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Enhancement Mathematical Problem Solving Ability Through RME Approach in Distance Learning on Material Building a Squares and Triangles in Class VII-2 MTsN 28 Jakarta

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ABSTRACT
Problem solving can be demonstrated by students in understanding, choosing approaches and solving strategies, and completing problem solving models. In fact, learning using problem-solving questions at MTsN 28 Jakarta is still difficult for students to follow. The distance learning system implemented through video learning has not been able to achieve this capability. The purpose of this study is to provide an alternative distance learning approach that can create a student-based learning process and real-world problems so as to improve students' mathematical problem solving skills in the material of quadrilaterals and triangles in class VII-2 MTs Negeri 28 Jakarta through the RME approach. This study uses a qualitative approach with the type of Classroom Action Research (CAR) which is carried out in three cycles. Each cycle consists of stages of planning, implementation, observation, and reflection. The research subjects observed in the study amount to 6 students from the upper, middle, and lower groups. Data analysis refers to the achievement of Schoenfeld problem solving indicators, which is seen from the results of the research subjects' test answers through three stages, namely, data reduction, data presentation, and drawing conclusions. The results showed that the average value increased from 68.97 in the first cycle, to 73.05 in the second cycle, and 77.18 in the third cycle. Students who achieved the KKM also experienced an increase, in the final test of the first cycle there were 14 people (43.75%), 21 people (65.60%) in the second cycle, and 28 people (87.50%) in the third cycle. This increase was also supported by the addition of problem solving indicator scores on the six research subjects. Thus, it can be said that the RME approach can improve students' mathematical problem solving abilities.

Keywords: *RME, Problem Solving, Distance Learning.*

1. INTRODUCTION

Math is a subject that not only contains numbers and numeracy, but also the ability of solving mathematical problems. One of the objectives of learning mathematics school is to solve mathematical problems which include the ability to understand problems, develop a mathematical model of completion, and provide appropriate solutions [1]. Problem solving is a strategic competency shown by students in understanding, choosing approaches and solving strategies, and completing models to solve problems [2].

Problem solving is a high level skill [3]. Problem solving skill is the students' ability to solve or find a solution to a problem contained in the questions and mathematical tasks ranging from identifying the adequacy of the data to check the correctness of the results obtained by using the previous understandings and assessments relevant logically and carefully to deal with non-routine situations [4]–[6].

In fact, learning using problem-solving questions at MTsN 28 Jakarta is still difficult for students to follow. Many of them are not able to solve the problems. Some students can understand the concept of the material asked in the problem, but they are not able to use the concept in solving the problems. In addition, there are also many students who face difficulty in dealing with open-ended problems that include the level of analysis. They are only able to solve problems at the levels of understanding, reasoning, and application of formulas. In addition, in the learning process students look happier and rely on their smart peers or teachers in providing answers, Meanwhile, with the limited abilities they have and the lack of facilities provided by the teacher that could enable them to think, other students are unable to find answers to the given questions. This minimizes the chances for the students to develop their creativity in solving problems.

In improving problem solving skills, it is necessary to have an approach that can encourage and facilitate student activities in solving problems. To improve the quality of learning and improve problem-solving abilities, Realistic Mathematics Education (RME) as an approach designed specifically for the learning of mathematics should be applied [7]. Through the implementation of RME students are facilitated to solve real problems informally before using formal methods. Informal knowledge is knowledge that is not taught directly but is substantially constructed by students. This informal knowledge is relatively very useful as a basis for learning formal knowledge at school. In addition, it can help students' intellectual, social, and emotional development which could leads them to experience mathematics as one of the objective of mathematics learning [1].

