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The Effect of Picture and Picture Learning Model on Mathematics Learning Outcomes of Plane Shapes of Grade III Students of SDN 138 Palembang

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ABSTRACT

This study aims to see whether there is an influence of the Picture And Picture learning model on the learning outcomes of mathematics on flat shape material for grade III students of SD Negeri 138 Palembang. This study is included in the type of quantitative research that applies the Quasy Experimental Design method. It was carried out in class 3-A which consisted of 22 students and 3-B which consisted of 24 students. The instrument used was in the form of essay questions covering 5 questions. This study obtained t-test results with a significance of 0.001 <0.05 which indicates that H0 is rejected and Ha can be accepted. So it can be concluded that the implementation of the Picture And Picture learning model has a significant effect on the learning outcomes of flat shape mathematics for grade III students of SD Negeri 138 Palembang. So the Picture And Picture learning model can be an alternative in learning applied by students so that students do not feel bored when learning and to determine the effect on students' cognitive learning outcomes in maximizing the learning process

Keywords*: *learning outcomes, mathematics, picture and picture learning model

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INTRODUCTION

Literally, the meaning of education is the process of educating carried out by a person. teacher to student, it is assumed that the more mature person is expected to be able to provide good examples of ethics and morals, direction, learning, and improving knowledge of each person (Ujud et al., 2023). The purpose of education is to maximizing the potential that exists within students to the maximum. This can be seen as the ultimate goal of education, namely, making students achieve learning goals in each subject (Arifin, 2022, p. 72).

According to Murtianto (2013)in (Ryan & Bowman, 2022, p. 637) mathematics is a place for thinking, problem solving and reflection. The ability to think logically, creatively, and the ability to solve problems and other mathematical abilities. Therefore, mathematics is a basic subject that can improve students' way of thinking by solving existing problems. According to I. Fauzi & Arisetyawan (2020) in (Milkhaturrohman et al., 2022, p. 96) students' dislike of mathematics lessons will affect students' motivation and enthusiasm, such as they are unable to master certain subjects, do not do assignments, avoid lessons, and fight against teacher orders so that it will result in decreased student learning achievement. This is in line with the findings of researchers conducted at SDN 138 Palembang that students have difficulty in understanding how to find the circumference of flat shapes. According to (Simbolon et al., 2022) flat shapes are two-dimensional shapes that have length and width and are limited by straight or curved lines. Planar shapes are interpreted as a depiction of a concrete form so that the material discussed cannot be separated

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from a symbol. Monotonous learning and the difficulty of plane shape material for elementary school students makes students slow in understanding plane shape material.

According to (Friskilia & Winata, 2018, p. 38) in Purwanto 2006, learning outcomes are changes in student behavior due to certain treatments. This change in behavior is caused by students' achievement in mastering the material given during the learning process. According to Purwanto, Purwanto further said that learning outcomes include changes in cognitive, affective and psychomotor aspects. It is not uncommon for students to feel bored with learning that is carried out with the same learning model every day. This can cause students to be less active during learning. Thus, to improve learning outcomes in learning, teachers can use interesting learning models to apply to students.

Learning model *Picture And Picture* is a learning model that relies on images as learning media that are paired or sorted into a logical sequence (Gunaya, 2019, p. 21). According to Yanti, Laswadi, Ningsih, Putra, & Ulandari, 2019 in (Wahyuni & Huriyati, 2020, p. 155) the use of media in this model is using image media where students must pair or sort images so that they become a logical sequence. Now by implementing this model, students will be more active and the learning carried out is student-centered.

Based on the results of observations and interviews with class teachers that have been conducted by the researcher, it was found that there were students who did not understand the material on recognizing flat shapes, which resulted in some students' scores being low. This is evidenced by the Minimum Completion Criteria (KKM) that has been set, namely with a score of 70 in mathematics subjects, where out of 46 students consisting of classes III A and III B, only 21 students got scores above KKM and 25 students got scores below KKM with an average score of 65. This is in line with research conducted by (Widia Nanda et al., 2023), namely regarding the objectives of mathematics learning that have not been achieved due to the lack of interesting learning media during the learning process, the learning model used has also not been able to improve student learning outcomes. With limitations and not supported by interesting media and learning models, the learning outcomes of mathematics learning have not reached the minimum completion criteria (KKM).

