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Pimpinan Fakultas Keguruan dan Ilmu Pendidikan Universitas Muhammadiyah Prof. DR. HAMKA, memberi tugas kepada:

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Pangkat dan golongan	:	Penata Muda Tingkat I, III-B
Jabatan	:	Dosen Fakultas Keguruan dan Ilmu Pendidikan
Untuk	:	Mempublikasikan Karya Ilmiah dengan Judul Efforts to Improve Learning Outcomes Using Lumatika Media in Mathematics Subjects in Grade III at Elementary Schools In East Jakarta pada Tanggal 24 Desember 2024 di Website

Demikian tugas ini diberikan untuk dilaksanakan dengan sebaik-baiknya sebagai amanah dan ibadah kepada Allah Subhanahu wa Ta'ala. Setelah melaksanakan tugas agar memberikan laporan kepada pemberi tugas.

Jakarta, 24 Desember 2024

Dekan,

Purnama Syae Purrohman, M.Pd., Ph.D.

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EFFORTS TO IMPROVE LEARNING OUTCOMES USING LUMATIKA MEDIA IN MATHEMATICS SUBJECTS IN GRADE III AT ELEMENTARY SCHOOLS IN EAST JAKARTA

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ABSTRACT

Learning is an effort made by teachers to educate students to develop their understanding of certain knowledge. The use of media in learning is very important to improve student learning outcomes. The right media can convey information clearly and stimulate learning activities. Lumatika media, which is interactive and innovative, is designed to improve understanding of mathematical concepts through the use of real and interesting props. This research was conducted in the 3rd grade of SDN Wilayah Jakarta Timur to overcome the low learning outcomes of students in mathematics. The method used was classroom action research with four stages: planning, implementation, observation, and reflection. Data collection was done through observation, interviews, tests, and documentation. The results showed that the use of Lumatika media improved students' math learning outcomes. In cycle I, the percentage of learning completeness reached 53%, increased to 88% in cycle II, and reached 94% in cycle III. The conclusion is that the use of Lumatika media is effective in improving the math learning outcomes of grade 3 students at SDN East Jakarta.

KEYWORDS *Learning Effectiveness, Lumatika Media, Learning Outcomes, Elementary Mathematics*

INTRODUCTION

Quoting (Nafisah, 2021) according to Daeng in Ratumanan learning is an effort to teach students. The learning process is the most important factor in improving and producing student quality. Learning is seen as an effort to enable students to actively develop their understanding of a certain knowledge. The use of media is very important in the classroom and is used by teachers to provide material that determines the achievement of learning success.

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The use of appropriate media is able to convey the information that the teacher wants to convey to students can be received clearly. Likewise, when learning media is used in the learning process in the classroom. The use of media in the teaching and learning process can arouse new desires and interests, arouse motivation, and stimulate learning activities.

Lumatika media is one of the interactive and innovative learning media. With the concept of learning while playing, Lumatika media is designed to improve the understanding of mathematical concepts through the use of real and interesting props. This approach provides a concrete learning experience and helps students in linking Mathematics concepts with real world situations.

Similar problems of low mathematics learning outcomes also occur in grade 3 students at SDN Wilayah East Jakarta. Based on observations of the mathematics learning process in grade 3 of SDN Wilayah Jakarta Timur, data on low learning outcomes were obtained. The low learning outcomes are seen from the results of the acquisition of Daily Assessment (PH) scores for mathematics subjects in semester 1 of the 2023/2024 academic year.

Based on this data, it can be seen that more than 50% of students have not reached the Minimum Completion Criteria (MCC), this is indicated by the class average score which is still below the MCC. The low math learning outcomes are influenced by many factors, including the learning process, students, teachers, classroom environment, and the material itself.

Teachers rarely apply media in learning, and are less creative in linking material with existing media, which makes students only listen and memorize existing formulas. Whereas if only by memorizing without knowing the concept, students will find it easier to forget the formula.

Student factors also affect low math learning outcomes. Third grade students at SDN East Jakarta still tend to be passive when participating in math lessons. Students are asked to sit quietly and pay attention to the explanation from the teacher, while students who sit on the back bench are busy playing alone or talking to their friends. Thus the use of media plays a very important role in improving student learning outcomes.