RME in mathematics learning is closely related to problem solving ability [8]. With its 5 characteristics, RME provides learning innovations that can help students solve problems. By using context, students build their understanding according to their self-development and concepts that have been obtained through a model. Through deeper exploration and discussion processes, students try to relate other concepts needed to solve a given problem. RME places students' realities and experiences with problems as a starting point for learning that is used to generate mathematical concepts or formal mathematical knowledge that can encourage problem solving activities and organize the subject matter [9]. With the experience of reality, students are encouraged to construct their own solution to the problems. Processes related to problem solving can improve their learning outcomes and problem solving abilities [10]. RME is also able to influence students' ability to solve mathematical problems through learning activities that start from realistic problems [11]. Based on some of the research result above, it can be said that RME is an approach with a reality-based learning experience that can improve students' problem solving abilities.

Capacity of solving the problem is influenced by several factors: the initial knowledge, appreciation of mathematics, and mathematical logical intelligence [12]. Referring to the factors that support problem-solving abilities, the characteristics of RME plays a role in it. Prior knowledge of the students is a collection of information that can bridge the extent to which different understanding can be used [13]. In the RME approach, the emergence of informal knowledge begins with the use of contexts and models of learning that facilitate the students in the mathematical process so that it can deliver on formal knowledge. Learning can be started by giving a problem in the form of a question that indicates a challenge that cannot be solved by known routine procedures. Therefore, solving these problems requires a relatively longer time than solving routine problems [14].

Appreciation of mathematics is a student's perspective on the importance of mathematics in his life so that he will try to be able to solve problems that exist in mathematics [15]. According to Marlissa and Widjajanti [16], appreciative attitude could be attributed to the attitude of curious students to the relationship of mathematics material being studied with the previous or future one and curiosity of the usefulness of mathematics so that in the end he is able to resolve the everyday problems associated with mathematics.

In RME, appreciative attitude is reflected in the characteristic intertwining, where students can associate the material being learned with previous material, so that he can find a concept and its use in other materials. One of the techniques used to foster an appreciation of mathematics is *scaffold*, which is a technique of providing structured learning support that is carried out in the early stages of learning to encourage students to work independently until they can be released along with the increasing abilities of these students [17]-[18].

The third factor is logical-mathematical intelligence that is the ability to study problems and carry out mathematical operations logically and analytically, and to carry out scientific investigations. This intelligence also includes the ability to detect patterns, reason deductively, and think logically. This intelligence is most associated with scientific thinking and mathematical problem solving [19]–[21].

In RME, logical mathematical intelligence is related to the characteristics of using models and *intertwining*. In this characteristic, students are not only able to make models of the given problems and convert them into formal mathematics, but also can relate the models used to previous knowledge and subsequent knowledge, even with knowledge in other fields. To improve logical mathematical intelligence, students should be given opportunity to build their understanding according to their level of development [22]. This opinion is in line with the characteristics of RME regarding the use of student contributions that can lead them to the discovery of a concept.

Regarding the strategy used in problem solving, there is a known strategy used to find or solve a mathematical problem, which is heuristic [23]. Schoenfeld's heuristic strategy can improve problem solving skills through several plans and steps in problem solving. In Schoenfeld's heuristic strategy, there are five steps to problem solving, namely *reading, analysis, exploration, planning and implementation, verification* [24]. This strategy is a detail of Polya's strategy that continues to be developed in solving problems. RME with Schoenfeld strategy enables students to solve problems that differ from that given by the teacher issue in both situations [25].

In fact, the RME approach is carried out in regular classes where teachers and students meet face-to-face. However, the condition of the corona pandemic that has continued to develop in Indonesia since March 2020 has caused the government to take the decision to close schools, especially in the province of DKI Jakarta. Since then, students learn through learning videos, voice recordings or broadcast materials from their teachers. After that, students work on assignments in the form of questions whose answers are sent with photos via *Whatsapp* or other learning applications.

Some researchers state that learning video serves as tools for conveying information so that students are easier to remember and can rearrange visual and verbal information in order to be an effective learning process [26], [27]. However, the role of learning videos that can only reach the level of remembering seems to have to be combined with the RME approach in achieving problem solving competencies. Therefore, the distance learning system currently applied should also be able to facilitate the achievement of these abilities. Several studies [28]–[30] show that the use of *e-learning* can increase activity and problem solving abilities. However, these three studies have not been able to explain the development of *online* student activities according to the expected competencies, especially activities with RME principles and characteristics.

