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MATHEMATICS EDUCATION LEARNING AND TEACHING

Model-Eliciting Activities (MEAs) Approach to Mathematical Problem Solving Ability at MA DDI Alliritengae

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a b s t r a c t

This experimental research aims to assess the impact of the Model-Eliciting Activity (MEAs) learning approach on the mathematical problem-solving abilities of class XI students at MA DDI Alliritengae. Utilizing a quasi-experimental method with a Non-Equivalent Control Group Design, the study involved pre-test and post-test evaluations of both control and experimental groups. Simple Random Sampling was employed for sample selection. The research revealed that, initially, students in both groups exhibited low mathematical problem-solving abilities. Post-test results indicated that while the control group showed only minor improvements, remaining mostly at low or medium criteria, the experimental group demonstrated significant improvements, with most indicators reaching a high category. Hypothesis testing yielded a sig. (2-tailed) value of 0.000, indicating a significant effect of the MEAs approach on students' mathematical problem-solving skills. Thus, the study concludes that the MEAs approach effectively enhances mathematical problem-solving abilities, outperforming traditional lecture methods.

K e y w o r d s :
Model Eliciting Activities (MEAs) Learning Approach: Mathematical Problem Solving Ability

INTRODUCTION

One branch of science, namely mathematics. Mathematics is one branch of science that has an important role in the development of science and technology. Both being an aid in the application of other fields of science, as well as in the development of mathematics itself. Mastery of mathematical material by students is a non-negotiable necessity in structuring logic and decision making in today's increasingly competitive competitive era (Siagian, 2016).

Mathematics learning is not only aimed at improving numeracy skills. The ability to count is only a small part of mathematics. The ability to solve mathematical problems is a student's ability to use their skills and thinking processes in solving a problem to find solutions to mathematical problems (Davita & Pujiastuti, 2020; Isnani & Handoko, 2023). In addition, problem-solving skills have an important role in learning mathematics. Apart from that, problem solving skills have an important role in learning mathematics. The causes of low mathematical problem solving abilities include students not understanding the problems presented due to students' familiarity with working on routine problems. Apart from that, there are some students who already understand the questions and work according to the steps, but don't check them again so the results are not accurate (Sriwahyuni & Maryati, 2022).

Based on the results of an interview with one of the mathematics teachers at the MA DDI Alliritengae school whose initials are SY, said that there are several problems that can be found, namely where students have not been able tomake a mathematical model of a problem, the strategy of students in solving a mathematical problem is still lacking. The process of learning mathematics in schools, in general, students learn mathematics only told by their teachers not through exploration activities. So that mathematics learning does not involve student activities optimally, and mathematics learning seems less touching on the substance of problem solving.

Usman stated that to solve mathematical problems, especially non-routine problems, students need creative mathematical thinking skills [Usman, 2016]. By having the ability to think creatively mathematically, students are able to generate many ideas, are able to view problems from various points of view and find solutions to problems in various ways. According to Amalia et al. creative thinking is a process used when generating or giving rise to a new idea [Amalia et al., 2015]. Izzati explains that people who have the ability to think creatively are not only able to deal with non-routine problems, but are also able to see various alternative solutions to problems [Izzati, 2009]

In mathematics learning, students should be accustomed to gaining understanding through the experience of teaching and learning activities contained in the classroom. The existence of this, students can apply procedures, concepts, and a process. In addition to being able to build active learning, the existence of a learning approach is very important as a supporter of the learning process. So a strategy, approach, or a learning model is needed to activate students in understanding concepts and abilities in solving mathematical problems (Ferdiani, 2017). As an effort to facilitate or develop students' abilities in solving problems, teachers must be able to create a learning atmosphere that makes students active so that students can express their thoughts and creativity freely and students can receive or know new knowledge through confirmation given by the teacher of their thoughts. One approach that teachers can choose and apply in their ability to solve mathematical problems is the Model-Eliciting Activity (MEA) approach.

Approach Model-Eliciting Activities (MEAs) is one alternative learning approach that can be practiced in learning mathematics. Approach Model-Eliciting Activities (MEAs) is an approach to understand, explain and collect a number of solutions or conclusions from a problem based on real life so that it can encourage students to choose or determine mathematical models that occur in a group (Illahi et al., 2019).

