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Picture and Picture Learning Model in Improving Mathematics Learning Outcomes for Students at SDN Wonobodro 01 on Flat Shapes Matter

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ABSTRACT

The problem in this research is that the learning outcomes of class II students at SDN Wonobodro 01 are still low in Mathematics on the topic of flat shapes. This is because the learning system provided by the teacher in class is less interesting, causing students to be less enthusiastic about participating in the learning provided. The aim of this research is to determine the increase in mathematics learning outcomes in flat shapes material using the picture and picture learning model for class II students in the first semester of SDN Wonobodro 01. The research method used is classroom action research (CAR) which is carried out in two cycles and every cycle consists of four stages, namely planning, implementation, observation and reflection. The research results showed that the picture and picture model was successful in improving student learning outcomes. This was shown by the results of the percentage of student completion in the pre-cycle of only 19.2% with an average class score of 53.1. Then, in cycle I it increased to 53.8% with an average class score of 64.8 and increased again in cycle II to 92.3% with an average class score of 90.7. Thus, it can be concluded that the use of the picture and picture model in the material for building mathematical data was successful because student learning outcomes increased each cycle.

Key Word *Picture and Picture, Learning Model, Flat Shapes, Mathematics Learning Result.*

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INTRODUCTION

Mathematics is a subject that exists at all levels of education from elementary school to university level. Especially in elementary schools, it is very important to teach mathematics because learning mathematics can improve analytical, logical, systematic and creative thinking skills, so that learning becomes more meaningful for students. According to Sutriyani &

Widiyono (2023), mathematics is a field that studies structure, space and quantity which can train our brains to think objectively because mathematics teaches us to always think carefully and thoroughly in solving a problem. After studying mathematics, students are expected to become individuals who think logically, innovatively, imaginatively and creatively.

According to Trisnani (2022) mathematics learning starts from simple ideas to more complex ideas, from concrete concepts to semi-concrete, then to abstract concepts, this is known as the principle of meaningful learning or learning with understanding. The learning stages for elementary school children according to Jamaludin et al., (2023) are (1) Acquisition stage, namely the stage of obtaining information; (2) Storage stage, namely the stage of storing information; and (3) Retrieval stage, namely the stage of reapproaching information.

The age of elementary school children ranges from 7 years to 11 years, which is still included in the concrete operational category, so teachers need to understand students' intellectual development so that mathematics learning can be successful (Muhsetyo et al., 2021). In mathematics learning, concrete age categories need to be considered by teachers in determining learning media so that the learning process is more meaningful. Media such as pictures, diagrams, videos, interactive games, and visual aids can help illustrate mathematical concepts visually and make mathematics easier for students to understand. Kustandi & Darmawan (2020) stated that learning media is a tool that can help the teaching and learning process which functions to clarify the meaning of the message conveyed so that the lesson objectives can be achieved. Elementary school children at the initial concrete stage are able to understand combination, addition and subtraction, and are able to order numbers from small to large, from short to long. At the end of concrete operations they are able to analyze and carry out simple synthesis.

The current condition is that there is a situation where Mathematics is often still considered difficult and boring for students to learn. The problem of students' dislike of learning mathematics causes them to lack motivation and enthusiasm for learning, and tend to avoid lessons and ignore the teacher's assignments. As a result, student learning achievement decreases and has not reached the desired or specified standards. Ulfah & Arifudin (2021) state that learning outcomes are the abilities that students have after studying with the changes that students obtain as a result of the learning process in affective, cognitive and psychomotor aspects. Thus, learning outcomes can be interpreted as the abilities that students have from learning activities and can be used as a benchmark for achieving learning goals. When learning mathematics at

elementary school level, of course teachers must also pay attention to learning strategies that are adapted to students' learning styles, such as presenting material using a visual, auditive or kinesthetic approach, as well as using educational technology for student understanding so that student learning outcomes can reach the set standards.

