

The Use of Question Student Have Model to Increase Mathematical Reasoning Ability for 7th Class Students of Zainul Hasan's Excellent Junior High School

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Abstract: The purpose of this study was to describe the use of the question student have model to improve the mathematical reasoning abilities of class 7th students on social arithmetic material at Zainul Hasan's excellent junior high school 2020/2021 academic year. The research method used is the classroom action research. The sample in this quantitative study is class 7th students. Quantitative data was obtained by using a test technique, while qualitative data was obtained by means of observation, field notes, and interviews. The results of data analysis The results of the increase are the final results of the cycle as seen from: (1) the percentage of student learning completeness the first cycle and the second cycle, respectively 45,45% and 81,18%; (2) the percentage of teacher activity observations in cycle I and cycle II respectively 71,82% and 87,27%; and (3) the percentage of results observation of student activities in cycle I and cycle II respectively 64,55% and 86,36%. Thus, qualitative research can prove, complement, and strengthen quantitative data on mathematical reasoning abilities.

Keywords— mathematical reasoning ability, social arithmetic

1. INTRODUCTION

In Law no. 20 of 2003 concerning the national education system mandates that national education functions to develop capabilities and shape the character and civilization of a dignified nation in order to educate the nation's life. The mission of education in Indonesia is to improve the quality of learning. Education is very important for human life, because it can develop one's potential and improve the quality of human resources themselves.

To improve the quality of the teaching-learning process will always attract attention because these learning activities are the core of educational activities. The teacher is one component in the teaching-learning process. According to Uno and Lamatenggo (2016: 2), a teacher is a teacher in a public or private school who has the ability based on a formal educational background of at least a bachelor's degree, and legal provisions as a teacher based on the teacher and lecturer laws that apply in Indonesia.

One of the subjects discussed is mathematics. It is often seen that mathematics is considered a scourge for students and even students are reluctant to learn mathematics, even though mathematics is one of the basic sciences to understand the mastery of science and technology. In the opinion of Uno (2008:129), mathematics is a field of science which is a tool for thinking, communicating, a tool for solving various practical problems, whose elements are logic and intuition, analysis and construction, generality, and individuality, and has branches include arithmetic, algebra, geometry, and analysis. Students are required to have reasoning abilities, in line with that according to Sumarmo (in Hendriana, 2017: 25), mathematics learning is directed at providing opportunities for the development of reasoning abilities, awareness of the usefulness of mathematics, fostering self-confidence, an

objective attitude, and being open to facing the future. ever-changing future. The statement shows that reasoning is needed to build a mathematical idea and to show proof of the truth of the idea.

The fact that in the current learning process there are not many teachers who apply the reasoning process, it can be seen from the way teachers teach who only transfer information. So that many students find it difficult to solve reasoning problems

Zainul Hasan's excellent junior high school is one of the schools located in Probolinggo. Based on the results of interviews with teachers at the school, they have never applied questions about students' mathematical reasoning abilities, so the level of students' mathematical reasoning abilities is still low. Varied learning models are certainly needed so that students are able to understand the material well from various learning models. One alternative model is the question student have model. With this learning model, it can create a more pleasant learning atmosphere and be able to encourage students to be more active.

Based on the description above, the researcher wants to conduct a study with the title "Using the Question Student Have Model to Improve Mathematical Reasoning Ability of Class VII Students on Social Arithmetic Material at Zainul Hasan's excellent junior high school 2020/2021 Academic Year". The results of this study are expected to be an alternative in learning mathematics so that it can be useful for improving students' mathematical reasoning abilities.

2. METHODOLOGY RESEARCH

The type of research used in this research is classroom action research. According to Agung (in Komara, 2016:44), classroom action research is one form of writing scientific papers. Classroom action research is known as a form of

research carried out by education staff, both lecturers, teachers, and instructors.

The research can be considered scientific if the researcher uses and applies the method proper research. The approach used in this research is research qualitative. Bogdan and Taylor (in Moleong, 2012:4) define a qualitative methodology as a research procedure that produces descriptive data in the form of written words or verbal statements of people and observed behavior. Besides using a qualitative approach also uses a quantitative approach. This quantitative data will produce data in the form of the numbers. The setting of this research is at Zainul Hasan's excellent junior high school and takes a class VII sample. Classroom action research according to Arikunto (2014: 16), that one cycle consists of four stages, namely: (1) planning, (2) implementation, (3) observation, and (4) data reflection is the result of the researcher's note-taking, either in the form of facts or figures (Arikunto, 2010:161)

