THE EFFECTIVENESS OF RME APPROACH WITH ASSISTED BY LEARNING MEDIA ON STUDENTS' MATHEMATICAL PROBLEM-SOLVING ABILITIES AT SMP NEGERI 8 PERCUT SEI TUAN

Tryani Cintya Siahaan, Hasratuddin
Universitas Negeri Medan
Email: tryani.siahaan@gmail.com

Abstrak

Tujuan penelitian ini adalah: 1) Keefektifan pendekatan RME terhadap kemampuan pemecahan masalah matematis di SMP Negeri 8 Percut Sei Tuan dibandingkan dengan pembelajaran biasa. 2) Ada hubungan antara kemampuan pemecahan masalah siswa dengan kemampuan awal (rendah, sedang, tinggi). Penelitian ini dilaksanakan di SMP Negeri 8 Percut Sei Tuan dari bulan Mei sampai Juni 2022. Seluruh siswa kelas VII di SMP Negeri 8 Percut Sei Tuan menjadi subjek penelitian ini. Sampel diambil secara acak sebanyak 30 siswa dari setiap kelas, VII-1 sebagai kelas eksperimen dan VII-2 sebagai kelas kontrol. Penelitian ini termasuk penelitian eksperimen dengan menggunakan metode eksperimen semu. Instrumen yang digunakan berupa tes kemampuan matematis pengantar, tes pemecahan masalah, lembar observasi aktivitas siswa, dan angket respon siswa. Analisis data yang digunakan dalam penelitian ini adalah ANOVA dua arah. Temuan penelitian ini mengungkapkan bahwa: 1) pendekatan RME dengan media pembelajaran berbantuan pada kemampuan pemecahan masalah efektif dibandingkan dengan pembelajaran biasa, dan 2) tidak ada interaksi antara pembelajaran dengan kemampuan awal matematika siswa rendah, sedang, dan tinggi pada kemampuan pemecahan masalah matematis siswa. Peneliti merekomendasikan penggunaan teknik RME dengan penggunaan media pembelajaran sebagai metode alternatif bagi guru untuk membantu siswa meningkatkan keterampilan pemecahan masalah mereka.

Kata Kunci: Efektivitas, Kemampuan Awal Matematika Siswa, Pendekatan RME, Media Pembelajaran, Kemampuan Pemecahan Masalah.

Abstract

The purpose of this research is: 1) The effectiveness of the RME approach on mathematical problem-solving abilities at SMP Negeri 8 Percut Sei Tuan as compared to ordinary learning. 2) There is a relationship between students' problem-solving skills and their initial ability (low, medium, high). The research was conducted at SMP Negeri 8 Percut Sei Tuan from May to June 2022. All the seventh-grade students at SMP Negeri 8 Percut Sei Tuan were subjects of this study. A random sample of 30 students from each class, VII-1 as the experiment class and VII-2 as the control class, was taken. This research is included experimental research using quasi-experiment methods. The instrument utilized were, an introductory mathematical aptitude test, problem-solving test, a sheet of student's activity observation, and a questionnaire with student responses. The data analysis use in this research is ANAVA two-ways. The findings of this study revealed that: 1) RME approach with assisted by learning media on problem solving

ability is effective compared to ordinary learning, and 2) there was no interaction between learning and students' mathematical initial ability low, medium, and high on students' mathematical problem-solving ability. The researcher recommended using the RME technique with the use of learning media as an alternate method for teachers to help pupils improve their problem-solving skills..

Introduction

The importance of learning mathematics is expected that students can take control the learning, especially regarding the students' mathematical problem-solving abilities. This is in accordance with one of the objectives of learning mathematics that has been described above, namely students develop mathematical problem-solving abilities which consist of the ability to understand problems, design mathematical models, complete models and interpret solutions obtained by students based on the problems given. The importance of students' mathematical problem-solving abilities is emphasized in the NCTM which states that problem solving is a part of learning mathematics, so that problem-solving abilities and learning cannot be separated. Supported by Branca suggests that problem-solving abilities are very important for every student because (a) problem-solving is a general objective of teaching mathematics, (b) problem-solving which includes methods, procedures and strategies is the core and main process in the mathematics curriculum., and (c) problem-solving is a basic ability in learning mathematics. In addition, Rusefendi says that problem-solving skills are very important in mathematics, not only for those who will study mathematics in the future, but also for those who will apply it in other fields of study and in everyday life. Based on the explanation above, it can be concluded that problem solving ability is very important to be improved, especially in learning mathematics(Pohan, Asmin, & Menanti, 2020).