At elementary school level, geometry is one of the materials taught in Mathematics subjects. According to Fadillah et al., (2022) there are several difficulties faced by elementary school students in geometry material, namely as follows: 1) a low level of understanding of mathematical language where most students find it difficult to understand the meaning of the questions and interpret the questions given; 2) difficulty understanding the initial concepts of flat shapes and spatial shapes, such as understanding the shape, nature and characteristics of shapes; 3) difficulty visualizing mathematical concepts; and 4) difficulty drawing mathematical concepts. The learning model used by teachers in teaching can be a factor causing these learning difficulties. As experienced by class II students at SDN Wonobodro 01 when learning about plane mathematics, student learning outcomes were still low, namely 80.8% or 21 students out of 26 students who had not achieved completeness in learning and received a score below the minimum completion standard, namely 70. Meanwhile , only 19.2% or as many as 5 students have achieved learning completion and received a score above the minimum completion standard, namely 70.

Based on these problems, it is necessary to improve learning so that learning is more effective and student learning outcomes can increase. One solution to overcome this problem is through classroom action research (CAR) using the picture and picture model. The picture and picture learning model is a model that integrates visual elements in the form of pictures as a tool to convey concepts, ideas or information to students. This is in line with the opinion of Boymau & Hasyda (2021) who says that the picture and picture learning model is a learning approach where pictures are used and paired or ordered into a logical sequence, in its application students work together in small groups so that this model allows students to participate actively in learning activities. The picture and picture learning model can make the material more interesting and useful because it gives students the opportunity to build their own knowledge through activities such as sorting and arranging pictures into a logical sequence. This makes lessons feel more real, and students are actively involved in learning activities.

Some of the advantages of the picture and picture model according to Wilantara (in Lokat et al., 2022), namely: 1) students easily grasp the material

presented by the teacher; 2) students capture material presented with pictures more quickly; 3) students can read the pictures one by one according to the existing pictures; 4) students concentrate more when playing with pictures; and 5) students can remember the concepts in the picture more strongly.

According to Katulung et al., (2021) explain the steps of the picture and picture learning model, namely the teacher conveys the competencies that students want to achieve, the teacher provides material as an introduction, the teacher shows pictures of activities related to the material, the teacher gives students the opportunity to take turns sorting. and arranges the pictures into a logical sequence, then the teacher asks the reasons for these sequences, and from these sequences the teacher begins to apply new concepts or material. By implementing the steps of the picture and picture learning model, student learning outcomes will increase.

This is supported by similar research conducted by Kurniawati (2020) where the results of her research show that through the use of the picture and picture model, student learning outcomes can increase with an increase in the average score from pre-cycle to cycle I of 13.69% and from cycle I to cycle II was 65.23%. Apart from that, Sinaga & Manurung (2024) have also carried out research whose results show that the application of the picture and picture model in learning flat shapes is able to improve student learning outcomes as proven in cycle I activities, the percentage of completion increased with an average value of 70.67 and the percentage of completeness was 59.26%, while in cycle II activities student learning outcomes increased again, namely 89% and the average score was 83.43. Therefore, it can be concluded that the picture and picture model is successful in improving student learning outcomes in flat shape material.

Based on the problems presented above, the researcher is interested in investigating further regarding the use of the picture and picture learning model in flat building materials at the elementary school level through research entitled picture and picture learning model in improving mathematics learning outcomes for students at SDN Wonobodro 01 on flat shapes matter.

RESEARCH METHODE

The method used in this research is classroom action research (CAR), which carried out in the classroom with the aim of improving or increasing the quality of learning practices. This research focuses on the use of the picture and picture learning model and student learning outcomes. The subjects of this research were 26 students on the 2nd grade at SDN Wonobodro 01, Blado District, Batang Regency, Indonesia.

