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Learning Mathematics Through the Missori Mathematics Model Project (MMP) Private Elementary School Students PAB 29 Manunggal

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ABSTRACT

The purpose of this study is to improve student learning activities in mathematics learning through the *Missouri Mathematics Project* (MMP) model. This research is a Classroom Action Research. The subjects and objects in this study were grade III students of SD Swasta PAB 29 Manunggal. There are 23 students. The instruments used in this study were observation sheets and tests to comply with student learning activities before and after using the *Missouri Mathematics Project* (MMP) model. The approach in this study uses classroom action research, with the *Missouri Mathematics Project* (MMP) model, which uses cycle I and cycle II. Student activities include a) answering questions from teachers, before the study 26.08%, Cycle I 60.86%, and cycle II 78.26%, b) submitting a map, before the study 30.43%, Cycle I 69.56%, and Cycle III 82.60%, c) doing questions in front of the class, before the research 17.39%, Cycle I 73.91%, and Cycle II 86.95%, d) expressing their ideas or opinions, before the researcher 21.73%, Cycle I 65.21%, Cycle II 78.26%, e) doing practice questions, before the study 39.13%, Cycle I 78.26, and Cycle II 86.95%. Cycle I with an average score of 61.08 and those who get a score of 75 there are 4 students while those who fail number 19 people and Cycle II get an average score of 85.21, students who get more than 75 there are 20 students and those who fail number 3 students. From the results of this research, researchers concluded that by applying the *Missouri Mathematics Project* (MMP) model can improve student learning activities.

Introduction

Education is one of the most important factors for human life in order to achieve the expected ideals and goals, therefore education must be carried out as well as possible by directing various supporting factors, towards improving the quality of education. Teachers are the driving factor for realizing educational goals and means. Teachers are required to have the ability to create good learning and must be able to manage existing resources, compile plans, and be able to improve the ability to provide good services to students so as to create good learning. According to Hamalik (2015: 77) In carrying out learning activities there are several components that are interrelated with each other that must be considered. According to Oemar Hamalik, the components in teaching include: 1) educational objectives, 2) learners, 3) teachers, 4) teaching planning, 5) learning strategies, 6) teaching media, and 7) teaching evaluation. The educational component consists of: 1) goals, 2) students, 3) educators, 4) tools, 5) environment. One of the factors of the low quality of education is due to the weakness of teachers in exploring the potential of students. Teachers only always use the lecture method in the learning process, so students will easily get bored in following the learning brought by the teacher. Educators often impose their will without ever paying

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attention to the needs, interests and talents of students. In order to improve the quality of education, teachers as one of the parties responsible for the teaching and learning process are required to be able to prepare effective and efficient teaching and learning process activities. Teachers of Mathematics subjects in Elementary Schools play a dual role in the learning process because Mathematics subjects are subjects that have a role in human life, especially in the world of education so that mathematics is a subject taught from elementary school to college levels to help students to have the ability to solve problems critically, Meticulous, effective, and efficient. Students who think that mathematics is one of the difficult subjects, so mathematics is considered something scary for them. This causes students to have less interest and low activity in learning mathematics. Lack of student activity in learning will affect student learning success. Learning activities are everything that is carried out activities either physically or spiritually carried out in the process of interaction between teachers and students so as to achieve learning goals. Activities are needed in learning because in principle learning is doing (Dahnial I, 2020: 87). Learning activities or activities are a series of activities in the learning process. Learning activities are arranged systematically so that learning can run efficiently and productively.