Although problem-solving ability is an important thing, in fact level of students' mathematical problem-solving ability is still relatively low. Hayat (Zahro and Haerudin, 2022) stated that in Indonesia the low level of students' mathematical problem-solving abilities was indicated by the results of tests conducted by two international studies, including the Program for International Student Assessment (PISA) in 2018 and Trends in International Mathematics and Science Study (TIMSS) in 2015. Based on the results of the PISA study, it was found that Indonesia has a level of student mathematical problem-solving ability which is always ranked in the bottom 10 and it is proven that in 2018 Indonesia was ranked 74th out of 79th countries. Meanwhile, TIMSS placed Indonesia at 44th out of 49th countries in 2015 with an average score of 397 for mathematics achievement while the average standard value used by TIMSS was 500 (Megantara et al., 2017). These rankings indicate that the level of mathematical problem-solving ability of students in Indonesia is still low and below international standards.

The scientist observed 25 students in grade VII in SMP N 8 Percut Sei Tuan to discover facts about students' current mathematics problem-solving abilities(Minarni, Napitupulu, & Husein, 2016). The scientist gave essay tests that related to mathematics problem-solving. Based on the result of the scientist preliminary problem-solving test for VII grade students of SMP N 8 Percut Sei Tuan 25 students who followed the test, incapable students in understanding problems are 25 students (100%) whereas, in this part, students did not write what the questions known and asked. Incapable students in arranging solving plans are 13 students (52%) who did not write the formula or first step they must do. Incapable students in solving arranges problem are 15 students (60%) and

incapable students in summarizing correctly are 15 students (60%) where on this part, students did not earn the right result and did not make a result they got. From the following result, it saw the percentage obtain above 50% students incapable of solving problems with proper steps along with problem-solving indicator i.e figuring problems, arranging solution, solving problems according to plan and re-evaluated. It shows that problem-solving abilities level on SMP Negeri 8 Percut Sei Tuan relatively low.

The researcher also conducted an interview with one of the seventh-grade mathematics teachers at SMP N 8 Percut Sei Tuan. Based on the results of the interview, it was found that the learning process that took place in the classroom was still using direct learning, meaning that learning was teacher centered. Because of this, students' mathematical problem- solving abilities cannot be honed and developed so that the level of students' problem-solving abilities will keep it low. This is supported by research Suriyani research (2018), low mathematics problem-solving abilities students have caused by the conventional learning where lessons still teacher-centered. This causes learning tends to be boring and students are not actively involved during the learning process.

Students' low mathematical problem-solving abilities can be improved with the help of teacher support for the application of appropriate learning approaches. One learning approach that can be used is Realistic Mathematical Education (RME). Realistic Mathematics Education (RME) is one of the approaches ways where inside learning must start from a daily life problem. Those problems are used to bring up mathematics concepts. In this Realistic Mathematics Education (RME) model, teachers are just a facilitator and tutors during students' learning process. Teachers must give changes for students to give their opinion during learning. The steps of the Realistic Mathematical Education approach described in Treffers and Goffre's Scientific Journal of Basic Education 26 are understanding realistic contextual problems, explaining realistic contextual problems, solving realistic contextual problems, comparing and discussing realistic contextual answers and concluding. (Novita , et al., 2020) These five steps of the Realistic Mathematical Education approach are in line with the steps of solving mathematical problems. Therefore, it is hoped that through this RME learning approach students can build their own knowledge through the problems given so that the problem-solving abilities of students can develop for the better.

