THE EFFORTS TO IMPROVE MATHEMATICAL LEARNING OUTCOMES WITH INQUIRY LEARNING STRATEGY IN PARTICIPANTS

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ABSTRACT

The limited role of students when learning mathematics results in students not being able to actualize the abilities that are in the students optimally. One of these abilities, namely the cognitive abilities of students. This study aims to improve mathematics learning outcomes with inquiry learning strategies in students of class VIII odd semester of SMP Muhammadiyah Sewon, Bantul District, 2018/2019 school year. This research is a Class Action Research (CAR). This study's subjects were class VIII-A students of Junior High School (SMP) Muhammadiyah Sewon, Bantul District, 2018/2019 school year. Simultaneously, the object in this study is the result of learning mathematics in class VIII-A students. Data is collected through observation, interviews, daily test tests, and also documentation. Data analysis used qualitative descriptive data analysis. The results of the study show that inquiry learning strategies can improve mathematics learning outcomes for students. From the results of observations that have been made during the study, there is an increase in mathematics learning outcomes for students in the learning process. In the first cycle, the average value of student learning outcomes is 67.97, and the percentage of classical learning completeness is 62.50%. There was an increase in the average value of student learning outcomes in the second cycle, 71.09, and the percentage of classical learning completeness became 71.88%. From the results of daily tests held at the end of each cycle, it can be concluded that there is an increase in student learning outcomes.
Keywords: Learning Outcomes, CAR, Inquiry.

INTRODUCTION

The success of education cannot be separated from the ongoing learning process. The learning process is a medium in maturing and efforts to prepare individuals in the face of real life. Education in Indonesia is carried out through various education channels and levels of education. One of the implementations is through formal education through junior high school education. In learning activities in junior high school, there is mathematics learning. In times, mathematics is one of the important sciences in its role in everyday life. Mathematics helps students to develop a critical and systematic mindset that is very useful for solving everyday problems. This will be demonstrated by real activities arising from the thinking process of students themselves.

The students' thinking process is divided into two levels, namely low-level thinking and high-level thinking. The ability to think refers to Bloom's taxonomy, as Purbaningrum (2017: 41) stated: The level of thinking consists of 6 aspects. Lower level thinking (Lower Order Thinking) is the ability to think in remembering, understanding, and applying (Applying). At the same time, higher-order thinking (Higher Order Thinking) can analyze, evaluate, and create. The results of observations at SMP Muhammadiyah Sewon obtained information that the learning methods used are still conventional. The role of students is limited in the learning process is limited. The limited role of learners results in understanding the teacher's material and solving problems with the teacher's examples. This refers to the aspect of the ability to think lower level (Lower Higher Thinking Skill), namely remembering (Remembering), understanding (Understanding), and applying (Applying). This can be seen from the value of learning outcomes in mathematics in the Middle Semester Class VIII SMP Muhammadiyah Sewon Bantul Odd Semester Academic Year 2017/2018 shown in Table 1.

Table 1. List of Student Midterm Mathematics Values

Criteria	Class	
	VIII A	VIII B
Highest score	52	60
Lowest score	11	0
Average	38,09	33,09
MCC Score	65	65

Table 1 shows that the eighth-semester mathematics exam's average grade in SMP Muhammadiyah Sewon Bantul is still low. Moreover, when viewed from the distribution of the number of students based on the Minimum Completeness Criteria (MCC) value, there are no students who have achieved the MCC value. That was good from class VIII-A with 34 students, and from class VIII-B with 35 students. Thinking skills are skills that can be trained in schools through the learning process, according to Widana (2017: 4). Students can think at a high level, and the learning process also provides space to find the concept of activity-based knowledge. Therefore, it is necessary to have an activity-based learning strategy that gives broad space to develop students' high-level mathematical thinking skills to improve student learning outcomes. Nugroho (2018: 67) argues that one of the strategies in designing learning to familiarize Higher Order Thinking Skills is inquiry-based learning. Inquiry learning strategy is a learning activity that is student-centered or oriented towards students to find answers to a problem. This means that the main target of inquiry learning strategy is students' maximum involvement in directed learning activities. It is hoped that the cognitive abilities of students will increase. In this study, the following problems were formulated: How to improve mathematics learning outcomes for students of class VIII in the odd semester of SMP Muhammadiyah Sewon, Kab. Bantul 2018/2019 school year through inquiry learning strategies. From the problems that have been formulated above, the purpose of this study is to improve mathematics learning outcomes in students of class VIII in the even semester of SMP Muhammadiyah Sewon, Bantul, in the 2018/2019 school year using inquiry learning strategies.