The purpose of this activity is specifically so that all students' potential is optimal in learning. Learning activities can be carried out inside or outside the classroom according to the learning context (Sutrisno, 2012: 84). The learning process that has been going on, especially for elementary school students, is still not optimal. The problem caused because it still tends to be conventional. In mathematics learning, teachers still use the lecture method and teachers rarely use teaching aids or media used when learning, so students do not understand or are less absorbed by students. So that students can only hear, take notes, and do the questions that have been given by the teacher. Such learning will not be easy for students to understand or the absence of student activities so that it has a low impact on student learning achievement. Meanwhile, the activities expected by the teacher are that students are active in answering questions given by the teacher, can ask questions, dare to do questions in front of the class, dare to express their opinions in front of the class and are active in doing practice questions given by the teacher, and can collect their assignments on time. This problem was experienced by grade III students of Sekolah Dasar Swasta PAB 29 Manunggal. Mathematics learning activities are still relatively low, because conventional learning affects student learning activities in class. The learning carried out looks monotonous, less varied, and does not involve students actively, because the teacher only uses the lecture method so students are bored when the teacher explains. Based on observations made by the author on February 5, 2022 in grade III of Sekolah Dasar Swasta PAB 29 Manunggal, student learning activities are still relatively low. This can be seen when learning takes place only a small number of students are active, the rest of the students only listen and see. Student activity in class is still minimal so that the classroom atmosphere does not describe the interaction in the learning process. This may be motivated by the use of models, methods, strategies and techniques in learning carried out by teachers. As a result, counting students is not optimal and low. To improve student learning activities at Sekolah Dasar Swasta PAB 29 Manunggal, an appropriate learning model is needed, because by using the right model, learning will be more effective to stimulate student activity.

Therefore, one of the learning models used to improve student learning activities is the Missouri Mathematics Project (MMP) model. The Missouri Mathematics Project (MMP) learning model is a program designed to assist teachers in terms of the effectiveness of using exercises so that students achieve extraordinary improvement (Dwiningrat, et al., 2014: 5). The Missouri Mathematics Project (MMP) model is one of the learning models for developing ideas and expanding students' mathematical concepts. According to Agoestanto and Savitri (2013: 72) stated that "the Missouri Mathematics Project (MMP) learning model demands student activeness in learning because the teacher is only a facilitator who accompanies and only helps students find their knowledge. According to Jannah, et al (2013: 62-63) the *Missouri Mathematics Project* (MMP) learning model has steps in its implementation, namely review, development, group / cooperative work, seatwork, and homework. The characteristic of the Missouri Mathematics Project (MMP) learning model is the existence of project assignment sheets (student worksheets), with the existence of these task sheets are expected to be able to increase student learning activities, be able to improve student mathematics learning outcomes and students' creative thinking skills can be done by completing tasks given by the teacher individually or in groups. So by using the *Missouri Mathematics Project* (MMP) learning model, it is hoped that there will be changes and can overcome problems that occur, namely about student learning activities so that students are more active in expressing ideas or conveying ideas and opinions that are thought in the form of writing or essays that are done and can be understood by others.

Research Methodology

The research method used is Classroom Action Research (PTK) with a Pretest-Posttest design or using a Cycle. The subject of the study was the teacher as the person who gave the action and the grade III student of Sekolah Dasar Swasta PAB 29 Manunggal was the one who received the action. The object of this study is to

improve student learning activities in mathematics learning through the *Missouri Mathematics Project* (MMP) model in grade III of Sekolah Dasar Swasta PAB 29 Manunggal totaling 23 students. Data collection techniques using observation sheets and tests. Students are said to be active if they achieve a score (>75) with the following criteria for assessing student activities:

Student Learning Activity Criteria

No.	Student Activities	Category
1.	81- 100%	Very active
2.	61 – 80%	Active
3.	41 – 60%	Simply Active
4.	21 – 40%	Less Active
5.	0 – 20%	Inactive

Source : Masyhud (2013:89)

The percentage of student activity in one indicator is calculated by comparing the score of each indicator obtained with the number of students multiplied by 100%.

$$\text{Percentage} = \frac{score\ for\ each\ indicator}{the\ number\ of\ students}\ x\ 100\%$$

$$X = \frac{\Sigma x}{N}$$

Information:

X = average student test results

Σx = number of student test result scores

N = number of student scores

Data on student test results are made qualifications with the following table:

Success rate qualification table

Success Rates	Qualification
85 – 100	Excellent
65 – 84	Good
55 – 64	Enough
35 – 54	Less
0 – 34	Very Lacking

(Suharsimi, 2013)

Results and Discussion

1. Student learning activities before and after using the *Missouri Mathematics Project* (MMP) model

Table 4.1 Observation sheet of student learning activities in Precycle mathematics learning

No	Student activities	Initial Conditions
1.	Students answer questions from the teacher	6 students (26.08%)
2.	Students actively ask questions to the teacher	7 students (30.43%)
3.	Students dare to do questions in front of the class	4 students (17.39%)
4.	Students dare to express their ideas or opinions	5 students (21.73%)
5.	Students actively do practice questions	9 students (39.13%)
	Average rating	26,95

Note: Ideal maximum score of 100

Based on table 4.1, it is known that the results of the scores obtained by students in student learning activities before applying the *Missouri Mathematics Project* (MMP) model obtained the highest score of 39.13% and the lowest score of 17.39%, while the average pretest score was 26.95.