This study aims to evaluate the improvement of grade 3 students' mathematics learning outcomes by using lumatika media in the measurement of learning objectives. The main research question is whether the use of lumatika media can improve students' math learning outcomes. The purpose of this study is to prove that there is an increase in learning outcomes with the use of this media. The benefits of this study include several aspects: theoretically, it is expected to improve student learning outcomes and offer new ideas regarding the use of Lumatika (Ludo Magnet Math) media in learning; empirically, it is useful for researchers in understanding the effectiveness of the media, providing references for other researchers in developing lumatika learning media, and providing recommendations for teachers, students, and schools in improving mathematics learning in elementary schools.

Based on the description above, the researcher is interested in conducting a study entitled "Efforts to Improve Student Learning Outcomes Using Lumatika Media in Mathematics Learning in Grade 3 SDN East Jakarta Region".

This research is relevant to several previous studies. First, Zakirman's research (2020) on the use of Ludo games to improve the collaboration skills of grade III students of SDN 19 Nan Sabaris showed effective results. Second, Hastuti's research (2021) found that the use of Ludo Math media improved the math learning outcomes of fourth grade students of SD Negeri 1 Bubusan, with modifications in the form of question boxes on the Ludo board. Third, Ivany's research (2020) showed a significant increase in learning outcomes for grade II students of SD Negeri Inpres Sampe Cita after using Ludo media for various subjects. Based on these findings, this research focuses on the development of Lumatika media to improve the mathematics learning outcomes of third grade students at SDN in East Jakarta.

Research Hypothesis

Based on the formulation of the problem, the research hypothesis can be formulated as follows:

H_0 = The absence of lumatika learning media on student learning outcomes in class III SDN East Jakarta East Jakarta Region.

H_1 = The existence of lumatika learning media can improve student learning outcomes in class III SDN East Jakarta East Jakarta Region.

RESEARCH METHOD

This research was conducted at SD Negeri Duren Sawit 08 Pagi, East Jakarta, in the second semester of the 2023/2024 school year, with data collection conducted in January-February 2024. The data collection schedule included a pretest, and three cycles of meetings conducted from March to July 2024. The research subjects were third grade students with 32 students, consisting of 14 boys and 18 girls. This research was conducted because of the low learning outcomes of students in mathematics, especially in fraction material.

The classroom action research procedure includes four stages: planning, action, observation, and reflection. Data collection techniques used interviews, observations, tests, and documentation. Observation was conducted to observe the state of students during learning, questionnaires were used to determine student responses, and reflection to evaluate learning outcomes. Data collection tools included observation guidelines, written tests, and field notes. The research instruments included observation sheets, questionnaire sheets, field notes, and documentation.

This research is considered successful if student learning outcomes improve with a minimum percentage of 80%. Data analysis techniques use descriptive methods by comparing learning outcomes before and after action. Mathematics learning outcomes were analyzed by calculating individual and classical completeness. Individual completeness was declared successful if students obtained a minimum score in accordance with the Minimum Completeness Criteria (MCC). Classical completeness was declared successful if at least 75% of students reached the MCC.

RESULT AND DISCUSSION

Data Description of Research Results

Description of Research Location

This research was conducted in class III of SDN Wilayah Jakarta Timur, located at Jalan Inspeksi Saluran No.39A, East Jakarta. The school has complete facilities such as clean bathrooms, a field, library, media room, and a beautiful garden. Human resources in this school include quite a number of teachers who are in accordance with their fields, as well as other supporting personnel. The number of students in the 2023/2024 school year reached 379, with each class having around 64 students.

Description of Research Subjects

The researcher conducted research in class III, which is supervised by Mrs. Mintari, S.Pd., with a total of 32 students, consisting of 14 boys and 18 girls. Observations show that learning in this class is less fun and students are less active, so that learning outcomes have not reached the criteria for completeness. This study aims to overcome these problems and improve student learning outcomes.

Description of Pre-Action Research Results

This research began with observations in the third grade of SDN East Jakarta Region from July to December 2023. Observations showed that learning was still teacher-centered and did not involve students, and the lack of use of learning media made students bored quickly. Pretest was conducted to find out the problems in learning math theme 8 about angles. The pretest results showed an average score of 51.25 with the highest score of 100 and the lowest score of 10. Of the 32 students, only 15 students (47%) were complete with a score of ≥60, while 17 students (53%) were not complete. This data shows that many students have difficulty in understanding angle material, so action needs to be taken to improve their learning outcomes.