The advantages of the Model-Eliciting Activites (MEAs) approach according to Ana Muktia (2018: 18), namely Students can get used to being able to solve problem-solving problems, students are more active in participating in the learning process and often express the results of their thoughts, students have more opportunities to utilize mathematical knowledge and skills, students with low abilities can respond to problems with The way itself, students have a lot of experience to find something in answering questions through group discussions, and heuristic strategies in Model-Eliciting Activities (MEAs) make it easier for students to solve a problem, and students can be trained to be able to work together with other students.

The shortcomings of the Model-Eliciting Activities (MEAs) approach according to Ana Muktia, 2018 namely making problems about problem solving that are meaningful to students are not something easy, posing problems that can be directly understood by students is very difficult so that most students who have difficulty how to respond to the problems given, and problem solving problems are more dominant, especially those that are too difficult to do Sometimes it makes learners bored and bored. One of the previous studies relevant to this research is research from Rusliah et al (2021) where explains that with the approach Model-Eliciting Activities (MEAs) can affect the reasoning ability of generalizing students. Previous research stated that the mathematical problem solving abilities of students who studied with the Eliciting Activities (MEA's) model were higher, there was an increase in students' mathematical problem solving abilities which were influenced by their initial mathematical abilities, the mathematical problem solving abilities of students who were treated with the Eliciting Activities (MEA's) Model were higher. higher compared to students who were treated with conventional learning models in groups of students who had high initial mathematics abilities (Atieka, 2019).. Based on this background, the author is interested in conducting in-depth research on the "Approach Model-Eliciting Activities (MEAs)) to Mathematical Problem Solving Ability".

LITERATURE REVIEW

Previous research stated that the mathematical problem solving abilities of students who studied with the Eliciting Activities (MEA's) model were higher, there was an increase in students' mathematical problem solving abilities which were influenced by their initial mathematical abilities, the mathematical problem solving abilities of students who were treated with the Eliciting Activities (MEA's) Model were higher. higher compared to students who were treated with conventional learning models in groups of students who had high initial mathematics abilities (Atieka, 2019).

Approach Model-Eliciting Activities (MEAs) is an approach to understand, explain and draw a number of solutions or conclusions from a problem based on real life, so as to encourage students to choose or determine mathematical models that occur in a group (Illahi et al., 2019). Approach Model-Eliciting Activities (MEAs) It can be interpreted as the point of view of an educator or teacher in forming an atmosphere of the learning process that relates mathematical material to things that happen around students.

Problem solving is part of a very important need because the learning process allows students to gain experience in using their knowledge and skills to be applied to solving problems faced in everyday life and problems that are not routine. The ability to solve mathematical problems is the ability of students to use their skills and thought processes in solving a problem to find solutions to mathematical problems (Davita & Pujiastuti, 2020).

METHODS

Population and Sample

The population in this study is all class XI students at MA DDI Alliritengae consisting of 4 classes. And the sampling of Simple Random Sampling is from a randomly selected population. Where to use the lottery method (Lottery). And the samples selected are class XI Science 1 as an experimental class (which in learning uses the application of the Model-Eliciting Activities (MEAs) approach) and class XI Science 2 as a control class (which in learning uses a conventional learning approach). The population of this study was the entire class XI MA DDI Alliritengngae consisting of 80 students. The sample of this research consisted of a control class of 24 people and an experimental class of 35 people.

Reseach Design

The design used in this research is Non Equivalent Control Group Design. Using a nonequivalent control group design research design, where a group of subjects are taken from a certain population and carried out a pretest and then subjected to treatment. After being subjected to treatment, the subject a posttest was given to measure the effect of treatment on this group. The instruments given contain the same weight. The difference between the pretest and posttest results shows the results of the treatment that has been given. In this study, two classes were used, namely the control class and the experimental class. Before being given treatment, both the control class and the experimental class were given a pre-test, with the aim of finding out the condition of the class before being given treatment. After that, the control class was given conventional learning, while the experimental class was given learning using the Model-Eliciting Activity (MEAs) approach. Then a post-test is given to determine and measure students' mathematical problem solving abilities. In general, the research design can be presented in the following table:

Table 1
Research Design

Class	Pre-Test	Treatment	Post-Test
Control	Y1	X1	Y2
Experiment	Y1	X2	Y2

(Sugiyono, 2015: 135

Information:
X1 : Treatment with conventional learning approaches
X2 : Treatment using Model-Eliciting Activities Approach
Y1 : Pre-Test Administration
Y2 : Post-Test Administration

Data Analysis Techniques

The data analysis techniques used in this study are descriptive statistics and inferential statistics.