Table 4.2 Student Learning Activities in the First Cycle Mathematics Learning Process

No	Student activities	Initial Conditions
1.	Students answer questions from the teacher	14 students (60.86%)
2.	Students actively ask questions to the teacher	16 students (69.56%)
3.	Students dare to do questions in front of the class	17 students (73.91%)
4.	Students dare to express their ideas or opinions	15 students (65.21%)
5.	Students actively do practice questions	18 students (78.26%)
	Average rating	69,56

Note: ideal maximum score of 100

Based on table 4.2, it is known that the results of the scores obtained by these students can be seen that student activity in the learning process with the *MissouriMathematics Project* (MMP) model is still low, namely Students answer questions from the teacher 60.86%, Students actively ask questions to the teacher 69.56%, Students dare to do questions in front of the class 73.91%, Students dare to express their ideas or opinions 65.21%, and Students actively do practice questions 78.26%. The total average activity of the first cycle students was 69.56. Based on the average percentage, it is concluded that student learning activities in the first cycle are classified as active.

Table 4.3 Student Learning Activities in the Cycle II Mathematics Learning Process

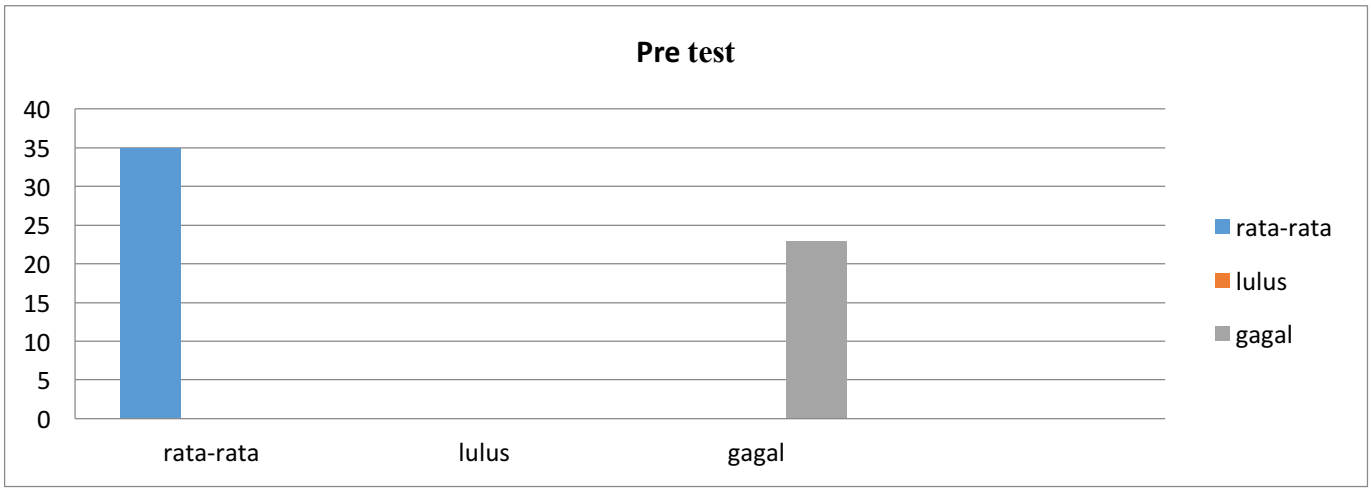
No	Student activities	Initial Conditions
1.	Students answer questions from the teacher	18 students (78.26%)
2.	Students actively ask questions to the teacher	19 students (82.60%)
3.	Students dare to do questions in front of the class	20 students (86.95%)
4.	Students dare to express their ideas or opinions	18 students (78.26%)
5.	Students actively do practice questions	20 students (86.95%)
	Average rating	82,60