Qualitative data from this study are the results of observations, field notes and interviews. In this study, the qualitative data obtained will be observed with an interactive model developed by Miles and Huberman (in Abidin, et al, 2016: 86) This analysis consists of three stages of activities, namely: 1) Data Reduction, 2) Data Display, 3) Conclusion or Verification

Quantitative data from this study is the result of the end of the cycle test. Quantitative data analysis in this study was conducted by looking for percentages and averages. Quantitative data from the end-of-cycle test scores and the percentage of completeness were analyzed descriptively. The students' mathematical assessment criteria in the study were obtained from the results of the end of the cycle test. The success criteria carried out in the study were the students' class average test scores and more than the same as the students' scores. If the criteria have not been met, the action has not been successful and it is necessary to take the next better action. Vice versa if these criteria have been met, the action is successful in a study can be stopped.

3. RESULT AND DISCUSSION

In this study, the research results include the results of quantitative and qualitative analysis. The results of the quantitative analysis consisted of the results of the data analysis of the end of the cycle I test and the final test of the second cycle. While the results of the qualitative analysis consisted of the results of the analysis of observational data, field notes, and interviews in cycle I and cycle II. The results showed that with the application of the question student have model there was an increase in students' mathematical reasoning abilities and active learning. The results of the increase are the final results of the cycle as seen from: (1) the percentage of student learning completeness the first cycle and the second cycle, respectively 45,45% and 81,18%; (2) the percentage of teacher activity observations in cycle I and cycle II respectively 71,82% and 87,27%; and (3) the percentage of results observation of student activities in cycle I and cycle II

respectively 64,55% and 86,36%. The following table shows the results of research:

Table 1. The percentage of student learning completeness the first cycle and the second cycle

Rated Aspect	Percentage/achievement			
	The first cycle		The second cycle	
Completeness of the final test results	45,45%	Not good	81,18%	Very good
Student test average score	73,18%	passably	80%	Very good
Implementation of teacher activities	72,91%	Not good	88,63%	Very good
Implementation of student activities	60,86%	Not good	81,73%	Very good
Student Response	50%	passably	66,67%	Good

Table 2. The Percentage of observation of teacher activities of the first cycle dan the second cycle.

Teacher activities	The first cycle	The second cycle
Opening activities	18	22
Core activities	47	57
Closed activities	14	17
Total score	79	98
Maximum score	110	110
Percentage activities	71,82%	87,27%
Level of success	Success	Success

Table 3. The Percentage of observation of student activities of the first cycle dan the second cycle.

Teacher activities	The first cycle	The second cycle
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Opening activities	18	25
Core activities	37	53
Closed activities	16	17
Total score	71	95
Maximum score	110	110
Percentage activities	64,55%	86,36%
Level of success	Success	Success

Based on the results of the research that has been carried out, it can be seen that through the application of the question student have model it can improve students' mathematical reasoning abilities in social arithmetic material. Where the first meeting was providing material and conducting group discussions by applying the approach using the student have question model and at the second meeting a final cycle test was held.

Based on the results of observations of teacher activities in the first cycle, the percentage was 72.91%, in the second cycle the percentage of teacher activities increased to 88.63%, so that the success rate in cycle I and cycle II was categorized as very good. The results of observations of student activities in the first cycle obtained a percentage of 60.86% with a success rate of categorized as successful but not meeting the criteria, while in the second cycle the results of observation of student activities obtained a percentage of 81.73% with a very successful category. This shows that student activities during learning activities using the question student have model have increased.

In the implementation of the first cycle, as many as 10 out of 22 students have completed the final test of the cycle, so that the class average score is 73.18 and the percentage of completeness is 45.45%. It can be concluded that in the first cycle did not meet the specified criteria for completeness. In the implementation of the second cycle, 18 out of 22 have completed the final test of the second cycle, so that an average score of 80 was obtained with a completeness percentage of 81.18%. So that the final test of the second cycle has met the predetermined completeness criteria.

Based on interviews conducted with students, student responses using the question student have model, obtained a percentage of 50%, while in the second cycle the percentage was 66.67%. It can be concluded that using the question student have model on social arithmetic material gets a positive response from students. As for the exposure of the research data obtained from the implementation of the first cycle and the second cycle of action in the application using the student have question model.

4. CONCLUSION

The results showed that with the application of the question student have model there was an increase in mathematical reasoning ability and active learning of students at Zainul Hasan's excellent junior high school, Kraksaan, Indonesia.

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