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The Effect of Group Investigation Model Assisted by Diorama Media on Learning Outcomes in Science Material for Class V Students at SDN Pelemkerep 1

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Abstract

The appearance of progress in a country is that there is a good quality of education. There is a subject that is important in the advancement of science and technology and a person's character, the subject is IPAS. The research was conducted in order to determine the effect of Group Investigation Model assisted by Diorama Media. By doing learning in groups, it has the potential to increase student activity and learning outcomes in IPAS learning. This study uses a type of quantitative research in the form of a true experiment with the type of post-test only control group, which in its design has two classes, namely the control class and the experimental class. The samples used were class A with a total of 17 students and class B with a total of 15 students, sampling using random sampling techniques. The data collection technique used is a test method with a description format. The research results showed that learning using the Group Investigation Model with the help of Diorama Media in the experimental class could affect the improvement of learning outcomes.

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1. INTRODUCTION

Education in a country is a key that plays an important role in forming a quality young generation. It can be seen that progress in a country is good and high-quality education. Of course, this education can be achieved due to many factors, one of which is achieving the learning objectives of a class. With a lot of diversity in education, there is a subject that plays an important role in the development of science and technology as well as a person's character, this subject is IPAS. Science itself is included in the complex subjects in the current curriculum which has an ideal function in growing the Pancasila student profile of students in Indonesia and requires the right approach so that the concepts can be easily understood.

In the current curriculum, namely the independent curriculum, it integrates science subjects with social studies into science subjects. This aims to develop students' interest in knowledge, active role, curiosity, critical thinking and recognition of themselves and their environment regarding the science and science concepts being studied. [1].

In the independent curriculum in elementary schools, the combination of science and social studies subjects begins in the lower grades, with the reason that children tend to pay attention to things in a unified and integrated manner. Merging is useful for triggering children to easily understand the natural and social environment in one unit [2].

Class V students are one of the age groups at the elementary level who are experiencing rapid intellectual development. Therefore, it is important to ensure that the learning model used is suitable and can meet students' needs in achieving learning outcomes. Because the needs of

each student in the class will of course be different, therefore teachers must adapt their teaching methods to students.

After observations were carried out at SDN 1 Pelemkerep, Mayong District, it could be seen that the learning carried out was indeed quite varied, but it was still often found that learning was only carried out conventionally. Students are still not fully active during learning, and because this can affect the results during the learning process, many students' learning outcomes are still unsatisfactory. Especially in the Science and Technology subject, the need for student participation in the learning process will make it easier for them to understand the content of the lesson material. By paying attention to this problem, there needs to be a change in teachers' teaching methods, students need a learning model that can influence improvements in learning outcomes.

Group Investigation is a type of cooperative learning model where students play an active role in exploring and uncovering topics by discussing together. In its application, the Group Investigation learning model requires students to be active in searching for and developing concepts in the material, while the teacher functions as a facility and guide and increases student motivation during learning.[3].

Group Investigation is a form of cooperative learning method where students are actively involved in exploring learning topics using various resources such as books or the internet[4]. During the initial planning stages, students are involved in identifying lesson material and exploring in order to understand it through investigation.

Referring to the Ministry of National Education, the Group Investigation Model is included as a cooperative learning method that is centered on students. This model involves students forming diverse small groups, collaborating on learning efforts, and engaging in discussions to discuss relevant material.[5]. The Group Investigation learning model begins by dividing students into several groups. Next, students and teachers collaboratively select topics from various available options, with a focus on issues that can be explored in a particular theme or problem. Once the topic and problem have been obtained, teachers and students determine the research model that is developed to overcome the problem.[6].

So, it can be concluded that this learning model gives students the opportunity to overcome problems that have been determined during the investigation in looking for relevant learning topics in groups. Information can be obtained through various sources such as books, online facilities and the surrounding environment, all of which can influence student learning outcomes. . The learning syntax in the Group Investigation learning model according to Huda consists of several stages starting from selection, planning, implementation, analysis, presentation of final results, and evaluation.[7]. Learning by applying the Group Investigation model can improve many factors that influence the development of knowledge competencies[8].