The data above shows that student learning activities in the MMP model in the area and perimeter of flat units do not standardize: Students answer questions from teachers 78.26%, students actively ask questions to the teacher 82.60%, students dare to do questions in front of the class 86.95%, students dare to express their ideas or opinions 78.26%, and students actively do practice questions 86.95%. An average score of 82.60% means that students belong to the very active category. The table above also shows that student learning activities in cycle II have increased significantly. This means an increase in student learning activity between cycle I and cycle I. This can be seen from the average score of students. The activity between cycle I was 69.56% and cycle II was 82.60%. This figure shows that student learning activities have increased significantly from the previous cycle.

1. Measure students' ability to solve test questions before and after using the *Misouri Mathematict Project* (MMP) model.

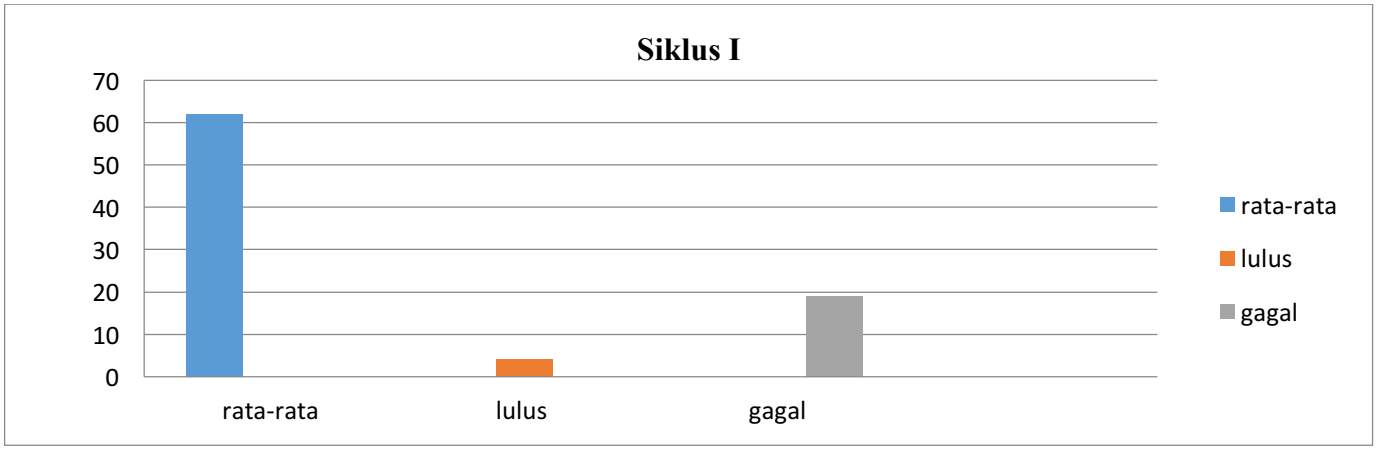
The study was completed in two cycles. Each cycle is carried out in two meetings, but before doing cycle I researchers conduct a pretest to measure students' ability in understanding. The researcher gave an essay question consisting of 5 questions. The test results are as follows:

Chart 4.2 Student grades in cycle I



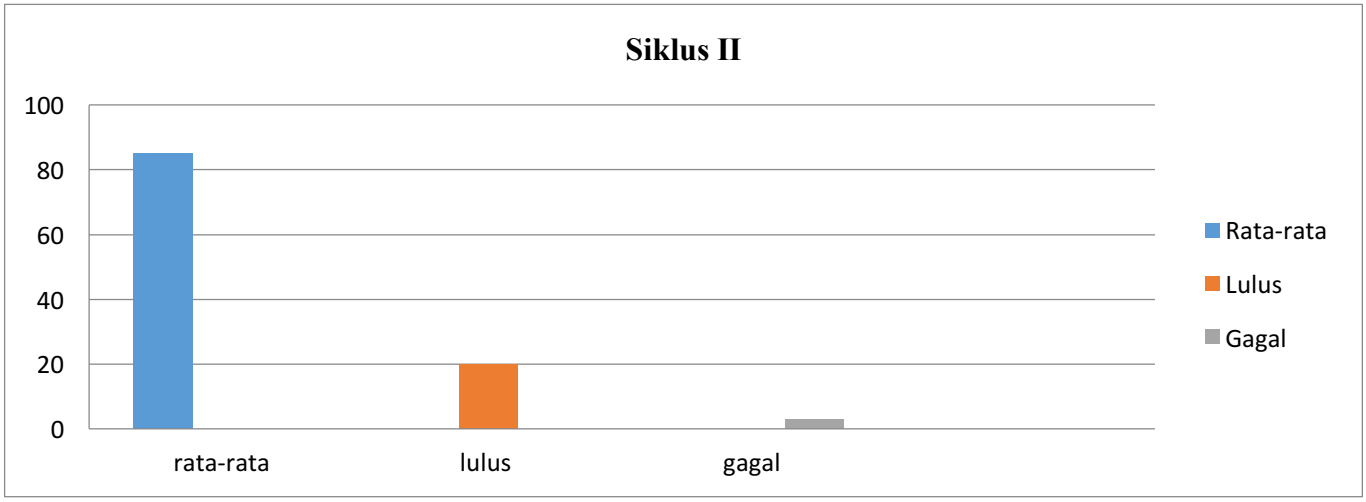
This research was conducted in two cycles, cycle I was carried out in 1 meeting and cycle II was carried out 2 times. Before doing cycle I, researchers provide a pre-test to measure students' ability in student learning activities. The teacher gives essay questions consisting of 5 questions with an average student score of 35 and students who get a score of more than 75 are 0% or 0 students are declared passed. It was concluded that student learning activities in the category were very low and needed to be improved and to increase student learning activities in the first cycle continued.

Chart 4.2 Student grades in cycle I



Quantitative data were taken from students in non-standard unit area and circumference tests. It consists of 5 essays. With an ideal score of 100, the average entrance score is 61.08%, with the following score details: score 80 is 1 person, 75 is 3 people, 65 is 4 people, 60 is 9 people, 50 is 6 people. Students who score more than 75 are 4 students. Based on this presentation, there was an increase from the pre-test to the first cycle test. The improvement score can be seen from the average students and the number of students who are competent in the area test and the circumference of the non-standard unit flat, it is concluded that it is still classified as moderate and still has not achieved ideal success.

Chart 4.3 Student Grades in Cycle II

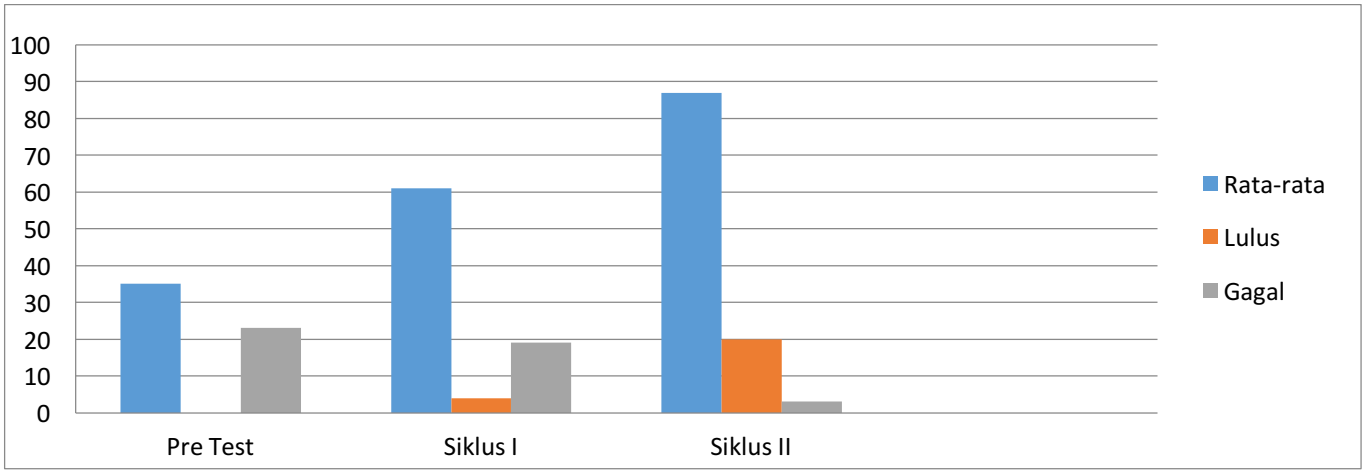


Students' scores on the second cycle of learning material improved better with an average score of 86.95. The breakdown of activity values is as follows: 12 people get a score of 90, 5 people get a score of 85, 3 people get a score of 80, 3 people get a score of 70.