METHODS

This research was conducted on July 26 through September 7, 2018, in class VIII-A of SMP Muhammadiyah Sewon in Bantul Regency in 2018/2019, with the number of students in the class being 32 students. This type of research is CAR. Class action research, according to Kasbolah (1999: 31), is CAR is practical research, aims to correct deficiencies in learning in the classroom by doing actions. The research design refers to Arikunto (2010: 17). The design scheme is in Figure 1.

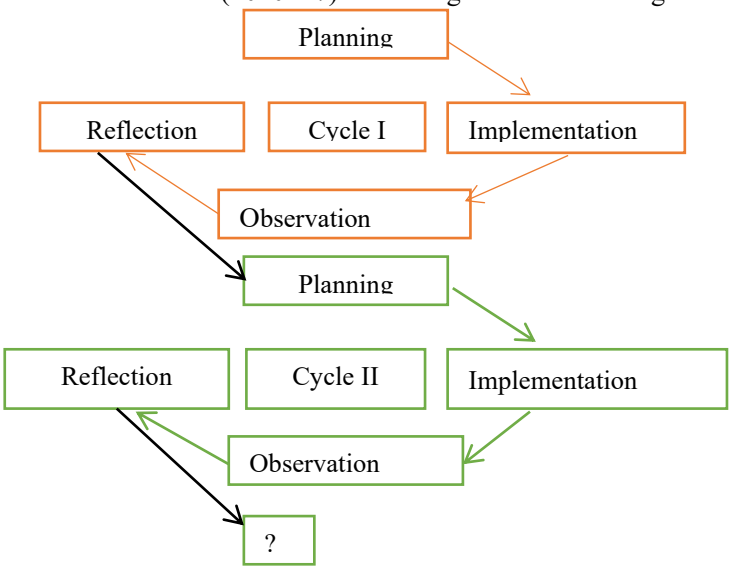

Figure 1. CAR design

This research outline has four stages: planning, action, observation, and reflection, carried out in an iterative cycle.

In this study, data collection techniques used observation (Observation) to obtain data on the implementation of learning with inquiry learning strategies and data on mathematics learning outcomes in students, interview methods (Interview) to determine teacher responses and student responses in inquiry learning strategies. The description test method contains indicators of high-level thinking ability to obtain data on mathematics learning outcomes. Observation and test instruments used in data collection have been analyzed for validity, reliability, and power differences. While the data analysis techniques used in this study, namely reducing data (selecting data), presenting data (display data), verification (data inference), and triangulation. Data reduction (selecting data), according to Miles and Huberman (1992: 16), is the selection, concentration of attention on simplification, abstracting, and transformation of rough data arising from written records in the field. Based on the definition, reducing the data in this study means summarizing, choosing the main points, focusing on the important things, and looking for themes and patterns.

After reducing the data, the process continues to present the data. In this qualitative study, how to present data in the form of brief descriptions, charts, graphs, matrices, relationships between categories, and so on are narrative texts. Furthermore, verification (data conclusions) with the initial conclusions presented are still temporary and will change if there is no concrete evidence supporting the following data collection. However, if there is valid and consistent evidence on subsequent data collection, the initial conclusion presented is credible.