Related to this, the distance learning system used in this study uses a blended learning approach. The results of research by Makmuri and Aziz [31] concluded that blended learning is an effective approach that integrates face-to-face learning features with technological mediation that can encourage interaction and involvement of students in the learning process while facilitating them in a meaningful learning process. However, the current situation of distance learning which is still carried out in full online, the blended learning approach is applied using the flipped classroom model by prioritizing independent learning activities before face-to-face activities.

The purpose of this research in general is to provide an alternative learning approach, especially in distance learning that can create a student-based learning process and real-world problems so that it can improve students' mathematical problem solving skills in the material of quadrilaterals and triangles in class VII-2 MTs Negeri 28 Jakarta through the RME approach.

2. METHOD

The approach used in this research is a qualitative approach with the type of Classroom Action Research (CAR) which is carried out in three cycles. The procedure that takes place in each cycle consists of four stages, namely: planning, implementation, observation, and reflection stages. The research subjects observed in the study were 6 students. The criteria for selecting the research subjects were based on the results of the pre-research test. The results of this test become the basis for classifying students in the upper, middle, and lower groups.

The data collection techniques used in the study consisted of: giving pre-research tests, using observation sheets in each cycle, using field notes at each virtual face-to-face meeting during the learning process, giving final tests in each cycle, interviews with research subjects, and doing documentation during the learning process *through video conferencing.* The thing that needs to be analyzed is the improvement of students' problem solving abilities by applying RME during the learning process. After the data is analyzed, it is evaluated, and a reflection is held to consider improvements at the next meeting.

The validity of the data using the triangulation of sources and investigators. While the analysis is guided by the Milles and Huberman analysis technique where the data is reduced, presented, and concluded [32]. The data analysis *framework* for problem solving abilities uses the Schoenfeld heuristic strategy which consists of five problem solving steps, namely, *reading, analysis, exploration, planning and implementation, verification* [24]. Data analysis of problem solving abilities was only carried out on the results of the research subject's test answers conducted at the end of the cycle.

The complete picture of RME characteristics in the interactivity process obtained from the observations is only supporting data that is used to find out one of the causes of the non-fulfillment of students' problem-solving abilities based on the Schoenfeld strategy.

The criterion that became an indicator of success in this study was the increase in students' mathematical problem solving abilities in learning mathematics, especially for the six research subjects in each cycle. This increase is seen from the more fulfilled or not the problem solving steps according to Schoenfeld's heuristic strategy. Table 1 is a scoring guideline based on the Schoenfeld strategy:

Table 1. Scoring guideline based on the Schoenfeld strategy

Process assessed Score	**Score**	**Description**
1. *Reading*	0	Not knowing at all what to do
	1	Writing down what is known
	2	Writing down what is known and what is asked
2. *Analysis*	0	Not analyzing at all
	1	Visualizing the situation
	2.	Visualizing the situation, writing down what must be fulfilled in the situation
	3	Visualizing the situation, writing down what must be fulfilled in the situation, and determining the next course of action
3. *Exploration*	0	Not describing the model at all in problem solving
	1	The description of the model does not match the conditions, without being equipped with variables and not writing down the steps for solving the problem
	2	A complete model description with its variables, but not writing down the steps that lead to problem solving
	3	Describing the complete model with its variables and writing down the steps that lead to solving the problem
4. *Planning and Implementation*	0	No answer
	1	Calculation does not match the conditions
	2	Calculation is in accordance with to the completion steps, but it wrong in counting so it cannot produce the correct answer

	3	Calculations are in accordance with the completion steps and are correct in calculating so they produce the correct answer
5. *Verification*	0	Did not check
	1	Reviewing answers, but not drawing conclusions
	2	Re-checking the answers, but the conclusions drawn are wrong
	3	Reviewing the answers and drawing conclusions correctly

3. RESULTS AND DISCUSSION

In cycle I, the use of the right model has not been fully understood and can be done by students in solving problems in LAS. There was a student who already uses a model that is just right so that he can solve the problem correctly. However, there are also students who choose wrong context to be modeled so that solution to the problems do result in a wrong answer. In cycle II, the use of the model is still not appropriate, as shown in the following quote:

Question 1: According to the Law of the Republic of Indonesia No. 41 of 2004 concerning Waqf it is explained that the waqf property is at most 1/3 of the total inheritance after deducting the debt of the testator, except with the approval of the heirs. Mr. Burhan has a square garden as shown in the picture below.