Description of Cycle I Research Results

The implementation of classroom action research in mathematics subjects on angle material in cycle I was carried out twice a meeting. Each meeting lasts for two lesson hours or 2 x 35 minutes. The procedure in this class action research includes four stages, namely: planning stage, implementation stage, observation stage, and reflection. These stages will be explained as follows:

a. Action Planning

In the planning stage of cycle I, the researcher designed the actions to be implemented as follows.

1. Researchers together with the principal discussed the application of learning media as an alternative problem solving to improve student learning outcomes.
2. Set the implementation schedule for the first and second meetings of cycle I.
3. Develop lesson plans for the first and second meetings by compiling competency standards and basic competencies that will be carried out in

even semesters. The lesson plans are equipped with attachments in the form of teaching materials, evaluation questions, student worksheets (LKPD), assessment sheets and answer keys. The lesson plans are consulted with the principal, supervisor before being used as a guideline in the implementation of the learning that will be carried out.

4. Prepare ludo board learning media, teaching resources, and teaching materials.
5. Compile and prepare teacher and student activity observation sheets for each meeting which will be used to determine the extent of the success of the application of ludo board media.
6. Develop and prepare evaluation questions or tests for students. The questions will be given at the end of each meeting.
7. Preparing a camera that will be used to document student activities during the learning process.

b. Implementation of Action

The following is a description of the results of the implementation of cycle I at the first meeting and the second meeting.

1. First Meeting

The process of implementing the first meeting of cycle I action was carried out on Thursday, April 11, 2024 with the allocation of mathematics learning time for 2 x 35 minutes starting from 07.30 - 08.40WIB. At 06.30 do habituation until 07.10, then students enter the classroom 07.15 followed by prayer before learning takes place, followed by literacy until 07.30. Before learning begins, students prepare stationery, notebooks, and textbooks. The teacher then starts the learning by saying greetings. The activity continued by checking student attendance. All grade III students were present to attend the lesson. Then the teacher delivered the apperception with a question "Children, does anyone still remember what an angle is? How many types of angles are there?". Some students answered that they still remembered and mentioned several types of angles. The apperception given by the teacher is associated with today's learning objectives.

The teacher asks students to form groups of 4 members. Then the teacher says that today's learning is different from usual, because it uses lumatika media (ludo magnet math). The teacher informs the steps of using the lumatika learning media. The teacher presents the material classically first related to angle material, followed by an explanation using lumatika media. Each child gets a question card obtained from the game, then works on each individually.

After learning, students are distributed learner worksheets (LKPD). Students discuss with their groups to solve the problems contained in the LKPD, but during the discussion there are some students who are still joking, and do not participate in the discussion. When one member expressed his opinion, some other members were talking to themselves.

The activity continued with the *post-test*, the teacher distributed questions to students and gave 15 minutes to work. Students also worked on the *post-test* questions calmly. After finishing the teacher and students reflect back on the material that has been learned today and conclude today's learning.

2. Second Meeting

The process of implementing the second meeting of cycle I action was carried out on Wednesday, April 17, 2024, with an allocation of 2 x 35 minutes of mathematics learning time. Starting from 07.30 - 08.40 WIB. Today's activities begin with students lining up in the field, praying, checking attendance and literacy until 07.30. The teacher prepares the learning media that will be used on that day. Next, the teacher does *ice breaking*, after which the teacher conveys apperception with a question "Children, try to mention the objects around you? What objects are rectangular?". Students answered by mentioning all the objects in the class, almost all of them answered the cupboard and some of them were the blackboard. The teacher asked again "The cupboard and blackboard are rectangular, do they have a corner?". Students answered that the cupboard and blackboard have an angle. The teacher tells the students that today's learning is still using lumatika learning media with the *quiz team* method.

Students are divided into groups of 4. Each group was given a number that served as their group identity. Before the *quiz team* is implemented, the teacher explains again to students related to angle material. After it is clear, students are given a learner worksheet (LKPD). Students begin to write the answers available on the learner worksheet. After all groups have finished working, students listen to the teacher's explanation regarding the implementation of the *quiz team*. Each group that can answer then he has the right to advance 6 steps, and the answer is slightly correct, then he has the right to advance 3 steps, and if the answer is wrong then he has the right to advance 0 steps. The teacher reads the questions to the students, where each group competes to answer as quickly as possible and correctly given by the teacher. After a group representative answers, the teacher asks the representative of the group to move the pawn forward, according to the criteria above. The group that reaches the finish line the fastest is declared the winner.