1. **Descriptive Statistical Analysis**

The data analyzed, namely data from observations of student activities during the learning process, and data on the results of students' mathematical problem solving abilities. To determine the effectiveness of learning, analysis is needed, which is as follows:

a. Data Analysis of Student Activity Observation and Implementation of *Model-Eliciting Activities (MEAs) Approach*

This analysis is carried out to determine the activities of students and also the implementation of the learning approach during the learning process. The assessment criteria can be seen in the following table:

Table 2
Student Activity Assessment Criteria and Implementation of *Model-Eliciting Activities (MEAs) Approach*

Score	**Criterion**
$3 < \text{score} \leq 4$	Excellent
$2 < \text{score} \leq 3$	Good
$1 < \text{score} \leq 2$	Enough
$\text{Score} \leq 1$	Less

Student activity is in the very good criteria if the final score is greater than number 3 and smaller or equal to number 4. Student activity is said to be good if the final score is greater than number 2 and smaller or equal to 3. Student activity is said to be sufficient if the final score greater than 1 and smaller or equal to 2. Student activity is said to be lacking if the final score is less than or equal to 1.

The final score obtained is based on the quotient of the earned score with the maximum score. The final score calculation is as follows.

$$\text{Final Score} = \frac{\text{Total Score Acquired}}{\text{Total Score}} \times 4$$

b. Data Analysis Problem-Solving Capabilities

This analysis is carried out to determine the problem-solving ability of students. The criteria for assessing problem solving ability can be seen in the following table:

Table 3

Problem-solving Ability Assessment Criteria

Achievement Percentage	**Criterion**
75 P ≤≤ 100	Tall
60 P ≤≤ 74	Keep
0 P 59≤≤	Low

(Hermawati et al., 2021)

The percentage of problem-solving ability of students of each criterion is determined using the following formula:

$$P = \frac{\sum skor\ yang\ diperoleh\ setiap\ pertanyaan}{skor\ maksimal} \times 100\%$$

2. Inferential Statistical Analysis

According to Nasir (2016), inferential statistics is a technique used to draw conclusions (general) on data that has been compiled and processed. There are several tests for the purposes of hypothesis testing, namely normality and homogeneity of variance tests and then independent sample t-test tests are carried out for hypothesis test purposes.

a. Normality Test

The Normality Test referred to in this study is to determine the distribution of data that is normally distributed or not. In this study for normality tests used SPSS program. After data analysis using SPSS, then for interpretation of the results of data analysis considered the significant value (sig) in the *Kolmogrov-Sminov* or *Shapiro-Wilk column*, and then compared with a significant level of 0.05. If the value of the significant number (Sig) > 0.05, then the data is normally distributed, and if the significant number (Sig) is < 0.05, then the data is not normally distributed (Nasir, 2018). If the resulting p value is above 0.05 (p>0.05) then we conclude that it does not deviate from a normal/Gaussian distribution, or in other words there is no difference between our data distribution and the Gaussian distribution. Therefore our data is norm distributed.

b. Homogeneity Test

Data homogeneity testing is used to find out whether the sample used in the study comes from a homogeneous population or not, meaning whether the selected sample can be representative of the entire population. After data analysis using the SPSS 16 program, then for the interpretation of the results of data analysis, a significant value (Sig) *based on mean is* considered which is compared to the significant level (error level) that has been previously set (generally used 0.05)

If the significant number based on mean > 0.05, then the variation of each sample is the same or the data is homogeneous, and if the significant number *based on mean < 0.05, then the variance of each sample is not the same or not homogeneous (Nasir, 2018).*

c. Test the hypothesis

The hypothesis test in this study was conducted to determine whether there was a difference in the average mathematical problem solving ability of students who applied the *Model-Eliciting Activities (MEAs)* approach at MA DDI

Alliritengae. hypothesis testing using the t-test which aims to test how far the independent variable influences the dependent variable, namely applying the Model-Eliciting Activities (MEAs) approach and solving mathematical problems. Hypothesis testing is processed by SPSS program analysis. Using an independent test sample T test two parties with a significance level (a) = 0.025. The statistical hypotheses for this study are:

Ho: There is no effect of *the Model-Eliciting Activities (MEAs)* approach on mathematical problem solving skills in MA DDI Alliritengae.