In addition to learning models, learning media are also needed to support good mathematical problem-solving abilities and more effective learning. Learning media is a device that is used as an intermediary for delivering information that can stimulate students' thinking and can increase student interest. One of the learning media that can be used is PowerPoint (PPT). PowerPoint is a medium that the facilities are easy to use with slides to support effective and easy presentation devising. According to Julia (Susanti, et al., 2021) PowerPoint learning media is one of the learning media that can be used to attract students' attention because the media combines all media elements, namely text, images, sound and even video so that it makes this media an interesting learning medium.

Based on the above exposures, the researcher thinks that it need to analyze the effectiveness of the RME approach on mathematical problem-solving ability compared to ordinary learning at SMP Negeri 8 Percut Sei Tuan and to find out whether there is an interaction between mathematics learning with students' mathematical initial ability (high, medium, low) to students' problem-solving ability.

Research methods

In this research, a quantitative research design was used because this research was experimental research. The form of research design used is quasi-experimental. The design of this research, there are two class were selected randomly and both will be used as experimental and controlling class.

Table 1. *Research Design*

Experiment	O_1		**X**	O_2
Control	O_1		**-**	O_2

Explanation:

X : Class experiment giving treatment

C : Class control

O_1 : Mathematical Initial Ability Test on class experiment and class control

O_2 : Posttest on class experiment and class control

Table 1. shows that RME approach will give to experiment group, while control group will not get any treatment. The independent variable in this research is RME approach assisted by learning media while dependent variable is mathematical problem-solving ability. The research was conducted at SMP Negeri 8 Percut Sei Tuan located in Dusun XII, Kec. Sei Rotan, Sei Tuan, Kab. Deli Serdang, North Sumatra Province(Mulyadi, Ismanto, & Fuad, 2017). The selection of the time of this research was on even semester program academic year 2021/2022. Population in the research this is whole student grade VII at SMP Negeri 8 Percut Sei Tuan. From 5 existing classes taken sample for this research, two classes are VII-1 and VII-2 at SMP Negeri 8 Percut Sei Tuan.

The topic will be brought in this research is quadrangular. The instrument in this research is RPP, students' activity observation, student response questionnaire, MIA test, and Posttest. The test used is essay, consisting of validation with 3 expert and calculate with SPSS 24 while reliability only calculate with SPSS 24. RPP, students' activity observation and student response questionnaire only used for experimental class. Data analysis techniques used are descriptive, normality test, homogeneity test, and two-way ANAVA. Data processing by application of statistical product and service solutions (SPSS 24). Descriptive statistics are only related to describing or providing information about a data or situation in class control and experiment class(Hwang, Chen, Shadiev, Huang, & Chen, 2014). Then, normality and homogeneity is used to look if data is normally distribution and data is homogenous. After that, data ready to be testing by two-way ANAVA.

Results and Discussion

Before start learning on both class that is control class and experiment class are given MIA test(Cooper, 2014). The purpose it is for knowing how much knowledge MIA that has students without affected by treatment in learning as well as could become base grouping students in learning(Kjellsdotter, Berglund, Jebens, Kvick, & Andersson, 2020).

The following is a diagram of the difference in the descriptive statistical results of MIA Test in the control class and experiment class:
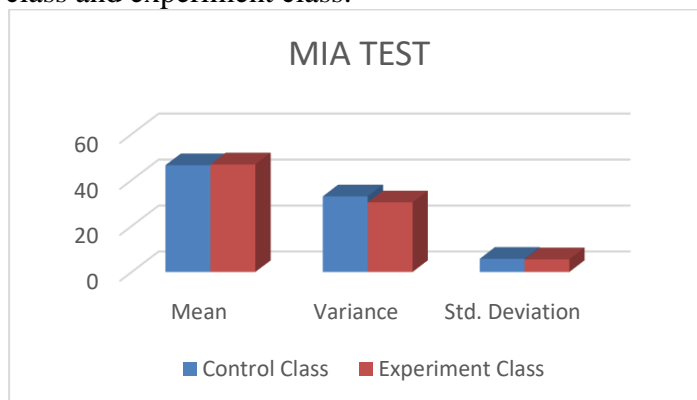

Figure 1. Diagram of the Difference in Data MIA Test between Control & Experiment Class

Figure 1. describing MIA test data control class lower than experiment class. The result of MIA test obtained student average score in class experiment i.e 46,7780 and for control class is 46.4447. So, it can conclude that the score for MIA test in the control class and experiment class are not much different as shown in the figure.

