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The Use of Group Investigation Model to Improve Student Learning Outcomes in Science Learning in Elementary Schools

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Abstract: This learning model can be developed to be better and can be more useful in biology learning, namely not only in the material of Single Substances and Mixed Substances, but can be applied to other materials that have work activities that can be discussed. The learning outcomes of students taught with the cooperative defense model of the group investigation type increased for each cycle. In the pre-cycle, the average student score was 55.65, increasing in cycle I to 73.48 and then increasing again in cycle II to 86.08. The classical student completion in the pre-cycle was 8.69%, in cycle I it increased to 47.82% and continued to increase in cycle II to 86.95%. Student activity in learning with the cooperative learning model of the group investigation type increased better for each cycle. Teacher activity during learning with the cooperative learning model of the group investigation type increased in each cycle. The average score of teacher activity in cycle I was 3.94 and was in the good category, increasing in cycle II to 4.5 and was in the very good category.

Keywords: Group investigation model, learning outcomes, science education.

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INTRODUCTION

The learning model is an important part that must be considered in the learning process (Darwati & Purana, 2021; Junaid et al., 2021; Lubis, 2019). A teacher must be able to determine and use the right learning model in delivering learning materials so that learning objectives can be achieved optimally (Andrian & Rusman, 2019; Jamil, 2022; Silvia et al., 2023). A learning model can be interpreted as a description of a procedure or series of learning used to achieve predetermined learning objectives (Dewi et al., 2020; Khoimatun & Wilsa, 2021). Furthermore, teachers in carrying out the learning process must also master the learning model used so that the learning process and achievement of learning objectives can take place optimally (Fatwa et al., 2023; Pendy & Mbagho, 2021). By using a well-managed learning model, teachers will be able to manage learning well.

Based on the author's experience as a science teacher at MIN 1 Banda Aceh City regarding the material in the science subject, it is obtained that this material is difficult for students to understand in previous years. Students' interest in learning is lacking, students' low absorption capacity results in unsatisfactory student learning outcomes in

the Biodiversity material. The minimum completion criteria value set is 75 while the average value achieved by students is less than 75.

Therefore, to obtain better results in science learning, especially in the material of Single Substances and Mixed Substances, an appropriate method is needed, one of which is the Group Investigation Learning Model. The Group Investigation Learning Model is a type of cooperative learning that is oriented towards students. Students learn in small heterogeneous groups, learn and solve problems. By implementing the Investigation Model in science learning, it is hoped that the student learning process for the subject matter will be more memorable and meaningful for students, thus forming a good and perfect understanding of concepts in students.

METHODS

This research is a classroom action research with four stages, namely planning, action, observation and reflection. This research lasted two cycles. The subjects of this study were students of MIN 1 Banda Aceh City. Data were collected using observation and test techniques. Observation is used to measure teacher and student activities in the learning process using observation guidelines. Furthermore, tests are used to measure student learning outcomes in science learning. The data obtained were then analyzed using descriptive statistical techniques.

RESULTS

Based on the analysis of student learning outcomes through the application of the cooperative learning model of the group investigation type in science learning on the material of Single Substances and Mixed Substances taught in class V - C MIN 1 Banda Aceh City, it shows an increase in student learning outcomes for each cycle. This can be seen clearly from the average student learning outcomes in each, namely in the pre-cycle with an average value of 55.65, cycle I is 73.48 and cycle II is 86.06. Likewise with the percentage of student learning completion, namely for the pre-cycle of 8.69%, cycle I is 47.82% and cycle II is 86.95%. This proves that student learning outcomes with the application of the cooperative learning model of the group investigation type in biology learning on the material of Single Substances and Mixed Substances in class V - C MIN 1 Banda Aceh City have increased for each cycle. The increase in student learning outcomes for each cycle can be seen in the table below. Student Learning Outcomes during the Application of the Cooperative Learning Model of the Group Investigation Type for Each Cycle.

Table 1. *Student Learning Outcomes in Each Cycle*

No	Student	Score		
		Pre Cycle	Cycle I	Cycle II
1	Student 1	50	70	80
2	Student 2	60	80	90
3	Student 3	60	70	90
4	Student 4	50	60	80
5	Student 5	50	60	70
6	Student 6	60	80	100
7	Student 7	60	80	100
8	Student 8	50	70	90
9	Student 9	50	80	90
10	Student 10	60	70	70
11	Student 11	40	80	90
12	Student 12	80	80	90
13	Student 13	40	70	80

14	Student 14	80	80	90
15	Student 15	60	70	80
16	Student 16	50	60	70
17	Student 17	60	70	80
18	Student 18	60	80	90
19	Student 19	50	70	80
20	Student 20	50	80	90
21	Student 21	50	70	80
22	Student 22	60	80	100
23	Student 23	50	80	100
Average Student Grades		**55.63**	**73.48**	**86.08**
Percentage of Student Learning Completion		**8.69%**	**47.82%**	**86.95%**

The results of the study showed an increase in the average learning outcomes of students through the application of the cooperative learning model of the group investigation type in science learning on the material of Single Substances and Mixed Substances in class V - C MIN 1 Banda Aceh City. Likewise for the percentage of student learning completion levels which showed an increase in the percentage of student learning completion levels for each cycle. This indirectly also illustrates the efforts of teachers in improving the quality of learning carried out, so that this also has a positive impact on the learning outcomes obtained by students. For more details, see the picture below.

DISCUSSION

The results of the study indicate that the investigation group model can improve student learning outcomes in science learning. Improvement in learning outcomes occurs through the learning steps in the investigation group model. The planning steps in the investigation group model help students prepare themselves and all the materials needed to understand the material given. At the preparation stage, students can map out each problem that must be solved. This process will have an impact on the ease with which students achieve learning objectives (Dasopang et al., 2023; Fatwa et al., 2024; Ningsih et al., 2023; Santrock, 2011).

In the syntax of investigation group learning, students also carry out the investigation process, which is a process where students will explore the material presented so that it will increase students' understanding of the material presented. This deepening process can also enrich students' mastery of the material.

CONCLUSION

The results of the study indicate that the group investigation model can improve student learning outcomes in science learning. This can be seen clearly from the average student learning outcomes in each, namely in the pre-cycle with an average value of 55.65, cycle I is 73.48 and cycle II is 86.06. Likewise with the percentage of student learning completion, namely for the pre-cycle of 8.69%, cycle I is 47.82% and cycle II is 86.95%. This proves that student learning outcomes with the application of the cooperative learning model of the group investigation type in biology learning on the material of Single Substances and Mixed Substances in class V - C MIN 1 Banda Aceh City have increased for each cycle.

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