At the end, the teacher gave *post-test* questions to students. Students are asked to work independently and calmly. After all students have finished working on the *post-test*, the teacher invites students to recall the learning that has been carried out today, asks about material that is not clear and asks about students' feelings during the lesson. Furthermore, students and teachers together conclude the learning that has taken place.

c. Observation Results

Observations were made from the beginning of the lesson until the lesson ended. In addition, researchers also document learning activities using a camera to help during the observation process and analyze the results of observations.

1. Learning Process

Observation of the learning process is carried out on students, before, during and after the action. The results of observations of student activity during the learning process in cycle I in full can be seen in the appendix. Summarized and presented in the table below.

Table 1. Learning Process Observation Results Cycle I First Meeting

Research Subject	Average	Success Rate
Students	60 (80%)	Good

Table 2 . Learning Process Observation Results Cycle I Second Meeting

Research Subject	Average	Success Rate
Students	63 (85%)	Good

In observations during cycle I, student activity has reached 80% with an average score of 60 which is included in the good category. At the second meeting, student activity had reached 85% with a score of 63 which was included in the very good category. Most students had prepared stationery, textbooks and followed the lesson carefully on that day. When the teacher gives apperception in the form of questions, most students have also responded. The teacher's objectives, benefits, and motivation were taken seriously by the students. When the teacher conveys the learning steps using ludo learning media, most students listen carefully, but there are still some students who pay less attention. When working on the student worksheet (LKPD), it was seen that some students were not active in the discussion.

At the end of the learning activity, students together with the teacher reflect and conclude today's learning. It can be seen that all students respond to questions from the teacher. After that, students work on the evaluation questions given by the teacher calmly. After that, students pay attention to the information conveyed by the teacher regarding the learning material for the next meeting. Based on the data above, it can be seen that most students have actively participated in learning by using math magnetic ludo learning media. On average 80% of students are actively involved in learning and fall into the good category.

2. Learning Outcomes

After learning using the learning media ludo magnet math (LUMATIKA), a test was conducted to find out how much the students in cycle I. The complete results can be seen in the appendix, here is a summary of the results. The complete results can be seen in the attachment, the following is a summary of the results:

Table 3. Learning Outcomes of Cycle I Second Meeting

No.	Name	Results		
		Value	Completed	Not Completed
1.	APR	90	V	
2.	ATS	60	V	
3.	AAPD	70	V	
4.	AF	80	V	
5.	ALF	50		V
6.	AA	50		V
7.	BRP	50		V
8.	DAM	80	V	
9.	DEM	80	V	
10.	DSA	90	V	

11.	EPA	80	V		
12.	FZA	80	V		
13.	FKR	20		V	
14.	FA	50		V	
15.	HAP	100	V		
16.	JBA	30		V	
17.	KFD	40		V	
18.	MAI	70	V		
19.	MAF	60	V		
20.	MAA	90	V		
21.	MFA	50		V	
22.	NA	30		V	
23.	NPK	50		V	
24.	NAB	50		V	
25.	QZA	80	V		
26.	RLA	80	V		
27.	SNA	60	V		
28.	SRA	70	V		
29.	HIGH SCHOOL	100	V		
30.	TV	90	V		
31.	YKA	80	V		
32.	ZGA	100	V		
Total		**2160**	**22**	**10**	
Average		**67,50**			
Percentage		**69%**			

The completeness of learning competence after class action in cycle I is visually presented in the following graph:

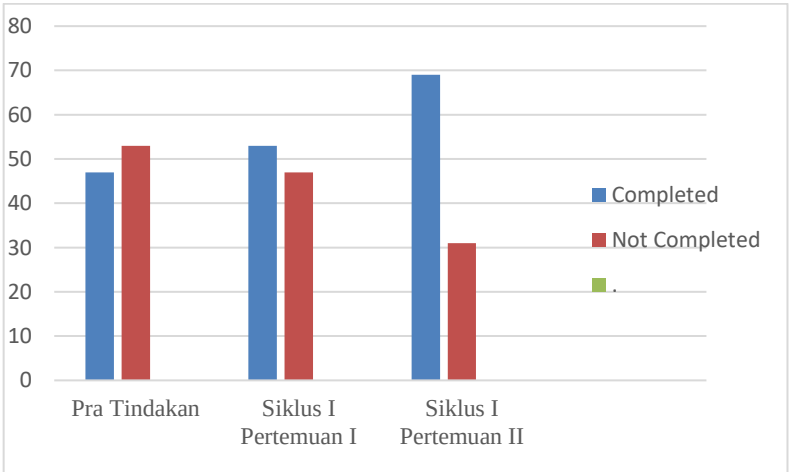

Figure 1. Diagram of Percentage of Student Learning Outcomes Pre-Action and Cycle I

Based on the data above, after taking action using lumatika media in the first cycle, it shows that out of 32 students in class III SDN Wilayah Jakarta Timur, 17 or 53% of students are complete and 15 or 47% of students are not complete.

Based on the acquisition of data in the first cycle of learning using lumatika media, it shows an increase in grade III students. Previously, the value of students who reached or exceeded the MCC was only 10 students increasing to 17 students and the class average value which was 48 to 63. From these results, researchers will return to take action because there are still many students who have not reached the MCC and the class average value has not reached 80%.

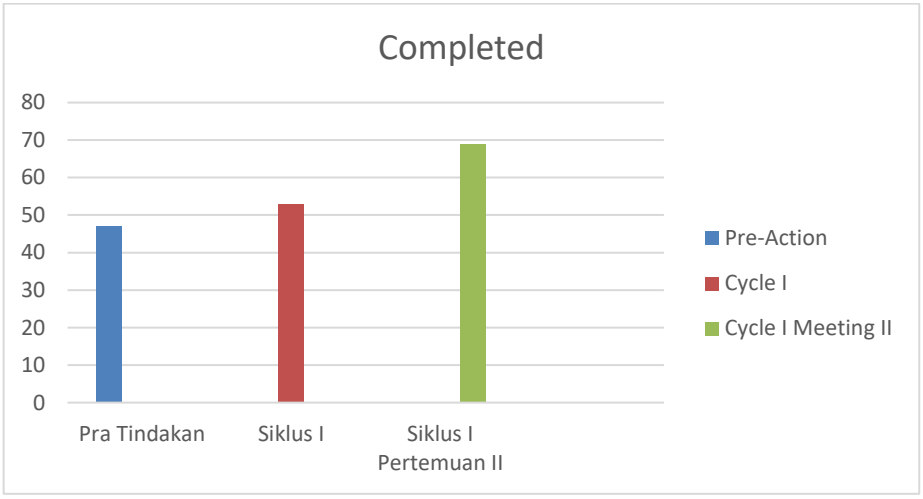

Figure 2. Diagram of the Percentage of Completion of Student Learning Outcomes Pre-Action and Cycle I

d. Reflection Results

In reflection activities, researchers evaluated the action activities that occurred in cycle I. From the action activities in cycle I, it looks very good. Students became more active and interactive, although during group discussions there were still some students who were not serious about learning.

1. Learning Process

Teacher activity in the learning process using lumatika media is very good. However, there are still some things that need to be improved in order to improve the learning process. These things are used as material for reflection as follows:

a. Teachers need to improve apperception to make it more interesting and easily connected to the material to be learned.
b. Teachers need to provide initial motivation so that students are more encouraged or excited in participating in learning.
c. Giving appreciation to students or groups who have finished first so that students feel excited and happy.
d. In summarizing the material the teacher should provide more opportunities for students to express opinions or conclusions.
e. There are still many students who do not pay attention when the teacher explains the material.

f. Some students did not pay attention to the teacher's explanation regarding the steps of using the media.
g. Students are shy to ask the teacher about material that they have not understood.

2. Learning Outcomes

After taking action using lumatika media in the first cycle, it showed that out of 32 students in class III of SDN Wilayah Jakarta Timur, 17 students (53%) and 15 students (47%) were not yet complete. This condition has not met the criteria for the success of class action research. So the next action is needed to increase the success or increase student learning outcomes.

These problems must be resolved immediately so that efforts to improve math learning outcomes by using lumatika media succeed according to plan. In this case, researchers and principals try to improve the action process that has not run optimally, because if the obstacles or problems in cycle I action are not corrected, it will hinder the implementation of further actions.