After given learning with apply realistic mathematic education with assisted by learning media in experiment class while in control class used ordinary learning, then given Post-test. The purpose is for knowing students' mathematical problem-solving ability after given treatment. The following is a diagram of the difference in the descriptive statistical results of Post-Test in the control class and experiment class:
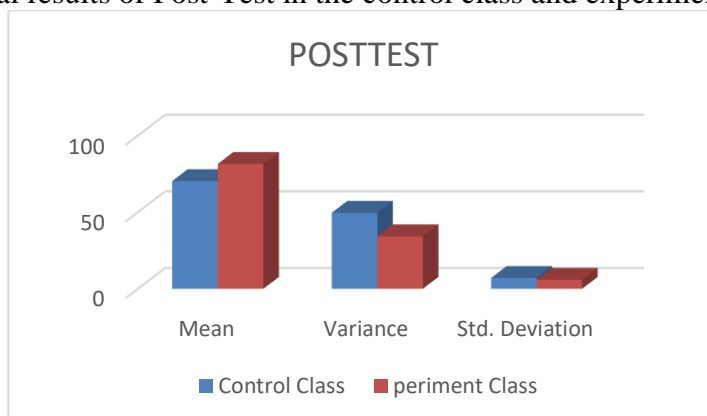

Figure 2. Diagram of the Difference in Data Posttest between Control & Experiment Class

Figure 2. describing MIA test data control class lower than experiment class. The results of this post-test in class control are 70,2563 while class experiment is 81,4453. So, it can conclude that the score for posttest in the control class and experiment class are much different as shown in the figure. It means experiment class better than control class after given treatment.

In this research, SPSS application is used to do validity test and give to lecturer and mathematics teacher at SMP Negeri 8 Percut Sei Tuan to be validator(Wihartini & Suyanti, 2022). The basis of taking decision with using SPSS can conducted with compare r count and r table. Following is criteria comparison value of r count and r table which will be used:

- If the value of r count > r table, then the question is valid.

- If the value of r count < r table, then the question invalid.

Table 2. The Result of Product Moment Correlation on MIA Test

Correlations

		Soal_1	Soal_2	Soal_3	Skor_Total
Soal_1	Pearson Correlation	1	-.117	-.013	.559**
	Sig. (2-tailed)		.539	.944	.001
	N	30	30	30	30
Soal_2	Pearson Correlation	-.117	1	.095	.596**
	Sig. (2-tailed)	.539		.616	.001
	N	30	30	30	30
Soal_3	Pearson Correlation	-.013	.095	1	.548**
	Sig. (2-tailed)	.944	.616		.002
	N	30	30	30	30
Skor_Total	Pearson Correlation	.559**	.596**	.548**	1
	Sig. (2-tailed)	.001	.001	.002	
	N	30	30	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

Based on table 2. could see that there are 3 questions of MIA Test with r count seen from total score. In question 1, we get 0,559, question 2 is 0,596 and question 3 is 0,548. Whereas for the value of r table can be seen in the distribution table r, with N =30 obtained r table = 0,3494. Because r counts from question 1,2, and 3 > r table then we concluded that question 1,2, and 3 is valid. This means that the instrument can provide an overview of the data correctly in accordance with reality or the actual situation. The validity of the three questions states that question can be used as a data collection instrument by research

Table 3. The Result of Product Moment Correlation on Posttest

Correlations

		Soal_1	Soal_2	Soal_3	Skor_Total
Soal_1	Pearson Correlation	1	.198	.261	.657**
	Sig. (2-tailed)		.295	.163	.000
	N	30	30	30	30
Soal_2	Pearson Correlation	.198	1	.329	.732**
	Sig. (2-tailed)	.295		.076	.000
	N	30	30	30	30
Soal_3	Pearson Correlation	.261	.329	1	.750**
	Sig. (2-tailed)	.163	.076		.000
	N	30	30	30	30
Skor_Total	Pearson Correlation	.657**	.732**	.750**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	30	30	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