Ha: There is an influence of *the Model-Eliciting Activities (MEAs)* approach on the ability to solve mathematical problems in MA DDI Alliritengae.

RESULT AND DISCUSSION

Result

1. Description of Results Data Mathematical Problem Solving Ability Control Class and Experiment Class

Description of the results of research conducted at MA DDI Alliritengae from May-June 2023, researchers collected data on test instruments resulting from students' problem-solving abilities in the form of pre-test scores and post-test scores of students in class XI Science 1 and Science 2. The following describes the results of mathematical problem solving skills at the pre-test and post-test stages.

a. Pre-test data description

The following is an overview of statistical data from research results obtained from pre-test data in the control class and experimental class presented in table 4 below:

Table 4
Recapitulation of Descriptive Statistical Data Pre-test Learners' Mathematical Problem Solving Ability.

	Pre-test Control Class	**Pre-test Experimental Class**
Number of Samples	24	35
Lowest Value	4	3
Top Rated	15	24
Mean	8,1	13,1
Range	11	21
Standard Deviation	3,10	5,15
Variance	9,6	26,5

From table 4, it can be seen that the average pre-test score of the experimental class is higher than the control class, which is by a difference of 5. Then to see the distribution of data for the two groups, a Standard Deviation (SD) calculation was carried out. The calculation of the pre-test Standard Deviation in the experimental class is greater than the control class, namely in the experimental class of 5.1 and the control class of 3.1.

The value of students' mathematical problem-solving abilities at the pre-test stage has certain criteria where each student who obtains a score will be categorized according to their criteria. The following is a table that presents the frequency of learners from the control class and experimental class who obtained the criteria of mathematical problem-solving ability.

Table 5
Assessment Criteria for Problem Solving Ability in Control Class and Pre-test Experimental Class

Achievement Percentage	**Criterion**	**Frequency**		**Percentage (%)**	
		Control Class	**Experimental Class**	**Control Class**	**Experimental Class**
75 P ≤≤ 100	Tall	0	0	0	0
60 P ≤≤ 74	Keep	0	0	0	0
0 P 59≤≤	Low	24	35	100	100
Sum		24	35	100	100

Based on table 5, information was obtained that the category of problem-solving ability at the pre-test stage, both the control class and the experimental class, were still at low criteria. Therefore, a treatment is needed so that the criteria can change to high.

b. Description of Post-test Data

The following is an overview of statistical data from research results obtained from post-test data in the control class and experimental class presented in table 4.3 below:

Table 6
Recapitulation of Descriptive Statistical Data Post-test Scores Students' Mathematical Problem Solving Ability

	Post-test Control Class	Post-test Experimental Class
Number of Samples	24	35
Lowest Value	18	76
Top Rated	80	95
Mean	40,04	82,11
Range	62	19
Standard Deviation	17,1	4,2
Variance	293,5	18,0

From table 6, it can be seen that the average post-test score of the experimental class is higher than that of the control class, with a difference of 42.07. Then to see the distribution of data for both groups, a Standard Deviation (SD) calculation was carried out. The results of the post-test Standard Deviation calculation in the control class were greater than the experimental class, namely in the control class of 17.1 and the experimental class of 4.2.

The value of students' mathematical problem-solving ability at the post test stage has certain criteria where each student who obtains a score will be categorized according to the rules of the criteria. The following is a table that presents the frequency of learners from the control class and experimental class who obtained the criteria of mathematical problem-solving ability.

Table 7. Assessment Criteria for Problem Solving Ability in Control Class and Post-test Experimental Class

Achievement Percentage	Criterion	Frequency		Percentage (%)	
		Control Class	Experimental Class	Control Class	Experimental Class
75 P ≤≤ 100	Tall	2	35	8,3	100
60 P ≤≤ 74	Keep	1	0	4,2	0
0 P 59≤≤	Low	21	0	87,5	0
Sum		24	35	100	100

Based on table 7, information was obtained that the category of problem-solving ability at the post-test stage changed very well after the application of treatment in the form of a Model-Eliciting Activities (MEAs) approach, where the criteria in the experimental class for all samples were in the high category.