Description of Cycle II Implementation Results

a. Action Planning

In the early stages of Cycle II, planning involved reflecting on Cycle I to develop an improvement plan. The results of the planning included:

1. Researcher and principal discussion on improving student learning outcomes.
2. Agreed to create a fun and active classroom atmosphere.
3. Establish an implementation schedule.
4. Develop lesson plans that are adjusted to the competency standards.
5. Prepare learning media and teaching materials.
6. Develop teacher and student activity observation sheets.
7. Prepare evaluation questions for the end of each meeting.
8. Prepare a camera for documentation.

b. Implementation of Action

1. First Meeting
   Implemented on May 3, 2024, with a time allocation of 2 x 35 minutes. Activities started from the preparation of stationery to reflection and closing with learning conclusions. Activities include material explanation using lumatika media, group work, presentation, and post-test.
2. Second Meeting
   Implemented on May 17, 2024, with a time allocation of 3 x 35 minutes. Activities begin with preparation, ice breaking, material explanation, group work, and quiz team with rewards.

c. Observation Results

1. Learning Process

Observations showed an increase in student activity, with an average of 86% at the first meeting and 87% at the second meeting, in the very good category. The learning atmosphere is more fun and students are more active.

2. Learning Outcomes
   The learning outcomes test showed significant improvement:

Table 4. Cycle II Learning Outcomes Second Meeting

No.	Name	Results		
		Value	Completed	Not Completed
1.	APR	100	V	
2.	ATS	70	V	
3.	AAPD	80	V	
4.	AF	80	V	
5.	ALF	80	V	
6.	AA	80	V	
7.	BRP	50		V
8.	DAM	80	V	
9.	DEM	100	V	
10.	DSA	80	V	
11.	EPA	60	V	
12.	FZA	70	V	
13.	FKR	40		V
14.	FA	80	V	
15.	HAP	100	V	
16.	JBA	40		V
17.	KFD	50		V
18.	MAI	70	V	
19.	MAF	80	V	
20.	MAA	100	V	
21.	MFA	50		V
22.	NA	40		V
23.	NPK	70	V	
24.	NAB	70	V	
25.	QZA	80	V	
26.	RLA	80	V	
27.	SNA	70	V	
28.	SRA	70	V	
29.	HIGH SCHOOL	100	V	
30.	TV	100	V	
31.	YKA	100	V	
32.	ZGA	100	V	
	Total	**2420**	**28**	**4**
	Average		**75,63**	
	Percentage		**88%**	

The completeness of learning competence after class action in cycle II is visually presented in the following graph:

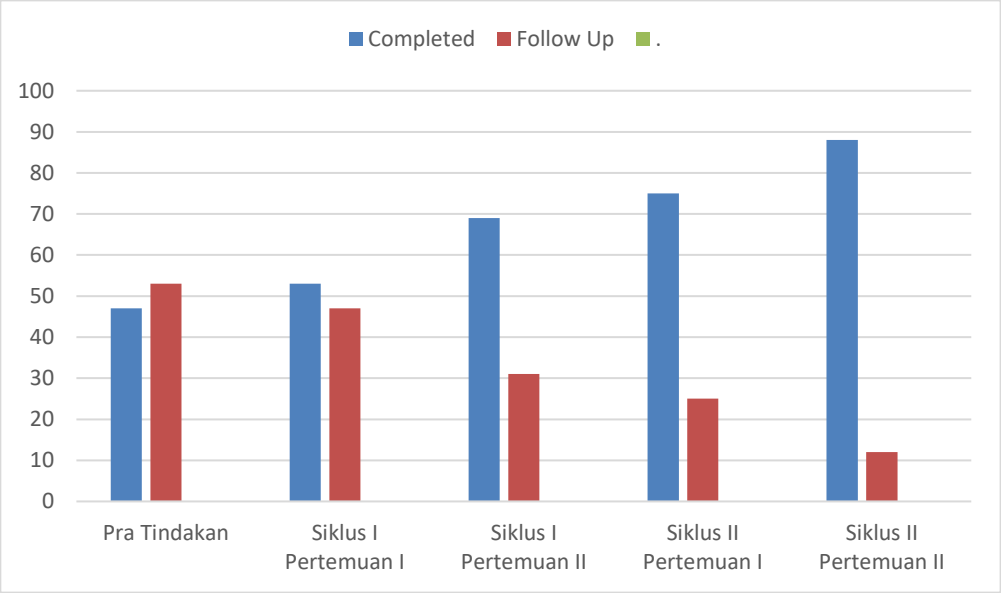

Figure 3. Diagram of the Percentage of Student Learning Outcomes Pre-Action, Cycle I and Cycle II