Based on table 3. could see that there are 3 questions of MIA Test with r count seen from total score. In question 1, we get 0,657, question 2 is 0,732 and question 3 is 0,750. Whereas for the value of r table can be seen in the distribution table r, with N =30 obtained r table = 0,3494. Because r counts from question 1,2, and 3 > r table then we concluded that question 1,2, and 3 is valid. This means that the instrument can provide an overview of the data correctly in accordance with reality or the actual situation. The validity of the three questions states that question can be used as a data collection instrument by research.

Reliability is the extent to which the measurement of a test remains consistent after repeated tests on the subject and under the same conditions. Test reliability in this research used with Alpha formula through SPSS application. Criteria used in testing this is a following:
- If the value of r count > r table, then the data is reliable.
- If the value of r count < r table, then the data is unreliable.

Table 4. The Result Reliability Test of MIA Test and Posttest

Reliability Statistics	
Cronbach's Alpha	N of Items
.611	3

Reliability Statistics	
Cronbach's Alpha	N of Items
.518	3

Based on table 4. obtained that r count for third questions in MIA test is 0,611 while r count POSTTEST is 0,518. R table can see in the distribution table r, with N=30 so that r table = 0,3494. Because of that we can concluded that the value of r counts on MIA Test and POSTTEST > r table, so that could call that data is reliable. This means that the measurement results of the instrument can be relied upon to measure consistently from time to time.

Normality test is a test carried out with the aim of assessing the distribution of data in a group of data or variables, whether the distribution of the data is normally distributed or not. Data normality test used in this research is conducted with SPSS 24 through the Kolmogorov-Smirnov test which purpose to see what the data is used in this research is normal distribution or no, where the result will be influence further data analysis. Following the results of the data normality test through SPSS 24 application:

Table 5. The Result Normality Test using SPSS 24

Tests of Normality

	Siswa	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Nilai_Siswa	TESKAM CONTROL	.140	30	.139	.946	30	.132
	TESKAM EXPERIMENT	.135	30	.174	.951	30	.183
	POSTTEST CONTROL	.119	30	.200[*]	.931	30	.053
	POSTTEST EXPERIMENT	.147	30	.095	.939	30	.083

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Criteria testing using the Kolmogorov-Smirnov test (Widijayanto, 2013:166) is as following:
- If value significance > 0,05, then the data is normally distributed.
- If value significance < 0,05, then data is not normally distributed.

Based on table 5. obtained result analysis of data MIA test in control class and experiment class with score significance of 0,139 and 0,174 while both classes' data POSTTEST is 0,200 and 0,095. Both classes have score significance > 0,05, it means data from both classes is normally distributed.

Homogeneity test basically conducted for test a group or more have same variance or different(Kim & Park, 2019). The homogeneity test is carried out to convince the examiner or processor that the data taken are from the same population. Criteria tests homogeneity could see based on score its significance as following:
- If value significance > 0,05, then the group have the same variance (homogeneous).
- If value significance < 0,05, then the group have the different variance (heterogeneous)

Table 6. Homogeneity Test Data Control and Experiment Class

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
TES_KAM	.169	1	58	.682
POSTTEST	.677	1	58	.414

Based on table 6. could see that score significance for MIA Test in control class and experiment class was 0,682 and Levene Statistics 0,169. Whereas for score POSTTEST significance obtained 0,414 and Levene Statistics 0,677. Because of both tests have score significance > 0,05 then could concluded that control class and experiment class have the same variance (homogeneous). This means that the data taken comes from the same population

The hypothesis test in this research is for application realistic mathematic education with assisted by learning media more effective than ordinary learning to students' mathematical problem-solving ability. Calculation could conduct after fulfill condition test and calculation use SPSS application. The test hypothesis used is as following:

1. H_0: There is no interaction between mathematics initial ability (low, medium, high) to students' problem-solving ability
2. H_1: There is interaction between mathematics initial ability (low, medium, high) to students' problem-solving ability

Table 7. Summary Test Two-Way ANAVA from Students' Mathematical Problem-Solving Ability

Tests of Between-Subjects Effects

Dependent Variable: NILAI_SISWA

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1107.627[a]	6	184.605	58.462	.000
Intercept	3000.451	1	3000.451	950.214	.000
Tes	16.116	2	8.058	2.552	.087
Tingkat_Kemampuan	1048.563	2	524.282	166.035	.000
Tes * Tingkat_Kemampuan	8.870	2	4.435	1.405	.254
Error	167.356	53	3.158		
Total	17643.000	60			
Corrected Total	1274.983	59			

a. R Squared = ,869 (Adjusted R Squared = ,854)

Criteria test used to the hypothesis is if value significance > 0.05, then H0 is accepted, otherwise if value significance < 0,05 then H0 is rejected. The hypothesis test conducted with two-way ANAVA test were obtained average students' problem-solving ability in table 7. could is kwon that the learning factor relates to students' mathematical initial ability obtained from F = 3,318 with significance value 0,254 > significance level = 0,05, so H0 is accepted. So that we can conclude there is no interaction among learning with mathematical initial ability (low, medium, high) against students' mathematical problem-solving ability.

By graphic, interaction among learning with students' initial ability (low, medium, high) against students' mathematical problem -solving ability can see in the picture below:
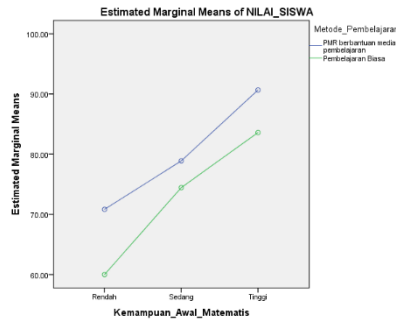

Figure 3. Interaction of Learning Factor with Students' Initial Ability on Students' Problem-Solving Ability

Based on figure 3, we can see that there is no interaction among learning with mathematics initial ability (low, medium, high) to students' mathematical problem-solving ability.

Table 8. Interaction Data of Learning Methods with Students' Initial Ability on Students' Problem-Solving Ability

3. Metode_Pembelajaran * Kemampuan_Awal_Matematis

Dependent Variable: NILAI_SISWA

Metode_Pembelajaran	Kemampuan_Awal_Matematis	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
PMR berbantuan media pembelajaran	Rendah	70.833	1.256	68.314	73.351
	Sedang	78.890	1.026	76.833	80.947
	Tinggi	90.666	1.124	88.413	92.919
Pembelajaran Biasa	Rendah	60.000	1.589	56.814	63.186
	Sedang	74.447	1.026	72.390	76.503
	Tinggi	83.591	.986	81.615	85.567

If you see from existing average could is known that students' mathematical problem-solving ability who used RME approach with assisted by learning media are student with high ability have average (90,666) more than problem-solving ability with ordinary learning (83,591). Whereas students with medium ability who use RME approach with assisted by learning media have average (78,890) more than problem-solving ability with ordinary learning (74,447). Students with low ability who use RME approach with assisted by learning media have average (70,833) more than problem-solving ability with ordinary learning (60,000).

Based on exposure above and through figure 8. can see that there is significant different between average problem-solving ability on each level. At level high ability the average difference is 7,075, at level of medium ability is 4,443 and at the level low ability is 10,8333. Therefore, it can be concluded that there is no interaction between learning and students' mathematical initial ability (low, medium, high) on students' mathematical problem-solving ability.