The data collection technique in this research uses qualitative techniques obtained from observations of the learning process and quantitative techniques obtained from written test results. In non-test implementation, the teacher carries out assessments using observation sheets, while in test implementation the teacher carries out assessments in the form of fill-in questions with several questions each cycle. Observation of teacher actions uses the observation sheet instrument and the teacher ability assessment tool I and II, while for observation of student actions the student action observation sheet instrument is used.

The steps in classroom action research are carried out through two cycles, each cycle has four stages, namely planning, implementation, observation and reflection. The first stage is planning where the researcher creates a learning scenario and prepares a lesson plan, prepares teaching aids and learning media, makes an observation sheet as a guide for observing activities, and prepares an evaluation tool.

The second stage is implementation, in the implementation stage the researcher carries out learning to increase students' understanding of flat shape material. The activity steps are as follows: 1) initial activities include greeting, praying, checking student attendance, and informing the learning objectives; 2) core activities include exploration, elaboration and confirmation, the activities of which include: a) the teacher and students conduct questions and answers about objects in class to find out the shape of flat figures (square, rectangle, circle and triangle); b) students are asked to name these objects; c) the teacher shows a learning video about flat figures; d) the teacher provides material reinforcement; e) students are asked to come forward to match flat shapes according to their names and characteristics that the teacher has prepared on the blackboard (square, rectangle, circle and triangle); f) the teacher forms 6 study groups consisting of 4 students to 5 students; g) the teacher gives an assignment and each group does it; h) the group discusses the answers and ensures that all members work on it and know the answer; i) each group is given the opportunity to come forward to present and report the results of the discussion; j) the teacher gives appreciation to all groups; k) students are given individual evaluation questions; l) students work on evaluation questions; m) teachers assess student evaluation results; 3) in the final activity the teacher and students conclude the material they have studied and reflect.

The third stage is the observation stage, at the observation stage the researcher observes student behavior, monitors discussions between students, observes the group information transfer process, and observes each student's understanding. Then, the fourth stage is the reflection stage, in the reflection

stage the researcher carries out notes on student behavior, evaluating observation results, analyzing learning results, and correcting weaknesses for the next cycle.

RESULT AND DISCUSSION

Result

Based on the research that has been carried out, the results of research regarding the use of the picture and picture learning model for class II mathematics flat figures show an increase. The interesting thing is that the implementation of learning improvements was carried out until cycle II only, because students' learning completeness had reached the specified standards. From the learning improvement activities carried out, student learning outcomes can be seen in figures 1 and 2.