The Group Investigation model offers many benefits when compared to alternative models, some of the benefits of the Group Investigation model are: 1) This model is ideal for use in learning so that students' creative abilities increase. 2) Can develop students' abilities because during the process of solving problems using investigative methods. 3) Improving social skills in students due to discussion and cooperation in solving problems in groups. 4) Learning focuses students, so that students can build and develop their knowledge when solving problems. 5) Improve critical thinking, creative communication and group processing. 6) Students can solve problems well and quickly because they use all the learning resources available in this model. 7) Having a variety of activities can increase students' understanding. 8) Able to foster an attitude of respect, social spirit, recognition of one's abilities, and responsibility. 9) Teachers' professional abilities can be developed through creative and innovative thinking[9].

The success of the process of using the Group Investigation learning model must be known and understood by the teacher so that it can later be used as a reflection in subsequent learning. Collecting relevant data regarding the main factors that influence learning to assist teachers in improving the process or student learning outcomes is called assessment[3].

This research focuses on the media used, namely diorama media which is a medium that acts as a display of events or depicts the actual scene/atmosphere in mini-3-dimensional form so that it can help students understand the content of the learning material.[10].

Learning outcomes mean that problems that previously students could not do can be done[11]. Learning outcomes as a benchmark in identifying and evaluating a learning objective[11].

Learning outcomes are reports regarding student achievements during learning[11]. Learning outcomes are a reflection of the results of the learning process which is a tool in measuring success which informs the abilities of students and teachers in the learning process in achieving certain learning goals.[11].

Based on this, in theory it can be said that implementing the Group Investigation Model with the help of Diorama Media can indirectly influence the improvement of students' scientific abilities. By conducting group learning, it has the potential to increase student activity and learning outcomes in science learning.

2. RESEARCH METHOD

This research took place at SDN 1 Pelemkerep, Mayong District, Jepara Regency. The type of research used is quantitative research in the form of a true experiment with a deep post-test only control group. The design has two classes, namely the control class and the experimental class. The control class was given non-treatment or treatment using the conventional model and the experimental class was given treatment or learning treatment using the Group Investigation model with the help of Diorama Media. The research design can be seen in Table 1 below.

Table 1. Research design

Class	Treatment	Post Test
Experiment	X_1	O_1
Control	X_2	*O2*

The research population is class V students of SDN 1 Pelemkerep, Mayong District for the 2023/2024 academic year, consisting of 32 students. The samples used were class A groups with a total of 17 students and class B with a total of 15 students. The sampling technique used in the research was random sampling. The independent variable in this research is the Group Investigation learning model with the help of Diorama Media and the dependent variable is Learning Outcomes.

Data collection uses test method techniques with a description format given at the end of the lesson (post-test). The test uses 10 essay tests with multiple correct answers depending on the student's analysis and understanding of the material. The test is prepared based on the Social Sciences subject matter topic C regarding Environmental Problems that Threaten Life. Supporting tools in this research include modules, textbooks, diorama media, and student worksheets. The research uses prerequisite test analysis and hypothesis testing. In the prerequisite tests, normality tests and homogeneity tests are used with the help of IBM SPSS statistical software. Test the hypothesis using the t-test, to see the influence of the Group Investigation Model with the help of Diorama Media on student learning outcomes.

3. RESEARCH RESULTS AND DISCUSSION

3.1.Research result

This research used an experimental method on class V students at SDN 1 Pelemkerep with a total of 32 students, divided into 2 classes which were then grouped into a control class and an experimental class. When conducting research in the experimental class, the teacher provides a brief, concise and clear explanation regarding the topic of environmental change and damage and displays diorama media while still paying attention to the syntax of the Group

Investigation learning model, after which learning will be controlled and focused on students and the teacher only as a guide.

And in the control class, students are only subjected to conventional or non-treatment learning like the learning process in general without using any particular treatment. The results obtained from the research are the learning outcomes of both classes, namely the control class and the experimental class, which were obtained during the post-test which was given when the learning had ended.

3.2.Discussion

The descriptive analysis table of learning outcomes obtained from control class and experimental class students can be seen in table 2 below:

Table 2. Results of Descriptive Analysis of Student Learning Outcomes

Descriptive Statistics					
	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Control Class Learning Results	15	46.00	90.00	64,0000	13.22336
Experimental Class Learning Results	17	48.00	92.00	72.4706	9.50077
Valid N (listwise)	15				

Referring to Table 2. It can be seen that the mean in the test of student learning outcomes in the control class using conventional or non-treatment learning methods shows a result of 64.00 with a standard deviation of 13.22, the minimum score is 46 and the maximum score is 90. Then the mean of test of student learning outcomes in the experimental class who were given treatment using Group Investigation as a learning model with the help of media, namely diorama, showed a result of 72.47 with a standard deviation of 9.50, the minimum score was 48, while the maximum score was 92. Then, the score of post-tests is calculated to analyze improvements in student learning outcomes, so that progress in using the Group Investigation learning model can be evaluated. After that, the evaluation itself can be carried out using the prerequisite test before carrying out the t-test.