RESULTS AND DISCUSSION

This research was carried out through stages two cycles. Implementing inquiry learning strategies to improve mathematics learning outcomes in grade VIII-A students at SMP Muhammadiyah Sewon, Bantul Regency, went well. Students are quite challenged in following the lessons so that the classroom activities are quite conducive. In this study, researchers were assisted by observers (peers) during the study. In cycle I and cycle II. As for the steps in learning mathematics using inquiry strategy, namely: Orientation, the teacher divides into seven groups consisting of 4-5 students. Then the teacher distributes worksheets to complete in groups. Formulating the problem, the teacher guides students to formulate the problems contained in the worksheet. Put forward a hypothesis, and the teacher directs students in making hypotheses of the problems that have been formulated. Collecting data, each student in his group discusses and discusses the problem given, and the teacher allows students to ask questions that are not yet understood. Testing the hypothesis, students and their groups discuss observational data, then compare hypotheses with the discussion results. Formulating conclusions, representatives of each group present the results of their discussions and observations. After all, groups have finished the presentation, the teacher guides the students to do class discussions and stabilizes the mathematical material concepts being discussed. Reflection, students do reflection, resume, and make complete conclusions. Then the teacher gives an appreciation for the participation of all students during learning.

In cycle I, learning mathematics using inquiry learning strategies has been going well and smoothly. Most students are enthusiastic when learning takes place. This can be seen when students work together in groups to complete the assignments on the group worksheets. Students also argue with each other or assess and respond to problems that exist on the worksheet, and are not shy to ask if you have difficulty. Daily test 1 also raises students' average value at 67.97 and the number of students who have completed as many as 20 students with a percentage of classical completeness 62.50%. This shows that the percentage of classical completeness has not met the indicators of success. Also, from learning that has been carried out in the first cycle, there are several evaluations. Therefore research continues to the second cycle.

After correcting the deficiencies found in cycle II, student learning outcomes have increased, and the classical percentage has met the criteria. Students are more active when learning cycle II.

Students who do not do any assignments or homework are already reduced. Students have recorded conclusions and things that are considered necessary from the researcher's explanation. The atmosphere is more conducive to learning cycle II. It can be seen from the results of daily test 2. Namely, the average value of class VIII-A students increased to 71.09, and students who completed also increased to 23 students with a percentage of classical mastery learning 71.88%. These results indicate an increase in mathematics learning outcomes in students from cycle I to cycle II. This increase was also supported by interviews with students at the end of cycle II, which stated that students were better prepared to learn in cycle II than in cycle I with inquiry learning strategies. There is an increase in mathematics learning outcomes from cycle I to cycle II and classical learning completeness that has been fulfilled. Then it shows the indicators of success have been achieved.

Increasing the percentage of student learning outcomes based on observations from the cycle I and cycle II repetitions results can be seen in the following Table 3 and Table 4.

Table 3. Increasing the Value of Student Learning Outcomes

Score	Category	Cycle I		Cycle II	
		Frequency	Percentage	Frequency	Percentage
≥ 65	Complete	20	62,5	23	71,88
<65	Not Complete	12	37,5	9	28,12
AMOUNT		32	100,00	32	100,00

Table 4. Improved Mastery of Cycle I Learning Outcomes to Cycle II Students of Class VIII-A of SMP Muhammadiyah Sewon Bantul Regency

Criteria	Cycle I	Cycle II
Number of students who have completed it	20	23
Number of Learners Not Completed	12	9
The highest score	100	100
Lowest Value	33	33
Average value	67,97	71,09
Classical Learning Mastery (%)	62,50	71,88

From the results of this study, it can be concluded that there is an increase in mathematics learning outcomes by using inquiry learning strategies in grade VIII students of the odd semester of SMP Muhammadiyah Sewon in Bantul Regency in the 2018/2019 school year. This is relevant to Nuriana's (2011) research that inquiry learning strategies can improve mathematics learning outcomes.

CONCLUSION

Based on the research results in learning mathematics material patterns and rows of numbers by using inquiry learning strategies in class VIII-A students at SMP Muhammadiyah Sewon, it can be concluded that there is an increase in mathematics learning outcomes. This is evident from the average value of learning outcomes, namely in the first cycle of 67.97 and followed by the percentage of classical learning completeness of 62.50%. In the second cycle, the average learning outcomes of 71.09, followed by the percentage of completeness classical learning by 71.88%. The process of learning mathematics using inquiry learning strategies received positive responses, both from mathematics teachers in class VIII-A and from students in class VIII-A itself. Thus, student learning outcomes in mathematics learning can improve. This is evident from the results of teacher and student interviews.

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