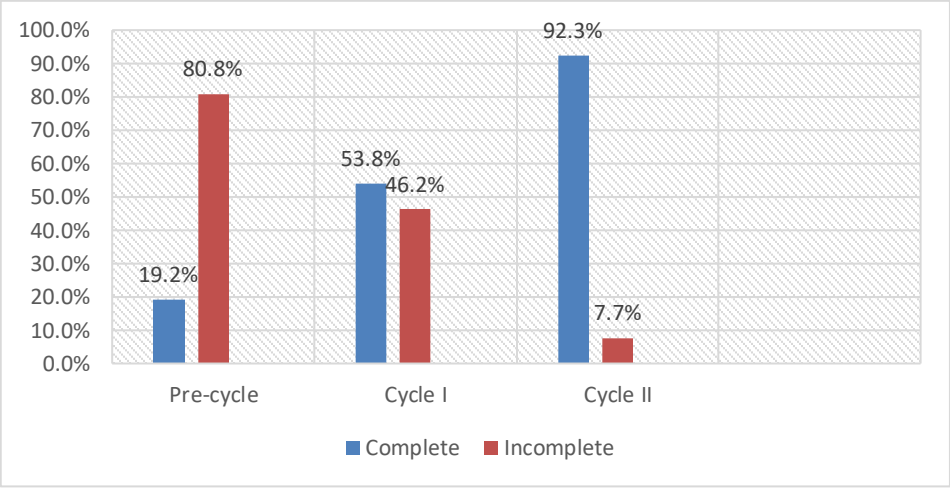

Figure 1.
Recapitulation of Student Learning Completeness

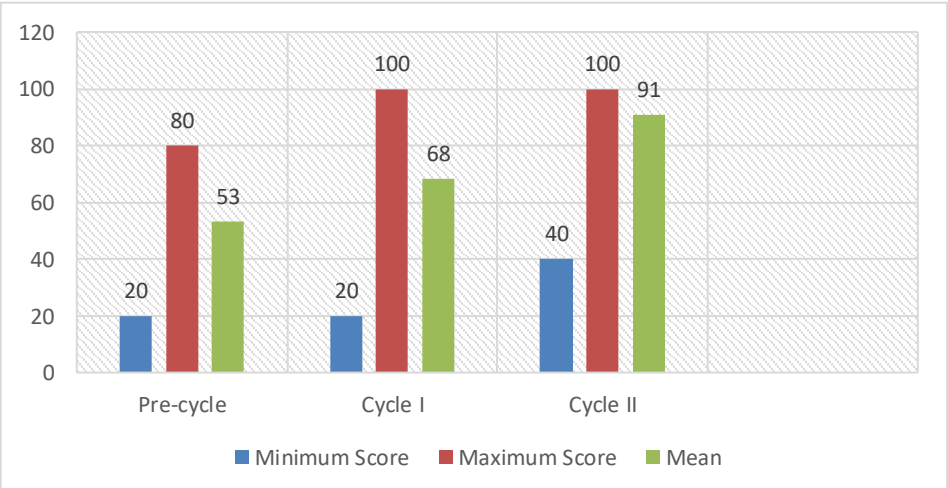

Figure 2.
Recapitulation of Student Learning Results

Student learning activities during the implementation of learning improvement research are shown in table 1 below.

Table 1.
Recapitulation of Student Learning Activities

No	Category	Cycle I	Cycle II
1	Students pay attention to the teacher's explanation	71%	86%
2	Students are orderly when forming groups	71%	86%
3	Students work together in group activities	43%	93%
4	Students are disciplined in learning	29%	71%
5	Students try to solve problems	50%	86%
6	Students actively express opinions	29%	71%
7	Students actively ask about things that are not clear	21%	57%
8	Students conclude the results of their activity reports	45%	86%
9	Students present a report on the results of their group work	56%	82%
10	Students are honest in taking tests	81%	100%

Teacher activities during the implementation of learning improvement research are shown in table 2 below.

Table 2.
Recapitulation of Teacher Activities

No	Indicator	Cycle I		Cycle II	
		Yes	No	Yes	No
1.	Informing learning objectives with the picture and picture learning model	√		√	
2.	Organizing students in groups	√		√	
3.	Explaining the problem by asking relevant questions	√		√	
4.	Providing guidance to groups to explore problems faced by the teacher		√	√	
5.	Providing stimulation to think together in groups in solving problems	√		√	
6.	Motivating the group to answer questions		√	√	
	Total Score	**4**	**2**	**6**	**0**

Discussion

This research was carried out as an effort to improve student learning outcomes in learning plane material using the picture and picture learning model. In pre-cycle activities teachers still use conventional teaching methods. The teaching method used is still dominantly the lecture method so that students' understanding of the flat shape material is still low. Student learning activity is also low, some students are sleepy, bored and play alone with their friends. Seeing students' conditions like this makes teachers less enthusiastic about teaching. The learning atmosphere in class is also not conducive. Based on the problems that arise at the pre-cycle stage regarding student learning difficulties, it is necessary to improve learning. Learning improvements are carried out in 2 cycles.

Cycle 1 was carried out with a time allocation of 2 x 35 minutes used to carry out post-test 1. The material taught was simple flat shapes (Square, Rectangle, Triangle and Circle) using the picture and picture model. The results of research using the picture and picture learning model are that researchers found that student learning outcomes increased quite significantly, as shown in the table and graph above. However, the percentage increase in students is still not satisfactory, only 53.8% (14 students) have experienced learning completion, while 46.2% (12 students) have not experienced learning completion. The lowest score obtained by students was 20 (1 student), the highest score obtained by students was 100 (4 students), while the class average score was 68.4. It turned out that the learning results of cycle I were not in accordance with the predetermined standards of completeness. Therefore, there is a need for further study and action in the next cycle.