d. Reflection Results

Evaluation and analysis identified some shortcomings, especially in group discussion and active questioning. However, overall, the activities in Cycle II were excellent, with improved interactivity and discipline. Student completeness increased significantly from 53% in Cycle I to 88% in Cycle II, meeting the research success criteria.

Description of Cycle III Implementation Results

In cycle III, researchers planned actions based on reflections from cycle II with the aim of improving student learning outcomes. Discussions with the principal resulted in a decision to create a more fun and active classroom atmosphere. The implementation schedule was set and lesson plans and learning media were prepared. The implementation of cycle III involved two meetings:

1. The first meeting on July 10, 2024, with lecture method and lumatika media, ended with a post-test.
2. The second meeting on July 15, 2024, used a modified quiz team method, ending with a post-test.

Table 5. Learning Outcomes of Cycle III Second Meeting

No.	Name	Results		
		Value	Completed	Not Completed
1.	APR	100	v	

2.	ATS	90	v	
3.	AAPD	90	v	
4.	AF	90	v	
5.	ALF	90	v	
6.	AA	90	v	
7.	BRP	80	v	
8.	DAM	90	v	
9.	DEM	100	v	
10.	DSA	90	v	
11.	EPA	90	v	
12.	FZA	90	v	
13.	FKR	90	v	
14.	FA	90	v	
15.	HAP	100	v	
16.	JBA	40		V
17.	KFD	50		V
18.	MAI	80	v	
19.	MAF	80	v	
20.	MAA	100	v	
21.	MFA	90	v	
22.	NA	90	v	
23.	NPK	80	v	
24.	NAB	90	v	
25.	QZA	90	v	
26.	RLA	80	v	
27.	SNA	90	v	
28.	SRA	90	v	
29.	HIGH SCHOOL	100	v	
30.	TV	100	v	
31.	YKA	100	v	
32.	ZGA	100	v	
Total		**2820**	**30**	**2**
Average			**88,13**	
Percentage			**94%**	

The completeness of learning competence after class action in Cycle III is visually presented in the following graph:

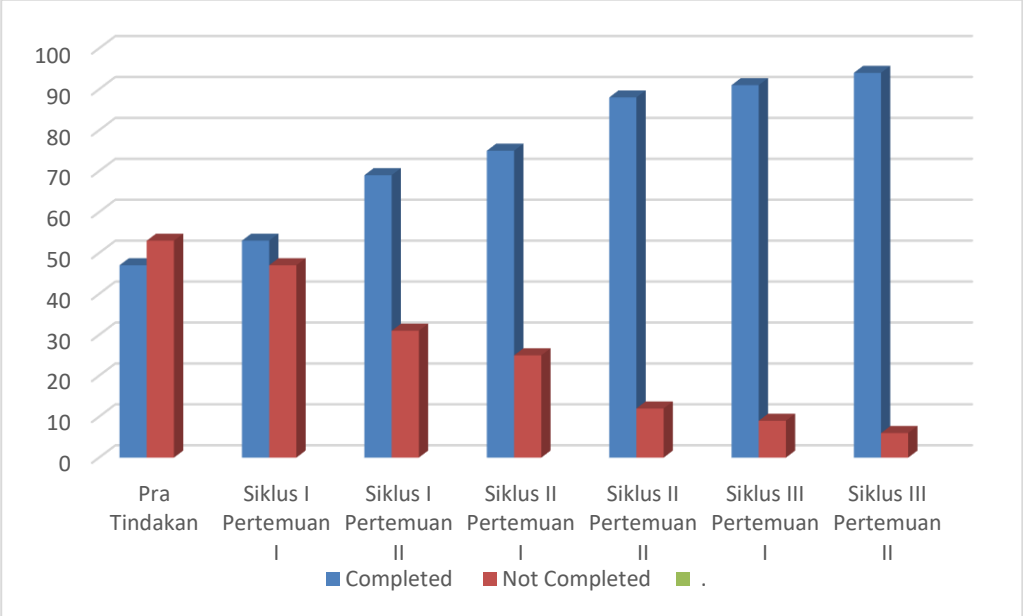

Figure 5. Diagram of Percentage of Student Learning Outcomes Pre-Action, Cycle I, Cycle II, and Cycle III