2. Description of Statistical Data Results of Mathematical Problem Solving Ability based on Indicators

   a. Math Problem Solving Ability of Control Class Students by Indicators

After obtaining the test data, the data is analyzed. The following analysis of control class tests based on indicators is presented in the following table:

Table 8
Value Distribution Mathematical Problem-Solving Ability Class Control Each Indicator

Indicators	N	Ideal Score	Overall Ideal Score	Number of Values		Average		Percentage		Criterion	
				Pre-test	***Post-test***	***Pre-test***	***Post-test***	***Pre-test***	***Post-test***	***Pre-test***	***Post-test***
Identify Sufficient data for troubleshooting	24	16	384	57	133	3,6	8,4	14,9	34,7	Low	Low
Creating a mathematical model of a problem in everyday life	24	22	528	73	323	3,4	14,7	13,9	61,2	Low	Keep
Choose and establish strategies to solve mathematical problems or outside of mathematics	24	52	1.248	66	413	1,3	7,9	5,3	33,1	Low	Low
Explain or interpret results	24	10	240	6	92	0,6	9,2	2,5	38,4	Low	Low

according to the problem													
			Average			**2,23**	**10,05**	**9,15**	**41,85**				

Based on table 8. information was obtained that the mathematical problem solving ability of each control class indicator in the pre-test was still at the low criterion, while the post-test although one indicator had improved but was still at the medium criterion and the other three indicators were still at the low criterion.

b. Mathematical Problem Solving Ability of Experimental Class Students based on Indicators

After obtaining the test data, the data is analyzed. The following analysis of the Experimental class test based on indicators is presented in the following table:

Table 9

Value Distribution of Experimental Class Math Problem Solving Ability of Each Indicator

Indicators	**N**	**Ideal Score**	**Overall Ideal Score**	**Number of Values**		**Average**		**Percentage**		**Criterion**	
				Pre-test	***Post-test***	***Pre-test***	***Post-test***	***Pre-test***	***Post-test***	***Pre-test***	***Post-test***
Identify Sufficient data for troubleshooting	35	16	560	95	428	5,9	26,7	16,9	76,5	Low	Tall
Creating a mathematical model of a problem in everyday life	35	22	770	138	653	6,3	29,7	17,9	84,9	Low	Tall
Choose and establish strategies to solve mathematical problems or outside of mathematics	35	52	1.820	207	1.552	3,9	29,9	11,4	85,3	Low	Tall
Explain or interpret results according to the problem	35	10	350	12	241	1,2	24,1	3,5	68,9	Low	Keep
		Average				**4,3**	**27,6**	**12,42**	**78,9**		

Based on table 9. above, it was found that the mathematical problem solving ability of each indicator in the experimental class at the pre-test stage was still at the low criteria and increased after the application of the Model-Eliciting Activities (MEAs) approach to the High category even though there was still one indicator that was in the medium criteria.

Data Analysis

a. Test Results Prerequisites Analysis of Research Results

1) Normality Test

Results of normality test data analysis using SPSS version 16. Summary of the results of the control class and *experimental class post-test* normality test data as follows:

Table 10. *Post-test Normality Test Results*

Tests of Normality			
	Kolmogorov-Smirnova		
	Statistic	Df	Itself.
Experiment	.155	24	.141
Control	.156	24	.137
a. Lilliefors Significance Correction			

Based on the results of the normality test in table 10. shows that the distribution of data for the ability to solve mathematical problems is normally distributed because in the *Kolmogorov-Smirnov test in the* post-test *control class with a value of Sig. 0.137 and the experimental class the value of Sig. 0.141 which is greater than the* significant level of 0.05 so that it can be concluded that the data in this study are sourced from a normally distributed population.