Table 4.4 Data on the increase in student activity from each cycle

No	Observed aspects	Pre cycle	Cycle I	Cycle II
1.	Student activity in answering questions	6 students (26.08%)	14 students (60.86%)	18 students (78.26%)
2.	Student activity in asking questions	7 students (30.43%)	16 students (69.56%)	19 students (82.60%)
3.	Student activities in doing questions in front of the class	4 students (17.39%)	17 students (73.91%)	20 students (86.95%)
4.	Student activities in expressing their ideas or opinions	5 students (21.73%)	15 students (65.21%)	18 students (78.26%)
5.	Student activities in doing practice questions	9 students (39.13%)	18 students (78.26%)	20 students (86.95%)

Chart 4.4 Increased student scores in Pretest, Cycle I and Cycle II



In the teaching and learning process, student activities have tended to be better than the *Missouri Mathematics Project* (MMP) model in student learning activities. This can be seen from the learning activities of students who have participated more actively. The average value of student activity between Cycle I of 61 and Cycle II of 85.21 can be explained that in the process of teaching and learning activities students have shown good development. The difference in student scores in learning materials looks significant based on the data of the average score of the Pretest score results is 35 with students who get a score of 75 that is no one who passes the test, the average score of the results of the Cycle I score is 61.08 with students who score more than 75 ie 4 people pass the test and the average score of the second cycle score is 85.21 with students who score more than 75 ie 20 people can pass the exam. According to Soekamto (in Shoimin, 2014: 23) the learning model is a conceptual framework that describes a systematic procedure in organizing learning experiences to achieve certain learning objectives, and serves as a guideline for learning designers and teachers in planning teaching and learning activities. Learning activity is an activity carried out by students during the learning process to achieve learning outcomes. Learning activities are also called active learning, because during the class conditioning process using active learning so that it can make students more independent (Susilowati, 2016: 73 6). The *Missouri Mathematics Project* (MMP) learning model is a program designed to assist teachers in terms of the effectiveness of using exercises so that students achieve extraordinary improvement (Dwiningrat, et al., 2014: 5). Based on the above opinion, it can be concluded that the *Missouri Mathematics Project* (MMP) model is a structured learning model that focuses on active learning and exercises so that students achieve extraordinary improvement. The hallmark of the *Missouri Mathematics Project* (MMP) is that each student individually learns the learning material delivered by the teacher. The results of individuals are brought to the group to be discussed and discussed by group members (Miftakhul Jannah et al, 2013: 62).

Conclusion

Recipients of the *Missouri Mathematics Project* (MMP) learning model as a way to increase student activity in the mathematics learning process which is still relatively low. Student activities that are expected in the learning process include student activeness in answering questions, student effectiveness in asking questions, daring to do questions in front of the class, daring to express opinions, and actively doing practice questions. The conclusion that can be drawn is that the application of the *Missouri Mathematics Project* (MMP) model and increase student activity. This is shown by increased activity, among others: student activity in answering questions increased to 78.26%, student activity in asking questions increased to 82.60%, activity in doing questions in front of the class increased to 86.95%, student activity in expressing ideas or opinions increased to 78.26%, and student activity in doing practice questions increased to 86.95%. And from the test questions, the teacher gave essay questions consisting of 5 practice questions with an average score before conducting a study of 35, and there has not been one student who got more than 75 and who failed consisting of 23 students. Cycle I with an average score of 61 and those who get a score of 75 there are 4 students while those who fail number 19 people and Cycle II get an average score of 85.21, students who get more than 75 there are 20 students and those who fail number 3 students. From the results of the study, researchers concluded that by applying the *Missouri Mathematics Project* (MMP) model can increase student learning activities.

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