Cycle II was carried out to fix problems that could not be resolved in Cycle I, with a time allocation of 2x35 minutes. The material and models used are still the same as cycle I, only in cycle II students are given other flat shapes, namely kites, trapezoids, parallelograms and pentagons. Based on the results of research on improving learning in cycle II, student learning outcomes increased compared to cycle I. It was proven that 92.3% (24 students) experienced learning completeness, while only 7.7% (2 students) experienced learning completion. The lowest score obtained by students was 40 (2 students), the highest score obtained by students was 100 (18 students), while the class average score was 90.7. It turns out that the learning results of cycle II are in accordance with the predetermined standards of completion. Thus, researchers did not continue to improve learning in cycle III.

The average result of student activity for cycle I was 49.6% with poor criteria and the average result of student activity for cycle II was 81.8% with

good criteria. For cycle I, students' learning activities received less criteria because in cycle I it was still just being implemented in learning so that in its implementation students still felt awkward and were not used to it. Collaboration in groups is also still lacking in learning. Therefore, to solve this problem, the action taken by the teacher is to provide full guidance to each group and observe their activities in learning. So, it is hoped that this guidance can improve their activities in learning. Students will be more active and creative in learning, especially in group discussions. In cycle II, student activity in learning activities increases. It can be seen from the criteria achieved, namely good criteria. Collaboration has been built and learning activities are also going well. Student activity in expressing opinions also began to increase. Students are very enthusiastic in learning so that learning activities feel more alive.

The criteria obtained by the teacher in learning activities in cycle I were good by carrying out 4 teacher activities, increasing to very good by the teacher carrying out all teacher activities in learning activities. It can be seen that there is an increase in teacher activity in learning using the picture and picture model. For cycle I the teacher still seemed rigid in providing guidance so that learning activities did not run optimally. Many students are still busy alone. For this reason, the solution that can be taken is to carry out maximum classroom management for students so that students can carry out learning activities well and smoothly. Apart from that, there will be more focus on classroom conditioning so that the learning objectives that have been set can be achieved. For cycle II, learning has gone well. The teacher has been fluent in providing guidance or conditioning the class.

From the results and discussion above, it can be concluded that the increase in student learning outcomes occurs from pre-cycle, cycle I, to cycle II. Thus, it can be stated that the use of the picture and picture learning model can improve student learning outcomes in the 2nd grade class on the topic of flat figures at SDN Wonobodro 01. This is in line with the arguments of Rahmatullah (2022) who say that the picture and picture model is more effective than the question and answer and lecture method. It is because in the picture and picture model, students have a higher level of curiosity so that this feeling can be used by teachers to explain learning and make students enthusiastic when learning. The picture and picture learning model is able to direct students to gain experience in solving problems using pictures.

CONCLUSION

Based on the results of research on improving learning using the picture and picture learning model for class II students at SDN Wonobodro 01 on

mathematical flat shapes, the researchers concluded that there was an increase in the learning outcomes obtained by students. This is proven from the data on the average completion score with the percentage of classical completion in cycle I and cycle II. The students' average score in cycle I was 64.8, then there was an increase in cycle II to 90.7 and they had reached the expected standard of completion. In cycle I the percentage of completion was 53.8% while in cycle II it increased to 92.3%. Student and teacher activity also increased after improving learning in cycle I and cycle II.

Based on the research that has been carried out above, researchers hope that this journal will become a relevant reference related to contextual learning. Furthermore, the researcher also provides suggestions that when carrying out learning activities using the picture and picture model, teachers should always courage students with various possible interesting models so that students can feel satisfaction when participating in the ongoing learning.

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