Table 3. Prerequisite Test and Hypothesis Test

Test	*Test Type*	*Test Results*	*Decisions*	*Conclusion*
Precondition	Normality (Shapiro-Wilk)	*Sig*. Control class posttest = 0.650 *Sig*. Experimental class posttest = 0.355	(H0) is accepted	Normal
	Homogeneity (Levene Statistics)	*Sig*.= 0.136	(H0) is accepted	Homogeneous
Hypothesis	t-test (T-Test)	*Sig*. (2-tailed) = 0.044	(H0) is rejected	Have differences

Referring to Table 3 presented, analysis of student scores shows that in the data normality test using the Shapiro-Wilk type, the research results were shown with a significant value of 0.650 in the post-test in the control class and 0.355 in the post-test in the experimental class. Both show that, the significant value exceeds $p \geq 0.05$, so the null hypothesis and (H0) are accepted. This means that both post-test data have a normal distribution. Then the homogeneity test has a significant value of 0.136, which exceeds 0.05, therefore (H0) is

accepted. This also shows that the variance in each sample is the same, which shows that the data is homogeneous.

Then, after it was discovered that the data for the two post-test values showed a normal and homogeneous distribution, then a t-test analysis was carried out. In the t-test calculation the data produces Sig. (2-tailed) with a value of 0.044where the value is less than significant ≤ 0.05, therefore the null hypothesis (H0) is rejected. With this matter, it is shown that there is a significant difference in student learning outcomes with the use of conventional learning methods and with treatment or providing treatment using the Group Investigation model during learning. It can be seen that there is an increase in student learning outcomes who use the Group Investigation Model with assisted by Diorama Media in the experimental class. Based on the data analysis, it can be concluded that implementing learning using the Group Investigation Model assisted by Diorama Media can have a good impact on students and improve learning outcomes. It can be seen from the mean value that the post-test results for the experimental class (72.47) exceed the post-test results for the control class (64.00), this shows that student learning outcomes have improved.

The results of this study are similar to the results of research[12]namely, the Group Investigation learning model assisted by Question Box media can improve student learning outcomes in the cognitive domain. Other research was also carried out by[9]with the title Tri Hita Karana Based Group Investigation Learning Model on Science Learning Outcomes. Conclude that there is an influence in improving students' science learning outcomes using the Group Investigation Model.

Then the same research by[6]concluded if in his research by implementing the Group Investigation type cooperative learning model, it has also succeeded in influencing improvements in learning outcomes. Similar research also supports this research being examined[13]obtained results that implementing the Group Investigation type cooperative model influenced improving science learning outcomes.

This research is also in accordance with the results of research conducted by[14]where research states that the Group Investigation type cooperative learning method can improve learning activities and student learning outcomes. Based on this research, learning using the Group Investigation Model has shown positive results, especially in improving learning outcomes.

Based on the findings in previous research and in this research, it can be stated that applying the Group Investigation Model assisted by Diorama Media in learning has an effect on learning outcomes in science material for class V students at SDN 1 Pelemkerep.

4. CONCLUSION

This research began at the research stage by conducting conventional or non-treatment model learning for the control class and using treatment for the experimental class, then both were carried out post-test after conducting the learning to measure student learning outcomes. The post-test results show that only a few students in the control class were able to obtain good results. However, in the experimental class with the application of the Group Investigation Model assisted by Media Diorama, the post-test results experienced a significant increase and the majority were able to obtain good results in their learning outcomes.

The statistical test results show that there is a significant difference between the two post-tests, with an indication that the application of the Group Investigation Model assisted by Diorama Media is effective in influencing the improvement of student learning outcomes. Apart from that, the application of the Group Investigation Model provides new impressions and learning knowledge to students, and develops a positive attitude towards the learning topic, namely environmental damage. The use of dioramas also helps students easily understand environmental concepts and their damage factors and encourages them to think critically about environmental conservation. With this description, it can be concluded that implementing learning using the

Group Investigation Model assisted by Diorama Media has an effect on improving student learning outcomes.

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