With these problems, researchers are interested in conducting research on "The Influence of Learning Models on*Picture And Picture* "On the Learning Outcomes of Mathematics on Flat Building Materials of Grade III Students of SDN 138 Palembang"

LITERATURE REVIEW

Learning is an activity that is carried out consciously by each individual to knowing behavioral changes in understanding the surrounding environment (Paling et al., 2023, p. 1). The meaning of learning is a process of changing a person's personality where These changes can take the form of increased knowledge, skills, thinking power, attitudes and other personalities (Sukatin et al., 2022, p. 919).

According to Dimyati and Mudjiono in (Pattanang et al., 2021, p. 114) learning is an activity carried out by teachers that is structured in learning with a design instructional to create an active learning atmosphere that can support provision of teaching materials and learning resources. While the definition of learning according to UUSPN No. 20 of 2003 states that learning is a process of interaction between students and teachers and learning resources in a learning environment.Learning is a process so that a learning process occurs in each individual. The purpose of learning is an initial step that can be implementedin learning program activities (Mawarny et al., 2023, p. 30). Meanwhile, according to Daka et al in (Badriah & Robandi, 2023, p. 390) management student-centered learning compared to the learning and evaluation process which is intended to ensure that learning objectives are met.

Mathematics learning is not only studied by junior high or high school students but also from their elementary school has been taught mathematics lessons. According to Pratamawati et al., 2021 In (Ananda & Wandini, 2022) the main objective of learning mathematics, especially in elementary school, namely: 1) understanding the definition of mathematics and being able to apply it algorithms or concepts and ensure

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related concepts, 2) apply reasoning patterns and properties to carry out mathematical manipulation directly, 3) solve problems that including the ability to clearly understand problems, formulate and resolve patterns mathematics and efforts to find solutions, 4) understanding an idea by using diagrams, mathematical symbols, tables or other media to understand a situation or problems, 5) have an attitude of appreciating the application of mathematics in everyday life.

According to (Simbolon et al., 2022), a flat shape is a shape with two dimensions. which only has length and width which are limited by straight and curved lines. build two Dimensions are usually depicted with symbols. As we know, the types of flat shapes are squares, rectangles, triangles, trapezoids, circles, rhombuses. ketupat, kite and parallelogram, where each type of flat shape must have the properties of flat shapes. The picture and picture learning model is a type of model cooperative learning. According to (Salamun et al., 2023, p. 26) this cooperative learningaims to improve students' social interactions. Then according to (Sidiq et al., 2021, p. 23) Learning models *Picture And Picture* is a learning model that prioritize the existence of groups that systematically develop interaction that sharpens each other, loves each other and cares for each other. Learning *Picture And Picture* According to Sadiman, it is defined as active learning that uses learning aids. visual and matching images or sorting them into a systematic and logical sequence.

The steps of the learning model *Picture And Picture* according to (Ihsan et al., 2023, p. 234) learning model steps *Picture And Picture* to improve results learning is:

1. Researchers convey the competencies they wish to achieve.
2. Presenting material as an introduction
3. Researchers show pictures of activities related to the material
4. The researcher calls on students to take turns putting up or arranging the pictures. into a logical sequence
5. Researchers ask for the reasons or basis for thinking about the sequence of the images.
6. After that, the teacher instills concepts or materials according to the desired competencies. reached
7. Conclusion and summary.
8. Cover

Learning outcomes are changes that occur in each individual. the surrounding environment (Chusnul Khatima, Salmilah, 2023, p. 8). In the learning process teachers expect there to be concrete changes in student development. With this This change can be interpreted as meaning that there is success and good change in learning process.

By knowing the students' learning outcomes, teachers can identify problems and what difficulties occur with students. Of course by knowing what factors which makes students' learning outcomes less than optimal. According to (Aisyah & Sudrajat in (Rubiyatin, 2023, p. 90) factors that influence learning outcomes, namely (a). Factors Internal factors are factors that exist within the individual who is learning. Internal factors includes: physical factors and psychological factors. (b). External factors are factors that exist outside the individual external factors include: family factors, school factors, and community factors

METHOD

This research method uses experimental research using the Quasy Experimental Design method. This study uses the *Posttest Control Design*. The population to be used in this study is the entire class III of SDN 138 Palembang.