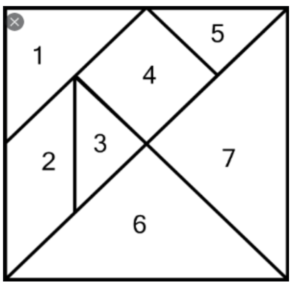

Figure 1 Question No. 1

A small part of the garden will be donated and used for the benefit of the residents. Meanwhile, the rest of the garden will be inherited to 5 children with the same area. The portion of the garden that is donated is not more than the portion of the garden that each child receives. Make a sketch of how to divide the garden! Which number build is easier to waqf? How much does each child receive?

Question 2: Currently, there is a growing trend regarding the application of epoxy floors in the interior sector. This application is a special type of paint that is applied to concrete floors, consisting of two material components, namely: resin and kardener. After drying, this paint gives the form of a thin film that is waterproof, hard but thin, glossy and chemically resistant. With many color choices, this paint is much sought after by women. Epoxy floors in the kitchen make the kitchen more hygienic, anti-slip, and durable. Amazed by this impression, Mrs. Irma plans to use an epoxy floor to paint the kitchen floor. It has a kitchen measuring 4 m x 4 m. She wants to make a geometric pattern with a width of 25 cm as shown in the image below.

Figure 2 Question No. 2

Mrs. Irma doesn't like many colors; she chooses 3 colors: green, red, and blue. The first color is 0.5 m from the kitchen wall. Installation service along with epoxy floor paint is Rp. 60,000/m2. How much does it cost Mrs. Irma to paint the kitchen floor?

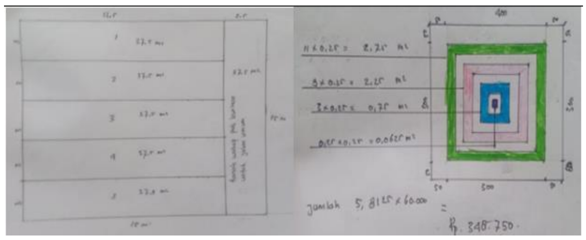

Figure 3. LAS Cycle II Answer Quotes

Figure 3 (left: Answer No. 1) shows that the model made does not fit the context. Lack of understanding makes students wrong in determining the model. On the other hand, in Figure 3 (right side: Answer No. 2) it can be seen that students have used the right model in representing the context. However, there are still miscalculations so that the resulting answer is wrong. Two answers simply show the mathematical process in understanding the context of the real world and translating it into the world of mathematics. Contribution in the development of the concept encourages students to explore related steps to resolve the problem.

In cycle II, the LAS questions which presented the concept of circumference were increased in difficulty. IN the cycle I, there is a student who can immediately calculate the circumference of the figure as soon as he draws it correctly. However, in cycle II, the size of the side of each shape whose circumference will be calculated is not yet known.

The process of interactivity between students helps in the planning and implementation of problem solving used. The types of learning activities carried out by students have also increased as presented in the table below:

Table 2. Recapitulation of Learning Activities in the Interactivity Process

Activity Type	Cycle I	Cycle II	Cycle III
Asking	11.5%	9.4%	7.7%
Answer the question	11.5%	34.6%	40.6%
Explain	15.4%	19.2%	21.9%
Give Feedback	7.5%	18.1 %	22.1 %
Listening	50%	15.6%	4.6%
Only Present	4.1%	3.1%	3.1%