Observations showed an increase in student activity which reached 88% in the first meeting and 90% in the second meeting, with the category "very good". Learning outcomes showed significant improvement: 91% of students were complete at the first meeting and 94% of students were complete at the second meeting. Reflection showed an increase in student discipline and interactivity, although there were still some students who did not participate in group discussions. Overall, the results of cycle III were satisfactory with an increase in student completeness from 53% in cycle I to 94% in cycle III.

Discussion of Research Results

This two-cycle classroom action research focuses on efforts to improve the learning outcomes of mathematics angle material using lumatika media. The research that has been carried out includes a pre-action stage and 2 cycles consisting of cycle I and cycle II. Cycle I consisted of 2 meetings and cycle II consisted of 2 meetings. In the pre-action stage, the researcher found the low ability of students in solving problems related to angle material and the way the teacher explained was less innovative which made students feel bored in participating in learning. This has an impact on student learning outcomes which are still low. After taking action by using lumatika media, it is proven that student learning outcomes in mathematics subjects in angle material have increased.

In the pre-action stage, it can be seen that students find it difficult when solving angle problems. This can also be seen from the mathematics learning outcomes of third grade students at SDN Wilayah Jakarta Timur in the pre-action

condition of mathematics learning, obtained as many as 15 (47%) get scores above the MCC, while 17 (53%) students get less than the MCC. Researchers together with the principal designed activities to improve student learning outcomes. Cycle I was carried out by analyzing the data obtained previously. By analyzing the data, researchers and principals designed activities and preparations for action.

In cycle I activities are carried out with 2 meetings. At the first meeting, there was an increase in student learning outcomes in mathematics with an average score of 63. 17 (53%) students scored above the MCC and 15 (47%) students scored less than the MCC. At the second meeting, there was an increase in student learning outcomes in mathematics with an average score of 68. 22 (69%) students scored above the MCC and 10 (31%) students scored less than the MCC. Despite experiencing an increase during the process of cycle I action activities, there were still students who did not fully participate in the learning process.

With the results obtained in cycle I, it was felt that it was not enough because it had not yet reached the specified criteria. In cycle II, learning became more interesting than cycle I. Students are more active in participating in learning, although there are still some students who are still passive. Students have seriously listened to the teacher's explanation. The increase in learning outcomes was also seen to be high in cycle II. In cycle II, two meetings were held. At the first meeting, the average score was 68. 24 (75%) students scored above the MCC, while 8 (25%) students scored less than the MCC. The second meeting also experienced an increase in math learning outcomes with an average score of 76. A total of 28 (88%) students scored above the MCC and 4 (12%) students scored less than the MCC. In general, this study succeeded in improving math learning outcomes using lumatika media. However, there are 4 students who have not completed this are less eager to take part in the lesson. When the teacher explains the material, these students pay less attention and always talk to their friends. The researcher also suspects that these 4 students lack practice and study at home.

Thus, looking at the results of the study as well as expert opinions and other relevant research, it can be concluded that the use of lumatika media in mathematics learning can improve the learning outcomes of mathematics angle material in grade III students of SDN East Jakarta.

CONCLUSION

The research conducted shows that the use of lumatika media in learning mathematics can improve the learning outcomes of third grade students of SDN Wilayah Jakarta Timur. This improvement is evidenced by the achievement of the success criteria, namely ≥80% of students get the same score or exceed the MCC, with a MCC of 60. Before the action, only 47% of students achieved scores above the MCC. In cycle I, the number of completed students increased to 53% in the first meeting and 69% in the second meeting. In cycle II, 75% of students were complete at the first meeting and 88% at the second meeting, with the average score increasing from 51.25 to 75.63.

The use of lumatika media makes students more enthusiastic and facilitates understanding of angle concepts, and helps teachers deliver material interactively. It is recommended that teachers use lumatika media in learning mathematics and

explore various methods to improve student learning outcomes. Future researchers are expected to continue this research with different topics to produce new findings that are beneficial for the development of science.

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