Table 3.2 Population Size

No	Class	Gender		Number of students
		P	L	
1.	III A	12	10	22
2.	III B	10	14	24

(Source: Administration of SDN 138 Palembang for the 2024/2025 academic year)

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This research sample uses the entire research population.Sugiyono (2007) in (Ali et al., 2019, p. 128) the population is less than 100, then the entire population is sampled for more valid results. This is in line with The research conducted was the entire number of class III students with a total of 46 students where jThis number is less than 100. So, this research is also called population research.

The data collection technique used is by testing. The research test instrument using written test instruments consisting of essay tests. Instrument validation techniques that validity test and reliability test are used. The data analysis technique used is the test normality, homogeneity test and hypothesis test.

RESULTS AND DISCUSSION

This research was conducted at State Elementary School 138 Palembang, which is one of the schools the state foundation located at Jl. Akbp H. Moh. Amin, 24 Ilir, Bukit Kecil District, City Palembang, South Sumatra 30113. The results of this study are in the form of a final test (*posttest*), namely by giving tests in the form of questions with material on flat shapes and properties.

Its nature is to find out the improvement of students after being given treatment. The following are the results of the values from *posttest* from the experimental class and the control class.

Table 1. Posttest Results of Experimental Class

Numb.	Name	*Posttest*	
		M/F	Mark
1.	ASZ	F	100
2.	AGA	F	76
3.	CQZ	F	84
4.	EAFP	M	92
5.	EZ	F	100
6.	GSH	M	84
7.	LEM	F	92
8.	MAN	M	80
9.	MAA	M	100
10.	MAA	M	80
11.	MAP	M	92
12.	MHA	M	76
13.	MH	F	92
14.	MKI	M	80
15.	NO	F	92
16.	NM	F	80
17.	NAF	F	84
18.	RPH	M	100
19.	SQP	F	84
20.	SRMP	F	100
21.	TMP	F	92
22.	WF	M	76

Based on the table above, it can be seen that the average score of students in the experimental class is above the KKM, which is 70. Where the highest value is 100 and the lowest value is 76. This is shows that there is an increase in the use of learning models*Picture And Picture* on student learning outcomes.

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Table 2. Posttest Results of Control Class

Numb.	Name	*Posttest*	
		M/F	Mark
1.	AKA	F	60
2.	AAI	F	84
3.	AV	M	52
4.	AA	M	92
5.	AAP	M	80
6.	FR	M	60
7.	HC	F	100
8.	KA	M	60
9.	KMH	M	84
10.	KYY	M	52
11.	MFF	M	100
12.	MIM	M	0
13.	MRA	M	80
14.	MLS	F	100
15.	MF	M	60
16.	MIA	M	100
17.	MJAH	M	20
18.	NS	F	60
19.	NNA	F	64
20.	NRD	F	80
21.	OA	M	0
22.	SNF	F	92
23.	SA	F	60
24.	SADFH	F	50

Meanwhile, in the control class above, it can be seen that the average score of the students in class control is still much below the KKM. Where the highest value is 100 and the value the lowest is 0. The value of the results is certainly far from satisfactory. This shows that the use of conventional learning models has less influence in learning flat geometry material.

The normality test was carried out after obtaining the final values from the experimental class and the control class. control in classes III A and III B which were given treatment (*treatment*) by using learning model *Picture And Picture*.

Table 3. Normality Test Results

Tests of Normality

			Kolmogorov-Smirnov[a]		
		Kelas	Statistic	df	Sig.
Student Outcomes	Learning	Posttest Class A (experiment)	.178	22	.067
		Class B Posttest (control)	.164	24	.095

a. Lilliefors Significance Correction

Based on the results of the calculation of the Normality test above, this study obtained a significant value.*posttest* in the experimental class, namely 0.067 and the control class, namely 0.095, which means that

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the value exceeds the valueα = 0.05 so the value in the experimental class is 0.067 ≥ 0.05 and the value in the control class is 0.095 ≥ 0.05. This is in accordance with the provisions of the normality test. research data that the data is normally distributed.

After conducting a normality test, the data distribution for both classes was normally distributed. so that the analysis is continued by testing homogeneity using the Levene test in order to knowing that there are variations in the distribution of sample data taken from the same population data. The following are the results of researchers using the test*levene's* in the homogeneity test with the help of SPSS.