To find out the effectiveness of RME approach with assisted by learning media, it can be reviewed based on 4 indicators of effectiveness. The following will present the results of research based on indicators of effectiveness:

Analysis of learning completeness by classical:

a. Completeness classic obtained from control class:

$$KKM = \frac{score\ of\ complete\ student}{total\ students}\ x\ 100\% = \frac{18}{30} x 100\% = 60\%$$

b. Completeness classics obtained from experiment class:

$$KKM = \frac{score\ of\ complete\ student}{total\ students}\ x\ 100\% = \frac{29}{30} x 100\% = 96,7\%$$

Based on classical completeness from both classes obtained that many students who achieve KKM value or more than KKM is 60% students of control class while in experiment class obtained as many as 96,7% students achieve KKM value or more than KKM. So that can conclude that applied learning model in experiment class effective for increase students' mathematical problem-solving ability.

Indicator to students' activity in experiment class said effective if during the learning process with realistic mathematic education approach assisted by learning media obtained score students' activity is at least in the category active ≥65. The instrument was filled in by a seventh-grade math teacher at SMP Negeri 8 Percut Sei Tuan. Observations were carried out at every meeting by observing every student activity in learning based on the observation instructions provided in the student activity observation sheet. From 2 meeting obtained students activity in active category. As can be seen that percentage of overall meeting is 77,5% which means that it is in the active category. Therefore, it can be concluded that student's activity when participating in learning with realistic

mathematic education approach with assisted by learning media fulfill the effective criteria with 77,5% > 65% of students in the active category.

One of indicators used for seeing something effective in this research is to look at the student response questionnaire scores with a minimum requirement of 80% of students giving a positive response. The following are the results of the questionnaire data on student responses to realistic mathematics education approach with assisted by learning media which presented in the following table:

Table 9. Category of Student Response Questionnaire

Score	Criteria Students Response	Students	Percentage
4,01 – 5,00	Very Good	19	63,33%
3,01 – 4,00	Good	9	30%
2,01 – 3,00	Enough	2	6,67%
1,00 – 2,00	Not Good	-	-
Total		**30 Students**	**100%**

Based on table 9., obtained 19 students give very good response (63,33%) to realistic mathematic education approach with assisted by learning media, 9 students give goo response (30%) and 2 students give enough response (6,67%). In line with effectiveness indicator that have been displayed previously that can called effective if there are 85% students give positive response to learning with treatment. Therefore, number of students who respond from very good until good is 93,33% then can be concluded that realistic mathematic education approach with assisted by learning media effective to increase students' mathematical problem-solving ability.

Based on research result that has been obtained above, the following will present a discussion of the results of the research. The research discussion was conducted on students' mathematical initial ability, students' mathematical problem-solving ability, interaction between learning with students' mathematical initial ability to students' mathematical problem-solving ability, students' activity, and students' response.

Effectiveness learning with realistic mathematic education approach with assisted by learning media can be seen if it fulfilled 3 criteria that have been describe in chapter 3 namely about test students mathematical problem-solving ability, students' activity, and students' response.

- Students' Mathematical Problem-Solving Ability

The mathematical problem-solving ability of students in this research has increased. This can be seen from the ability of students to understand the problem where students are able to receive information and store the information by writing down what is known and asked in the given problem. Then students can design a settlement plan where students can process information by developing strategies to solve the given problem(Siagan, Saragih, & Sinaga, 2019). In this case students will provide a solution plan in their own way to be able to solve the problem so that the design of the completion plan for each student can be different. Furthermore, students are able to carry out or complete the draft settlement plan that has been made earlier. In this section, students will construct their initial understanding of the problem against the draft solution plan they made. The design of the student's completion plan can be different, but in the end, students get the same results. The same results will be obtained when students re-examine the solutions that have been made(Widodo, Pangesti, Istiqomah, Kuncoro, & Arigiyati, 2020). In the research, there were several students who had been able to understand the problem correctly, then designed a plan of completion well and completed the design and did not forget to re-examine the solution, so that students' problem-solving abilities obtained good results.

- Students Activity

Based on result analysis students' activity in experiment class can be seen that percentage of average students' activity with realistic mathematics education with assisted by learning media is 77,75% with active category. Descriptively, effectiveness for students' activity category fulfilled(Sari & Hermanto, 2017). During the learning process showed that students actively follow direction and guidance from the teacher, personally active submit question and answer teacher questions, convey result discussion, as well understand the problem and able finish problem that exist in PPT learning media with good and right.

