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THE EFFECT OF MIND MAPPING MODEL OF LEARNING OUTCOMES OF FIFTH GRADE STUDENTS IN GEOMETRIC MATERIAL AT SD NEGERI 99 PALEMBANG

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Abstract

This study aims to determine the effect of the application of the Mind Mapping model on the learning outcomes of fifth grade students in geometric material at SD Negeri 99 Palembang. The method used in this research is the Pre-Experimental Design with the type of One group Pretest-Posttest Design. The sample in this study were fifth grade students consisting of 24 male students and 20 female students. The research instrument used in this study is tests and documentation. Based on the results of data analysis, the average pretest score was 39.99 and the average posttest score was 54.69. Based on the hypothesis test, the value of Sig. (2-tailed) = 0,000 which means less than 0,05 with a significant level of 5%. Thus H0 is rejected and Ha is accepted, so it can be concluded that the Mind Mapping learning model has an influence on the learning outcomes of grade 5 students in geometric material at SD Negeri 99 Palembang.

Keywords: *Effect, Learning Outcomes, Mind Mapping, Geometric*

A. Introduction

Teachers have an important role in every learning process, especially in this case regarding the teacher's role in learning mathematics. Teachers can seek fun learning in order to build positive perceptions in students towards learning mathematics. As stated by Yayuk (2019: 2) that teachers must be able to design learning that is interesting and understandable to students. Teachers need to know the peculiarities of mathematics and

students' character, and seek ways that are appropriate to learning. Thus, learning objectives can be achieved, both in terms of cognitive, affective and psychomotor.

Assessment is an important part of learning. Teachers who carry out assessments can find out the abilities of students. In addition, the teacher can also determine the accuracy of the teaching methods used and the success of students in achieving the specified competencies (Febriana, 2019: 5). The teacher has the main task of conducting an assessment in the learning that is carried out. This requires teachers to be able to seek various methods and strategies in learning so that maximum learning outcomes can be achieved.

The researcher conducted an initial interview with a class V teacher at SDN 99 Palembang named Mrs. Nur Astri Dewi Purwanti, S.Pd. on August 26 2022 and it was discovered that SD Negeri 99 Palembang had not implemented learning using the Independent Curriculum so the school was still using learning with the 2013 Curriculum. Based on these initial interviews, information was obtained that learning in the VA class of SD Negeri 99 Palembang had gone well according to plan learning that has been designed by the teacher. However, there are still students who seem indifferent to ongoing learning. When the teacher explains the subject matter, the student switches to reading another book. There are also students who always misbehave to get the teacher's attention. In addition, there were also students who were active in class so they often asked questions. In addition, there are also students who are very quiet because they do not socialize with friends. Thus, acting after an order from the class teacher. Therefore, teachers are required to present various interesting and effective learning models and methods in class. This is done so that students can undergo meaningful, effective and enjoyable learning activities. As the opinion expressed by Hidayat (2016: 73) that a teacher must design and implement activities or strategies that motivate students to play an active role in the learning process.

One learning model that can optimize student learning outcomes in learning mathematics is Mind Mapping. The use of the Mind Mapping learning model makes it easier for students to understand the information being studied. In addition, Mind Mapping can help students use all the potential of their brains to work optimally. This is done by compiling the material that has been studied using well-created and interesting notes. As the concept discovered by Tony Buzan quoted from Suyatno (2009:93) states that Mind Mapping is based on how the brain works to store information. The results

showed that the brain does not store information in neatly arranged boxes of nerve cells, but is collected in branching nerve cells which at first glance look like tree branches.

The Mind Mapping learning model has never been used in mathematics learning in Class V SD Negeri 99 Palembang, even though the Mind Mapping model has many advantages. Suyatno (2009: 100) explains that Mind Mapping has benefits, namely helping in remembering, getting ideas, saving time, concentrating, managing thoughts and hobbies, playing media, having fun in expressing imagination which of course gives rise to creativity.

Based on this description, the researcher is interested in conducting research with the title "The Influence of the Mind Mapping Model on Learning Outcomes of Class V Students on Building Spatial Materials at SD Negeri 99 Palembang".

B. Method

The method used in this study is the Pre-Experimental Design with the type of One Group Pretest-Posttest Design. In this design there is a pretest, before being given treatment. Thus the results of the treatment can be known more accurately, because it can be compared with the conditions before being given treatment. The population and sample in this research were all fifth grade students at SDN 99 Palembang, totaling 44 consisting of 24 boys and 20 girls.

Data collection techniques in this study consisted of tests and documentation. The test used to measure students' understanding of geometric material in this study was in the form of multiple choice questions consisting of 15 questions. Questions that have passed the validity test will be given to students at the beginning (Pretest) and at the end of the test (Posttest). Documentation in this study was used to take photos during research activities and written data (names of students, school profiles, list of student learning outcomes) as well as other things needed in research.

The instruments used in this study were tested through several stages, namely validity test, reliability test, item difficulty level test and item discrimination test. The data analysis technique used in this study was normality testing and hypothesis testing with the help of the SPSS program to prove whether there was an influence of the Mind Mapping model on geometric material on the learning outcomes of fifth grade students at SD Negeri 99 Palembang.