Table 4. Results of Homogeneity Test

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Learning outcomes	Based on Mean	1.158	7	34	.352
	Based on Median	.385	7	34	.904
	Based on Median and with adjusted df	.385	7	19.232	.900
	Based on trimmed mean	.906	7	34	.514

Based on the results of the homogeneity test using the test*Levene's* the significance value is 0.352. Because the significance value is greater than 0.05, it can be concluded that the sample comes from the same population or can be said to be homogeneous.

After both data are stated to be normally distributed and have the same variance, homogeneous, then the hypothesis test is carried out using a t-test with the help of a program SPSS 26 uses *Independent Sample T-Test* with a significance level of 0.05. For testing the hypothesis with the criteria Ho is rejected if sig < 0.05 and Ha is accepted if sig > 0.05. This study compares the posttest results of students between the experimental class and the control class. control. The following comparison results are presented in the table below:

Table 5. Hypothesis Test Results

Independent Samples Test

		t-test for Equality of Means						
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
Results	Equal variances assumed	3.416	44	.001	21.750	6.367	8.918	34.582
	Equal variances not assumed	3.545	27.488	.001	21.750	6.136	9.171	34.329

The results above show that the results of the independent sample T-Test using the significance value are 0.001 < α (α = 0.005) so that Ho is rejected, and it can be seen that tcount = 3.416 with degrees of freedom (n*x1* + (n *x2*– 2)) = (22 + (24-2)) = 44, while t_{table}= t(0,05,44) = 1.680. This means $t_{count} > t_{tableor}$ 3.416 >1.680 then Ha accepted and Htherejected. Thus, through statistical analysis it is proven that there is an influence of the learning model *Picture And Picture* on the learning outcomes of mathematics on flat shape material for grade III students at State Elementary School 138 Palembang.

Jurnal PAJAR (Pendidikan dan Pengajaran)
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In this learning, the results of the average value of the experimental class students were 88.00 and the value of the control class students was 66.25. Meanwhile, the enthusiasm of the experimental class students looked very different from the control class where the experimental class used the learning model.*Picture And Picture* more enthusiastic and more active than classes that do not use learning models*Picture And Picture*. This proves that there is a difference between the experimental classes that were given treatment using the learning model. *Picture And Picture* with classes that do not use the Learning model *Picture And Picture*

Based on the data that has been conducted by the researcher in the experimental class, where the normality test of the data obtained was 0.067 and in the control class the data obtained was 0.095, which means that the value exceeds the normal value.$\alpha = 0.05$ so the value in class experiment $0.067 \geq 0.05$ and the value in the control class $0.095 \geq 0.05$ then it can be stated that the final value (posttest) in the control class and experimental class has the same data normally distributed. Then to find out whether the sample comes from the same population or not It is said that homogeneity is shown in table 4.5, showing that the significant value is0.352, which means the value of $0.352 > 0.05$. Then, to find out the comparison between the two classes, an independent T-Test was conducted which showed a significant result of $0.001 < 0.05$ or $t_{count} = 3,416 > t_{table} = 1.680$ then it can be concluded that there is a significant difference between the average learning outcomes in the experimental class and the control class. So it can be concluded that there is a significant influence on the influence of the learning model*Picture And Picture* on the learning outcomes of mathematics on flat shape material for grade III students at State Elementary School 138 Palembang.

CONCLUSIONS AND RECOMMENDATION

It can be concluded that there is an influence of the learning model*Picture and Picture* on the learning outcomes of mathematics on flat geometry material for grade III students of SD Negeri 138 Palembang. The data collection technique used is a test technique with analysis results. data obtained from student test results, namely the experimental class and control class with values the average in the experimental class was 88.00 and the average value for the control class was 66.25. This shows that there is an influence of the learning model. *Picture And Picture* on the results of learning mathematics on flat geometry material. Then the results of the analysis of student learning it was obtained thattcount = 3.416 and ttable= 1,680 so tcount > ttable. Ha accepted, then the results of the hypothesis test state that there is an influence of the learning model*Picture and Picture* on the learning outcomes of mathematics on flat shape material for grade III students at State Elementary School 138 Palembang.Thus, it can be concluded that learning that uses learning models*Picture And Picture* There is an influence on the learning outcomes of mathematics on flat geometry material for class III of SD Negeri 138 Palembang

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