The existence of linkages between materials causes the emergence of new ideas in problem solving as well as testing the truth of the stages of problem solving that have been carried out. In cycle I, the students already have sufficient initial knowledge about comparisons and scales so that they can solve problems well. In cycle II, the context given is more emphasized on broad concepts that involve other mathematical concepts, such as, fractions and comparisons. While in cycle III, the context presented is more emphasized on the relationship between the broad concepts of quadrilaterals and triangles and the concept of area at the intersection of two shapes. With the application of the RME approach, students' mathematical problem solving abilities increase. This can be seen from the increase in the results of all research subjects in each end of the cycle test:

Based on the students' mathematical problem solving ability test results, it is known that learning by applying the RME approach can improve students' mathematical problem solving abilities in cycles I, II, and III. The average value in each cycle continues to increase starting from 68.97 in the first cycle, 73.05 in the second cycle, and 77.18 in the third cycle. Thus, it can be said that learning with the RME approach can improve students' mathematical problem solving abilities.

There are five characteristics in RME which is applied in learning the material of quadrilaterals and triangles that help increase problem-solving ability, namely:

3.1 The use of context

The context in cycle I was considered difficult by students. In the upper group students, the difficulty to understand the context was a bit of an obstacle for them to complete LAS questions and tests. However, the prior knowledge possessed by upper group students such as understanding concepts about the concepts of shape and perimeter of quadrilaterals and triangles that students have enabled them to overcome these difficulties. Meanwhile, in the middle and lower group students, difficulties in understanding the context caused them not to be able to complete all LAS questions and tests correctly. The difficulty of understanding the context is caused by a lack of initial knowledge which is characterized by inability to distinguish the quantities contained in the questions that will be used in problem solving [33]. Lack of prior knowledge is the dominant cause of students' difficulties in understanding the problem.

The findings in the first cycle are also supported by the opinion of Tryas [34] who said that students' difficulties in understanding the questions consisted of difficulties in understanding the meaning in the question caused by lack of prior knowledge. Therefore, developing a context must consider prior knowledge of the students because the relationship between concepts in mathematics are not partial [35].

In cycles II and III, the difficulty in understanding the context can be overcome even by students in the lower group. Presenting the context in the form of pictures makes it easier for students to understand it [36]. One of the advantages of the use of images is that it enables to clarify an issue that could prevent or correct any misunderstanding [37].

3.2 Model use

In RME, models are used to assist students in the process of mathematizing from the real world into mathematical form. In the first cycle, some students still have difficulty in using the model. Modelling is an important step to solve the problem because it affects the next stage [38]. The difficulty in making the model hampers the problem solving steps.

In cycle II, the number of students who used the model in problem solving increased. However, there are still some students whose use of the model that has not led to the correct problem solving steps like in Figure 3. This is caused by the lack of understanding of the problem. The error in using models in solving a mathematical problem can be caused by a lack of understanding of the meaning of the sentences in the question, the lack of precision in determining the information of what is known, the lack of identification of the elements contained in the problems so that students do not have a description of such elements which can be used in problem solving [8], [39]. These errors cause errors in the use of mathematical rules or formulas and errors in procedures and operations [40].

The use of the model serves to bridge students' understanding of concrete mathematics in the real world to abstract mathematics in the form of numbers and their operations. Therefore, the third cycle LAS questions which are generally presented in the form of pictures are easier for students to understand. Although the use of the model by students is less visible, the existence of problem solving steps shows that the students are able to understand and use the model well.

3.3 The students' contribution

In cycle I, the students' contribution generally refers to how they understand and represent the context of the circumference through the model and calculate it using actual measurements. With the discussion, understanding of the context is supported by the contribution of students who solve problems using models. In cycle II, the most effective contribution in finding a concept is the students' ability to make the right model so that it can be understood by all group members. Discussion activities caused a shift in metacognitive activities so that students can check the mathematical thinking while building the structure of the new thinking in problem solving [41]. Meanwhile, in the third cycle, the contribution of the students in the materials of quadrilaterals and triangles is not only to the broad concept, but it has reached a calculation that involves a fee.