- Students Response

Based on effectiveness criteria that has been displayed has fulfill every indicator, then can be concluded that effectiveness of learning realistic mathematic education approach with assisted by learning media better than learning with ordinary learning specially to improve students' mathematical problem-solving ability at SMP Negeri 8 Percut Sei Tuan.

- Time in Learning

In this research, the time used to provide learning materials for quadrilaterals was 2 meetings or 2 x 80 minutes. While in the control class the time required by the teacher is 4 meetings or 4 x 80 minutes. Researchers use a relatively shorter time to provide or teach material to students compared to teachers who teach in class(Schmidt, 2021). Based on the results of the research, it was found that students in the experimental class treated with RME learning assisted by learning media obtained better results than students in the control class with ordinary learning even though the time needed in the experimental class was less. Therefore, it can be said that the time required in learning the experimental class is more effective than the control class.

- Students' Mathematical Initial Ability (MIA)

Data of students' mathematical initial ability in this research used for determines MIA group that is low group, medium group, and high group(Verawadina, 2020). This MIA grouping is used to solve problems related to problem-solving abilities with RME approach with assisted by learning media and ordinary learning. Students' mathematic initial ability required because in mathematics learning, learning material arranged by structured this means that before new learning begins, it is still necessary to understand the basic concepts. If students are not able to understand the basic concept, then students will have difficulty understanding the concepts to be next studied(Supena, Darmuki, & Hariyadi, 2021). This means that learning must be carried out in a structured and gradual manner and based on the right experience.

Based on the explanation above, it can be concluded that the students' mathematical initial ability is one of the knowledge needed to carry out the continuity of learning well. Where with the initial ability, it can be continuing the good learning process due to the knowledge of the basic concepts to facilitate the understanding of the next concept.

- Interaction Between Learning Factors and Students' MIA on Students' Mathematical Problem-Solving Ability

The students' mathematical initial ability has an important role before the start of the learning process this due to knowing whether students already knowledge as a prerequisite have for participating in learning and knowing the extent to which students understand will be presented. There must be a continuous and comprehensive relationship so that students can be understand a learning concept sequentially. If students do not

understand the basic concepts, students will have difficulty understanding the new concepts that will be given by teacher. In line with this, Praptiwi and Handika (2012:42) suggest that a person will find it easier to learn something if the learning process is based on what that person already knows. Therefore, to learn a new material, one's learning experience will affect the occurrence of the next material learning process.

Based on students' mathematical initial ability, the difference between students' mathematical problem-solving and learning outcomes obtained from learning with realistic mathematic education approach with assisted by learning media and ordinary learning is obtained at a high ability is 7,075, medium ability is 4,443, and low ability is 10,8333. This shows that there is a significance influence between learning with realistic mathematics education approach with assisted by learning media on students' mathematical problem-solving ability at each level. The results showed that the low ability of students' mathematical problem-solving ability has a greater influence in learning realistic mathematic education with assisted by learning media compared to medium and high-level ability.

Conclusion
1. Based on the results of this research, it can be concluded that:
2. Based on the effectiveness criteria of this research, it can be concluded as follows:
3. The achievement of classical mastery of students learning in this research as many as more than 85% of students had completed namely 96,7%.
4. The time used in this research is more efficient, for two meetings the time required is 2 x 80 minutes where for the time usually used by the teacher it can be reach 4 x 80 minutes to complete the quadrilateral.
5. Students' activity in experiment class can be seen that percentage of average students' activity with realistic mathematics education with assisted by learning media is 77,75% with active category.
6. Students' responses to learning are positive, this can be seen from the results of the student response questionnaires obtained as many as 93,33% of students gave positive responses to learning.
7. So, it can be concluded that through RME approach assisted learning media on problem solving ability is effective compared to ordinary learning.
8. There is no interaction between learning and students' mathematical initial ability low, medium, high on students' mathematical problem-solving ability. This shows that learning with RME approach with assisted by learning media is always better to do to improve students' mathematical problem-solving ability than ordinary learning and there is no need to distinguish/group students' initial abilities (low, medium, high).

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