2) Homogeneity Test

For homogeneity testing results, the results can be presented in the following table:

Table 11. *Post-test Homogeneity Test Results*

Test of Homogeneity of Variance				
	Levene Statistic	df1	df2	Itself.
Based on Mean	25.340	1	57	.000
Based on Median	24.250	1	57	.000
Based on Median and with adjusted df	24.250	1	27.717	.000
Based on trimmed mean	25.234	1	57	.000

Based on table 11. it can be concluded that the results of the homogeneity test show that the distribution data for mathematical problem solving ability does not have a homogeneous distribution. This is because the significance value based on the Mean is 0.000 which is smaller than 0.05. Therefore, the use of non-homogeneity independent sample t-tests is required.

b. Hypothesis Test Results

The hypothesis test in this study uses the help of SPSS version 16 as a data analysis technique to determine whether there is an influence of the *Model-Eliciting Activities (MEAs)* approach on the ability to solve mathematical problems

The results of hypothesis testing in the SPSS version 16 program can be seen in the following table:

Table 12.
Test Results *Independent Sample T Test*

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Itself.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Value	Equal variances assumed	25.340	.000	13.966	57	.000	42.073	3.012	36.040	48.105
	Equal variances not assumed			11.785	24.950	.000	42.073	3.570	34.719	49.426

From the table of test results *Independent Sample T Test* from *Equal Variance not assumed* shows the value of Sig. (2-tailed) is 0.000. Because the value of Sig. (2-tailed) < 0.025 according to the rules of testing this hypothesis, H_0 is rejected and H_a is accepted. This means "There is an influence of *the Model-Eliciting Activities (MEAs)* approach on the ability to solve mathematical problems".

Discussion

1. Mathematical Problem Solving Skills

The ability to solve mathematical problems in both the control class and the experimental class is obtained through two activities, namely by conducting *pre-test and post-test* and also supported by the provision of Student Worksheets (LKPD). The following describes the results of problem-solving skills in each activity:

a. Pre-test *Results*

Pre-test *activities* are carried out before giving treatment to determine the initial ability to solve students' mathematical problems carried out at one meeting. From the *pre-test* results, it was obtained that the initial ability of students in solving mathematical problems still did not meet the KKM score. This can be seen from the *pre-test* scores in the control class and experimental class in each indicator starting from identifying the adequacy of data for problem solving, making a mathematical model of a problem in everyday life, choosing and determining strategies to solve mathematical problems or outside of mathematics, and explaining or interpreting the results according to this problem is still in the low category. Thus, it can be said that for all students there is a need for treatment by applying the *Model-Eliciting Activities (MEAs) approach.*

b. Post-test *Results*

Post-test *activities* are given after the application of treatment for three meetings, namely at the end of learning. In the control class, treatment was given, namely by providing conventional learning while for experimental classes treatment was given in the form of learning with a *Model-Eliciting Activities (MEAs)* approach. From *the post-test results, information was obtained that in the control class only two people met the KKM score, while in the experimental class* *there was a very good increase in the* post-test score, *all students had met the KKM score.*

Meanwhile, when viewed based on indicators of mathematical problem solving ability in *post-test* activities for control classes, information was obtained that although one indicator, namely making a mathematical model of a problem in everyday life, had improved, but was still on medium criteria and three other indicators, namely:identifying the adequacy of data for problem solving, selecting and establishing strategies to solve mathematical problems or outside of mathematics, and explaining or interpreting results according to these problems still remain at low criteria, so it can be seen that in the absence of treatment approach *Model-Eliciting Activities (MEAs)* It appears that there is no increase or influence from the activities carried out by students.

While in the experimental class which was given treatment in the form of a *Model-Eliciting Alliance (MEAs)* approach three times, it was found that for three indicators that had been set, namely identifying the adequacy of data for problem solving, making a mathematical model of a problem in everyday life, choosing and setting strategies to solve mathematical problems or outside of mathematics that was originally on low criteria Has increased to a high criterion, although there is still one more indicator, namely explaining or interpreting the results according to the problem, it still has increased from being in the low criterion to changing to medium criteria. This is because there is still a need to emphasize each step of the problem-solving ability indicator.

2. Results of Descriptive and Inferential Statistical Analysis

Based on the results of descriptive analysis, it can be seen that the results of *the pre-test* scores obtained from the average scores of the experimental class and also the control class still both obtained low criteria. But after being given a treatment, it can be seen that the application of the *Model-Eliciting Activities (MEAs)* approach has a positive influence on the ability to solve mathematical problems of students. This is shown by the average score of the experimental class, which is already at a higher criterion than the control class that applies conventional learning with an average score, namely with low criteria obtained after both classes are given a mathematical problem solving ability test with the same question points and have been validated. It can also be seen from the results of the percentage of categorization of the two classes that have very significant differences in the control class and the experimental class. This shows that the mathematical problem solving ability of students in the experimental class is higher than the control class.