3.4 The interactivity

The results of observations on the presence and activeness of students in the discussion process showed that an increase in problem solving abilities was generally showed by the students who were involved in learning. This involvement can be in the form of asking questions, answering questions, explaining, providing feedback, listening or just being present in discussion forums.

In cycle I, the interactivity process did not run well. Students listen more to the explanation of the teacher or their friends. The difficulty of understanding the context and the rather long problem solving time make not all students able to solve LAS questions. This lack of ability causes some students to listen more during the discussion activity. In cycle II, discussion activities improved with the increase in the number of students who asked questions and gave explanations. However, the very heterogeneous composition of the group led to the dominance of students from the upper group so that it did not provide opportunities for other group members to explore. This is in line with the opinion of Anas [42] which says that one of the weaknesses of discussion is the tendency of domination by a group member.

When viewed from the context of the problem, the level of competence in the area of rectangle and triangle is increased in difficulty. It is not only applied to a flat plane, but also to spatial structures that require accuracy in solving problems. In addition, the context is presented in an image of a slice of two shapes which are marked with shading. Thus, a high curiosity lead the students involved in the learning process and experience of interactivity. The first stage in the learning process is when students collaborate and interact with other people, both with the teacher and among their friends, so that they are able to develop their curiosity with mutual respect, test the truth of the other party, negotiate, and adopt mutually developed opinions [43].

In cycle III, the learning activities carried out by students are increasing, starting from asking, explaining, to giving responses. The understanding of students obtained as a result of the interactivity process is about solving the problem of surface area of a building using the concept of flat area. and understanding of the concept of a shading area that is not the same as the intersection of two shapes. The heterogeneous group composition allows for communication that can support a better knowledge transfer process in the interactivity process. The interactions between students of different learning experiences can continue as expected [43]. The teacher guidance using *scaffolding* techniques in the form of questions to students' responses or providing analogies for students' explanation that are less precise also plays a role in achieving student understanding of the context.

3.5 The material relationship

The context given to the material of quadrilaterals and triangles helps students find the relationship between the material studied and the previous materials. In cycle I, the context is more emphasized on the concept of circumference by involving other mathematical concepts. In general, students are able to relate the concept of circumference to the previous material. However, some students' misconceptions in problem solving were found which caused low learning achievement. The error in the use of the concept can affect the obtained results.

In cycle II, the context is more emphasized on broad concepts and presented using actual measurements. Students also solve problems by making models whose size must be adjusted to the media used. However, special calculation errors of on the material scale and the comparison become dominant due to the real measurement that should be performed on media that is smaller than the actual size. It is necessary to optimize numerical abilities in the learning process and problem solving so that students can relate some calculations performed [45]. In cycle III, there were no obstacles for students to relate the material. In general, students are able to relate the material being studied with the previous material. The concept of the area of the shaded region which is analogous to the concept of a combination of two sets presented in cycle III is easier for students to understand.

After implementing RME learning in class VII-2 MTsN 28 Jakarta, there was an increase in students' mathematical problem solving abilities in that class. Based on the results of tests carried out at the end of each cycle, there was an increase in the average score of all students in class VII-2 as presented in the table below:

Table 3. Recapitulation of Problem Solving Ability Achievements

Achievement	Cycle I	Cycle II	Cycle III
Percentage of average problem solving ability	68.97%	73.05%	77.18%
Percentage of students who meet achievement indicators	43.75%	65.6%	87.5%

Table 4. Recapitulation of the Value of Research Subjects

Research subject	Cycle I	Cycle II	Cycle III
A1	78.57	91.07	98.21
T1	53.57	62.50	75.00
B1	71.43	82.14	85.71
T2	67.86	82.14	85.71
B2	53.57	75.00	75.00
A2	78.57	91.07	98.21

Based on the table above, it can be seen that there is an increase in the mathematical problem solving ability of class VII-2 students through the application of the RME approach at MTsN 28 Jakarta. Students' mathematical problem solving ability is said to increase based on observations from the learning process through Student Activity Sheets (LAS), mathematical problem solving ability test scores at the end of each cycle, and interview results for each research subject. The increase in the mathematical problem solving ability of the research subjects can be seen from the increase in the total score of each stage of problem solving ability in the table below:

