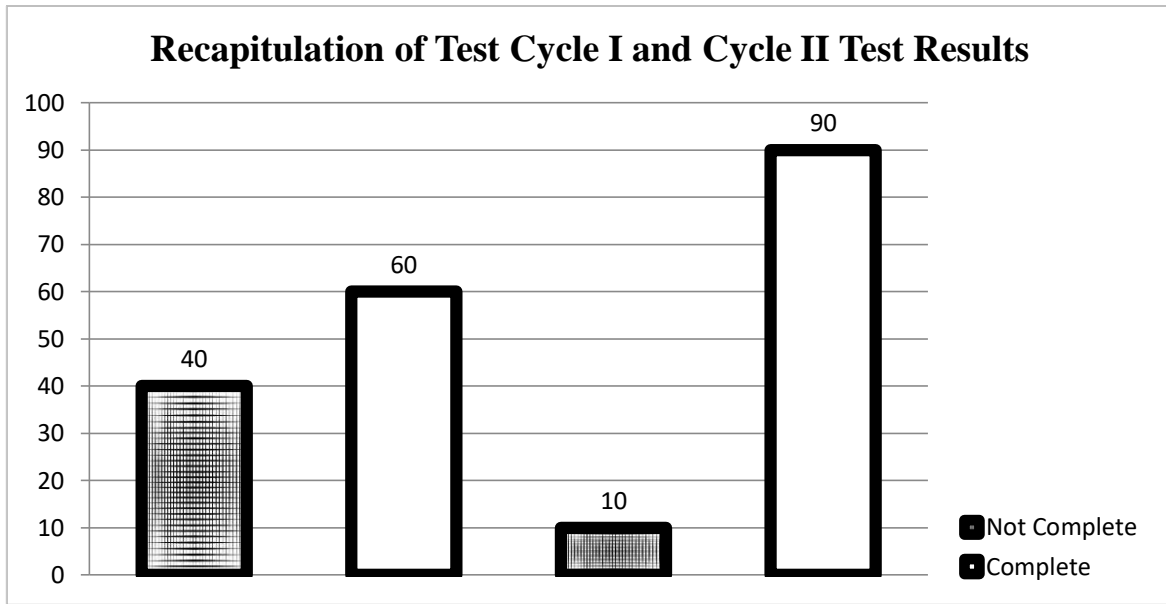


Figure 1. Data Recapitulation of Test Results for Cycle I and Cycle II

The success of the action from the cycle of the cycle is because the teacher can implement the learning plan well in accordance with the steps of applying the problem-based learning model. Thus the increase in student learning outcomes in the V class at Pai primary school in Makassar City is due to good cooperation in the group and guidance and direction from the teacher. Facts that prove that the application of problem-based learning can improve learning outcomes in mathematics especially in solving mathematical story problems.

As presented above, the application of problem-based models in mathematics can improve student learning outcomes. Problem-based learning is a learning model designed and developed in order to develop students' ability to solve problems (Shaputri, 2017) Using a problem-based learning model can develop students' critical thinking skills in solving a problem given by the teacher. In addition, the application of this problem-based learning model can foster the motivation of students in learning. One of the advantages of the problem based learning model is that students can experience the benefits of learning because the problems faced by children are associated with real life, this can increase motivation and interest in the material being studied (Santiani, 2017).

When applying model problems stage-based learning a must Pay attention is orient learners to problems due to stages it supports implementation problem-based learning model (Setyosari, 2017). The problem at hand is the problem according to real life learners. Teacher wanted to create an atmosphere fun and learning direct learning is appropriate with the principle of problem-based learning (Wulandari, 2012). Elementary school student character one of them is its curiosity high. If students are faced with a problem it will create learners interested in completing the problem.

The facts prove that the application of problem-based learning can improve mathematics learning outcomes, especially in solving math problems.

CONCLUSION

Based on the results of the above research it can be concluded that: with the teaching activities of teachers and student learning activities in learning mathematics by applying

problem-based learning related to an increase from the sufficient category in the first cycle increased to a category both in the second cycle and students who have participated. With the average value of mathematics learning outcomes in the first cycle included in the category of less (incomplete), then in the second cycle the average value of student learning outcomes according to the very good category (complete) required by using the test to make a description.

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In connection with the above research conclusions, the following suggestions are proposed:

1. Principals should always provide guidance and supervision of the implementation of teaching duties of teachers, including in the use of learning models.
2. Teachers, should always show activeness in the learning process as in solving mathematical problems as an increase in students' learning abilities.
3. Teachers should teach mathematics subject matter in an effort so that students can always be active in the learning process in the form of group collaboration, such as solving mathematical problems in improving students' learning abilities and learning outcomes.
4. For researchers who want to do the same research the results of this study can be used as a guide, where the weaknesses and strengths contained in this study can be used as reflection material for the improvement of research in subsequent periods.

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