C. Finding and Discussion

This study used the One Group Pretest-Posttest Design. The researcher carried out a pretest for the 2 classes used in the study. After carrying out the pretest, the researcher gave treatment in the form of learning using the Mind Mapping model for 2 meetings. After giving the treatment, the researcher gave a posttest to find out the learning outcomes of the students after receiving the treatment.

1. Finding

Test data is used to determine student learning outcomes. This study used a comparison between the two tests (pretest and posttest) of the research class, namely the VA & VB class as the experimental class. Researchers gave questions in the form of multiple choice totaling 15 questions. Students are given the same questions and scores, these scores are converted into grades by comparing the correct scores obtained by students with the maximum score multiplied by 100. Thus a score of 0 and a maximum score of 100 both during the pretest and posttest are used as data in this study. The pretest was given at the first meeting before students were given treatment, while the posttest was given at the second meeting after students were given treatment.

Table 1 The Average of pretest and postest

No.	Test	Averege Score
1.	Pretest	39,99
2.	Postest	54,69

Based on table above, it can be seen that there is an increase from the pretest value to the posttest value. The pretest score obtained by students was 39.96 while the posttest value obtained by students was 54.66.

Documentation data in this study is used to find out various things needed in research. Following are some of the documentation data obtained by the researcher from the homeroom teacher for class 5A & VB regarding information on the mathematics scores of VA & VB class students at SDN 99 Palembang, photos of the learning atmosphere during the Mind Mapping treatment, and several photos of various learning activities carried out by students.

Based on the results of the researcher's documentation, the data on mathematics scores obtained from the homeroom teacher was used by the researcher to determine the right research design and proper and correct sampling techniques. Then the photos that the researcher got during the research process were used as archives in the research

carried out as well as being a tool for researchers to see the atmosphere of the class during the learning process.

Pretest and posttest data obtained in this study were analyzed using statistical data analysis. The data were analyzed by carrying out the pretest and posttest data normality tests through the SPSS version 26 program. The following shows the output results of the normality test for pretest and posttest data.

Tests of Normality

		Kolmogorov-Smimov[a]			Shapiro-Wilk		
	Kelas	Statistic	df	Sig.	Statistic	df	Sig.
Hasil Belajar Siswa	Pretest	.105	44	.200*	.959	44	.122
	Postest	.090	44	.200*	.977	44	.531

Figure 1. Data Test of Normality

In accordance with the normality test criteria via SPSS, if the value of Sig. or significance < 0.05, the data is not normally distributed. Conversely, if the Sig. or significance or probability value > 0.05, the data is normally distributed. In this study, the number of samples was 44 students (<50), which means we used the results of the normality test according to Shapiro-Wilk. Based on the results of the normality test using SPSS above, it was found that the Sig. the pretest data is 0.122 and the posttest data is 0.531 with a value > 0.05, it can be stated that the pretest and posttest data in this study are normally distributed.

The hypothesis testing in this study used the help of the SPSS version 26 program. In the following, the results of the t-test with the One Sample Test type are presented to analyze the experimental results using the One Group Pretest-Postest Design.

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Pretest	44	39.9964	15.21529	2.29379
Postest	44	54.6939	18.61181	2.80584

Figure 2. Data One-Sample Statistics

Based on the results of the statistical output above, it can be seen that the average of the Pretest and Posttest results has a much different average value. At the pretest, the average value was 39.96, while at the posttest, the average value was 54.69. There is an increase in the average score on the results of the posttest implementation.

One-Sample Test

Test Value = 0

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Postest	19.493	43	.000	54.69386	49.0354	60.3524

Figure 3. Data One-Sample Test

Based on the results of the t-test in Figure 16 above, the Sig. (2-Tailed) = 0.000 which means less than (<) 0.05. Thus H0 is rejected and Ha is accepted so that it can be stated that there is an influence of the Mind Mapping learning model on the learning outcomes of grade 5 students on geometric material at SD Negeri 99 Palembang. This can be seen from the difference in the pretest and posttest average scores which can be seen in the One-Sample Statistics table in the Mean column, that the average score at the time of the posttest is greater than the average value obtained at the pretest.

2. Discussion

This study aims to determine the effect of the Mind Mapping model on the learning outcomes of grade 5 students in learning mathematics on geometrical material at SD Negeri 99 Palembang. Based on the data obtained from the learning process that was given the Mind Mapping treatment, the highest score that students got at the posttest was 93.3 and the lowest score was 13.3 with an average score of 54.66. If seen from the results of the pretest and posttest, there is an increase in student learning outcomes from the pretest score of 39.96 to the posttest score of 54.66.

The difference in average scores during the pretest and posttest shows an increase in student learning outcomes after being given treatment in the form of a Mind Mapping model. The effect of the Mind Mapping model on student learning outcomes is not only determined by the increase in the average score, but to see the effect after applying the model, you can go through the results of the hypothesis test calculations carried out. Hypothesis testing with the One Sample Test type through the SPSS program with testing criteria if the value of Sig.(2-tailed) > 5% (0.05) then H0 is accepted Ha is rejected. Conversely, if the value of Sig. (2-tailed) then H0 is rejected Ha is accepted.