Table 5. Recapitulation of Scores for Each Indicator

Cycle	Research subject																													
	A1					T1					B1					T2					B2					A2				
I	2	3	3	2	1	1	2	2	2	0	2	2	2	2	1	2	2	2	1	1	1	2	2	2	0	2	3	3	2	1
II	2	3	3	2	2	2	2	2	2	1	2	3	3	2	2	2	3	3	2	2	2	3	3	2	1	2	3	3	2	2
III	2	3	3	3	3	2	3	3	2	1	2	3	3	2	2	2	3	3	2	2	2	3	3	2	1	2	3	3	3	3

Problem solving skills related to the students' awareness of the knowledge and capabilities as well as the extent to which they can control the ability to solve problems also known as metacognitive activity [46]. This awareness can be seen from how students carry out their thinking processes by *planning*, *monitoring*, and *evaluating* the results of their way of thinking [47]. In this case, Schoenfeld's problem solving technique has stages similar to Woolfolk's opinion, namely understanding the problem, analyzing the problem, exploring, planning and implementing problem solving, and re-examining the correctness of the results.

Students from the upper group understand the problem by reading and making a line of problems that must be solved, then knowing what is understood in the problem. At the analysis stage, students check the understanding of the problem by looking back at the problem and checking the suitability between what is known and what is understood in the problem. In the exploration stage, students think about the flow of problem solving plans by thinking about the rules/formulas and theorems used in problem solving, both according to what is known or not. At the stage of implementing solution planning, students think about the concepts of arithmetic operations as prerequisite knowledge and use the flow of problem solving plans according to the results of exploration. At the stage of checking the correctness of the results, students think about whether the use and calculation of the rules/formulas and theorems are correct until students are sure that they are able to solve the problem.

In general, the thinking processes of the six research subjects have followed the Schoenfeld's stages of problem solving. However, the lower group students still made calculation errors because they did not re-examine the correctness of the answers. While in the middle group there are still students who do not do the analysis stage so that the results obtained from problem solving planning do not get optimal scores. This is in line with the results of research of Pramono [48] which say that students with high and moderate mathematical abilities are more dominant in planning and monitoring their thinking processes and evaluating the results of their thinking in each stage of problem solving. Meanwhile, students with low math abilities plan their thinking processes but do not monitor and evaluate the results of their thinking.

The results of data exposure, research results, and discussion results show an increase in mathematical problem solving abilities that occurs in class VII-2 MTsN 28 Jakarta after the implementation of learning with the RME approach. The value of the six research subjects has increased, although in cycle III there is still one research subject whose value does not increase. However, the value of each research subject has reached and even exceeded the KKM value in cycle III. An increase also occurred in the average value of the final test of the third cycle to exceed the KKM value. Although the minimum value of students still under the KKM of 64.3, but the number of students reaching the KKM were more than 75%. Thus, it can be said that learning with the RME approach in an effort to improve students' mathematical problem solving skills has been successful in this study.

4. CONCLUSION

This study concludes that the application of RME learning in improving students' problem solving abilities can be seen from the relationship between RME learning characteristics and Schoenfeld's problem solving stages. The application of learning with the RME approach can also improve the mathematical problem solving ability of class VII MTsN 28 Jakarta students. This can be seen from the increase in the class average score at each end of the cycle test and the number of students who reach or exceed the Minimum Completeness Criteria (KKM). The average value of the mathematical problem solving ability test of class VII-2 students in the final test of the first cycle was 68.97, in the second cycle it increased to 73.05, and in the third cycle it increased to 77.18. The number of students who reached or exceeded the KKM also increased. In the final test of the first cycle there were 14 people or 43.75%; in the second cycle it increased to 21 people or 65.60%; and in the third cycle it increased again to 28 people or 87.50% of the 32 students in class VII-2. This is also supported by the increase in mathematical problem solving abilities obtained from the six research subjects.

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