In addition, inferential statistical analysis also shows the fact that the *Independent* Sample *T Test* at the pre-test stage with a significance level, obtained an $\frac{1}{2}\alpha = 0{,}025$*Equal Variance Not Assumed value* from Sig (2-tailed) which is 0.000. Because Sig (2-tailed) or 0.025, according to the rules of testing this hypothesis means that H 0< $\frac{1}{2}\alpha$ is rejected, it is known that there is an influence of the *Model-Eliciting Activities (MEAs)* approach on the ability to solve mathematical problems in MA DDI Alliritengae.

The learning process in experimental classes applying the *Model-Eliciting Activities (MEAs)* approach has a positive influence on improving students' mathematical problem solving skills. This is because in learning the *Model-Eliciting Activities (MEAs)* approach, students are required to be more active in participating in learning process activities and often express the results of their thoughts, with low ability to respond to problems in their own way, and students have a lot of experience to find something to answer questions through group discussions. This group work activity can train students in working together, train to respect the opinions of others, and strengthen the value of friendship.

From the observations made, it can be seen that students are active and focused on discussing with their group friends. Some students are even able to act as peer tutors for their group mates who do not understand. In the *Model-Eliciting Activities (MEAs)* learning approach, each group member has the same responsibility in achieving the success of his group in understanding the material and answering questions. While the control class, the learning process is only centered on the role of the educator and tends to be passive because students are not actively involved. The increase in students' mathematical problem solving skills that occur in him proves that the learning process is getting better.

Thus, based on the results of research that has been conducted shows that the application of the *Model*-Eliciting *Activities (MEAs)* approach has an influence on the mathematical problem solving ability of students in MA DDI Alliritengae. This can be seen in the ability to solve mathematical problems of students taught by applying the *Model-Eliciting Activities (MEAs)* learning approach better than the learning process by applying conventional lecture methods.

CONCLUSION AND IMPLICATION

Conclusion

Based on the results of research that has been conducted on mathematics learning by applying the Model-Eliciting Activities (MEAs) approach at three meetings can affect the ability to solve mathematical problems of students. This can be seen from the results of the research obtained that the ability to solve mathematical problems at the pre-test stage both in the control class and experimental class in terms of predetermined indicators starting from identifying the adequacy of data for problem solving, making mathematical models of a problem in everyday life, choosing and setting strategies to solve mathematical problems or outside of Mathematics, and explaining or interpreting results according to these problems is still in the low category. Meanwhile, the post-test stage in the control class although one indicator increased but was still in the medium criterion and three other indicators still remained in the low criterion, while in the experimental class it increased after the application of the Model-Eliciting Activities (MEAs) approach to the High category even though there was still one indicator that was in the medium criterion.

The results obtained from testing the hypothesis using the Independent Sample T Test test obtained that the value of Ho rejected seen from Equal variances not assumed. Thus, there is a significant influence of the application of the Model-Eliciting Activities (MEAs) approach on the ability to solve mathematical problems. Previous research stated that the mathematical problem solving abilities of students who studied with the Eliciting Activities (MEA's) model were higher, there was an increase in students' mathematical problem solving abilities which were influenced by their initial mathematical abilities, the mathematical problem solving abilities of students who were treated with the Eliciting Activities (MEA's) Model were higher. higher compared to students who were treated with conventional learning models in groups of students who had high initial mathematics abilities (Atieka 2019).

Recommendation

Based on the results of the study, the researcher put forward the following suggestions:

1. For schools, it is expected to be able to provide support in maximizing school facilities and infrastructure so that teachers can apply various types of learning approaches to improve the quality of school education. Examples include: conducting seminars or training on the Model-Eliciting Activities (MEAs) approach.
2. For teachers, it is recommended to be able to create learning conditions that can increase student activity and bring up creative ideas in solving a mathematical problem. One of them is by applying the Model-Eliciting Activities (MEAs) approach in classroom learning.
3. For future researchers, it is advisable to pay attention to the allocation of time in the implementation of the learning, and prepare all preparations or equipment that will be used before learning begins. And further research is also needed to examine how much influence the Model-Eliciting Activities (MEAs) approach has on the ability to solve mathematical problems on the subject and in different schools.