The students' pretest and posttest values obtained by the researcher were then analyzed using the normality test and hypothesis testing through the SPSS version 26 program. The results of the normality test showed that the study data were normally distributed with Sig. of 0.200 which means > 0.05. Based on the results of the analysis

obtained, it shows that there is an effect of using the Mind Mapping model on the learning outcomes of grade 5 students on geometric material at SD Negeri 99 Palembang. This is based on the hypothesis testing that has been carried out by researchers with a significant level of 5% with df (degrees of freedom) = 43, the value of Sig. (2-Tailed) = 0.000. Means the value of Sig. (2-Tailed) < 0.05 then Ha is accepted and Ho is rejected. It can be concluded that there is an influence of the Mind Mapping model on the learning outcomes of grade 5 students on geometric material at SD Negeri 99 Palembang.

This research was conducted in the odd semester of the 2022/2023 academic year with a length of time for giving treatment using the Mind Mapping learning model lasting 3 days. During the learning process, namely by applying the Mind Mapping model, in the early stages the researcher invited students make Mind Mapping for each group after paying attention to the material that has been explained by the researcher. Researchers guide and direct students in the process of making Mind Maps and help students who are not used to making Mind Maps. Students looked very enthusiastic when asked to make Mind Mapping, even though there were still some students who were not used to making note concepts like Mind Mapping, but they were able to follow the lesson well.

At the time of learning, the researcher divided the students into groups with each benchmate consisting of two people. The researcher asked the students to pay attention and understand what was explained in the powerpoint slide show in front of the class and then students could write down the important parts that needed to be recorded and included in the Mind Mapping that was made.

The implementation of the learning process above is in accordance with the factors that influence learning outcomes that have been described in the previous literature review chapter, that one's learning outcomes can be influenced by internal factors such as the attention, interests and talents of students in the process of making Mind Mapping and one's learning outcomes as well influenced by several external factors such as the teacher's teaching methods and learning facilities in schools.

In this study, the researchers had achieved their goal, namely that it was proven that there was an influence of the Mind Mapping model on the learning outcomes of grade 5 students at SDN 99 Palembang on geometric material. In this study, there were still deficiencies and limitations in several aspects. Heterogeneous field samples based on differences in students' math scores were not balanced between VA and VB classes at SDN 99 Palembang. So that the researchers made all populations into samples in this study because the quality of the population was considered heterogeneous in terms of

students' mathematical abilities and this was also because the results of the study would be generalized with a small error rate, so that all members of the population were used as research samples.

Mind Mapping is a concept invented by Tony Buzan and was first introduced in the early 1970s. According to Tony Buzan, Mind Mapping is a note-taking technique that can map creative and effective thoughts as well as integrate and develop the work potential of the brain, both the right and left hemispheres of the brain contained in a person (Husni & Zainuddin, 2018: 114). Mind Mapping is the easiest way to put information into the brain and Mind Mapping is a creative, effective way of recording and will literally map our thoughts simply (Buzan, 2005:4). Mind Mapping helps a person learn, compile and store as much information as desired and group this information in a natural way (Buzan, 2005:12). The mind mapping model has an important role in students' understanding and mastery of concepts, students easily remember the material being taught not by rote memorization. Through the mind mapping learning model, students are also able to solve problems and be able to think actively without always having to be coherent in the same way or steps given by the teacher. The mind mapping learning model is a model that uses concept maps as a tool in delivering learning material that aims to encourage students to learn to think critically by solving problems. The mind mapping learning model can help in critical thinking. Students are directed to identify problems, look for alternative solutions to problems, and find the most effective way of solving problems, as well as follow up (Marxy, 2017: 180).

The research went according to the design made by the researchers, all parties involved such as school principals, teachers and students could work together well so that the research ran smoothly.

D. Conclusion

Based on the results of the research and discussion in the previous chapter, it can be concluded that there are significant differences in student learning outcomes at the pretest before being given treatment and at the posttest after being given the Mind Mapping treatment in mathematics learning on geometric materials in class V SDN 99 Palembang. Based on the results of the pretest, the average value obtained by students was 39.96 which indicated the students' initial abilities. Then after being given treatment in the form of the Mind Mapping learning model, the posttest value was obtained which was greater than the pretest value of 54.66. The results of the study were also analyzed

through a normality test with a Sig. > 0.05 so that the research data is normally distributed. In addition to seeing the difference in the average pretest & posttest scores, to determine the effect of using the Mind Mapping model, the research data were also analyzed using hypothesis testing. Based on the hypothesis testing, the value of Sig. (2-Tailed) = 0.000 which means <0.05 for a significant level of 5%. So that Ha is accepted and H0 is rejected, it is concluded that the Mind Mapping model has an effect on the learning outcomes of grade 5 students on geometric material at SD Negeri 99 Palembang.

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