REFERENCES

Amalia, Y., Duskri, M., and Ahmad, A. (2015). Penerapan model eliciting activities untuk meningkatkan kemampuan berpikir kreatif matematis dan self confidence siswa sma. *Jurnal Didaktik Matematika, 2(2).* Retrieved from https://jurnal.usk.ac.id/DM/article/view/2848/2711

Atieka, TA, & Budiana, I (2019). *Pengaruh Modeleliciting Activities(Mea's) Terhadap Kemampuan Pemecahan Masalah Matematis Dan Self Confidencesiswa,* JPM: *Jurnal Pendidikan Matematika 5(2).* 95–104. https://doi.org/10.33474/jpm.v5i2.2956

Davita, P. W. C., & Pujiastuti, H. (2020). Analysisis of mathematical problem solving ability in terms of gender. *Kreano, Journal of Creative-Innovative Mathematics*, *11*(1). https://doi.org/10.15294/kreano.v11i1.23601. 110-117

Ferdiani, R. D. (2017). Application of model eliciting activities (MEAS) approach to improve understanding of junior high school mathematics concepts. *Math Didactic: Journal of Mathematics Education*, *3*(3). https://doi.org/10.33654/math.v3i3.129. 216-223

Hermawati, H., Jumroh, J., &; Sari, E. F. P. (2021). Analysis of Mathematical Problem Solving Skills on Cube and Block Materials in Junior High School. *Mosharafa: Journal of Mathematics Education*, *10*(1). https://doi.org/10.31980/mosharafa.v10i1.874. 141-152

Illahi, K., Pujiastuti, H., &; Samsuri, S. (2019). The effect of model eliciting activities (MEAs) approach on students' critical thinking skills and mathematical disposition. *Journal of Math Educator Nusantara: Wahana for Publication of Scientific Papers in the Field of Mathematics Education*, *5*(2). https://doi.org/10.29407/jmen.v5i2.12891. 190-197.

Isnani, T., & Handoko, H. (2023). Analysis of Students' Mathematical Literacy Ability in Solving Mathematical Problems in View of Logical Intelligence. *Educational Insights*, *1*(2), 41-57. https://doi.org/10.58557/eduinsights.v1i2.9

Izzati, N. (2009, December). Berpikir Kreatif dan Kemampuan Pemecahan Masalah Matematis: Apa, Mengapa, dan Bagaimana Mengembangkannya Pada Peserta Didik. In *Prosiding Seminar Nasional Matematika dan Pendidikan Matematika, Bandung* (Vol. 19, pp. 49-60).

Muktia, A. (2018). *The Effect of the Application of Model Eliciting Activities (MEAs) on Student Learning Activities and Mathematical Problem Solving Ability Class VIII MTSN 9 Padang Pariaman*. Thesis. 1-89.

Nasir, A. M. (2016). *Education Statistics*. Yogyakarta: Media Academy.

Nasir, A. M. (2018). *SPSS Training Module. Workshop on Preparation of Research Results.*

Rusliah, N., Handican, R., Deswita, R., & Oktafia, M. (2021, February). Mathematical problem-solving skills on relation and function through Model-Eliciting Activities (MEAs). In *Journal of Physics: Conference Series* (Vol. 1778, No. 1, p. 012016). IOP Publishing. https://doi.org/10.1088/1742-6596/1778/1/012016

Siagian, M. D. (2016). Kemampuan koneksi matematik dalam pembelajaran matematika. *MES: Journal of Mathematics Education and Science*, *2*(1). 58–67. https://doi.org/10.30743/mes.v2i1.117

Sriwahyuni, K., &; Maryati, I. (2022). Students' Mathematical Problem Solving Skills on Statistical Material. *Plusminus: Journal of Mathematics Education*, *2*(2). https://doi.org/10.31980/plusminus.v2i2.1830. 335-344

Sugiono, M. D. (2015). *Comprehensive Action Research Methods*. Bandung: Alfabeta Bandung.

Usman, M. R. (2016). Pembelajaran inkuiri model alberta untuk meningkatkan kemampuan berpikir kreatif matematis siswa smp. *Delta-Pi: Jurnal Matematika dan Pendidikan Matematika, 3(2)*. https://doi.org/10.33387/dpi.v3i2.139