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The Effectiveness of Think Talk Write and Discovery Learning on Learning Achievement in Elementary School

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Abstract: Learning achievement needs to be improved with innovative learning models. because if learning is monotonous and conventional, students will be bored. Therefore, the learning model of discovery learning and think talk writing will be tested to find which learning model is more effective in improving student achievement. The results of the study: 1) there is an effect of the Discovery Learning model on the Science Learning Achievement of Class V Karangsari 3 Karangtengah Demak Elementary School based on the results of the paired samples test obtained the value of Sig. (2-tailed) obtained 0.000 < 0.05, or t-count 14.634 > t-table 2.10982, 2) there is an effect of the Think Talk Write (TTW) learning model on the Science Learning Achievement of Class V Karangsari 1 Karangtengah Demak State Elementary School, based on the results of the paired samples test obtained the value of Sig. (2-tailed) obtained 0.000 < 0.05 or t-count 10.558 > t-table 2.09302, and 3) There is a difference in science learning achievement on respiratory material between grade 5 students who are taught using Discovery Learning and Think Talk Write (TTW) in elementary schools; it is known from the experimental class 1 using the Discovery Learning model, which is 27.665 which is greater than the experimental means value. 2 using Think Talk Write (TTW) 23.030.

Keywords: Discovery, Learning, Think, Talk, Write, Learning Achievement

1. Introduction

The class activity is still dominated by students who are smart or highly capable; students' interest in learning science is still low, and only a few students are interested in learning science. Students also easily forget the material that has been taught because students tend to memorise the material being taught. As a result, students have difficulty working on the practice questions given, which impacts student learning outcomes.

These problems can be overcome by using models, methods or approaches following the characteristics of the students to be studied. Teachers must be able to choose learning strategies that can support student development in science learning. Teachers must also be able to make students construct their understanding and not receive full knowledge from the teacher.

Therefore, the researcher tried to use the TTW type of cooperative learning model. This learning model makes students more active and plays a more dominant role than the teacher. The teacher's task in the TTW learning model is only as a facilitator and motivator in learning. However, the teacher as a facilitator must continually monitor the progress of student activities and encourage students to achieve their goals to be completed. In addition, this learning model is relatively easy to implement so that students can do it at home in study programs from home during the corona covid-19 pandemic.

In addition to using the think talk write learning model, efforts to improve science learning achievement use the discovery learning model. The Discovery learning model is a learning process that is not given as a whole but involves students organising and developing knowledge and skills for problem-solving (Slamet et al., 2021). So that the application of the discovery learning model can increase the ability of personal discovery in addition to the initially passive learning conditions to become more active and creative (Utaminingsih, 2021). So that teachers can change learning that was initially teacher oriented to student oriented.

This research is to find out which model is the right one that can improve science learning achievement in different classes. experimental class 1 uses the discovery learning model, experimental class 2 uses the think talk write learning model and control class.

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2. Literature Review

To realise the goal of learning science, namely developing an understanding of various natural phenomena, concepts and principles of science that are useful and can be applied in everyday life, fostering a spirit of learning, and improving student learning outcomes, especially in the cognitive aspect, is very necessary so that mastery of a concept by students is not necessary. only in the form of memorising a number of concepts they have learned, but they can also apply the concepts they have in other aspects. This will be achieved if the teacher can develop a learning process that requires active student involvement so students' thinking skills will grow with the problems and challenges they face.

Active student participation in the learning process will able to eliminate boredom and foster a sense of pleasure in learning, and in the end, it will have an impact on increasing student learning outcomes. To achieve this, schools and teachers, as the main components of education, need to manage learning by the principles of teaching and learning activities, including 1) student-centred activities, 2) learning through action, and 3) independent learning and learning to work. so that learning is expected not to be focused on the teacher but on how to activate students in their learning (student active learning) (Muslich, 2007).

The high role of teachers and students in a learning process will significantly assist students in achieving optimal learning outcomes (Widyaningrum & Utaminingsih, 2021). The results of pre-research interviews with science subject teachers at elementary schools in the Karangtengah Demak sub-district, currently, there are still many students who think that science subjects are challenging to understand, monotonous and boring, so not a few students have difficulty understanding them. Students have difficulty solving analytical problems related to the ability to solve a problem. From the results of interviews with students, it was found that they found it difficult when they had to apply the concepts, they knew to the issues that were different from the teacher's explanation. What else is online learning because of the rules for studying from home.

Based on these initial findings and observations of the learning process carried out by teachers, especially science teachers, it was found that students were not active in learning with skills in making understanding or concepts, applying, analysing, synthesising, and evaluating where all these activities were based on observations, experiences, thinking, consideration, and communication, which will guide in determining attitudes and actions. Teachers lecture more and provide exercises or written assignments according to the worksheets used but do not offer opportunities for students to experiment according to their ideas and knowledge so that the learning process becomes less exciting and meaningful because the dominance of the teacher is still very prominent. As a result, students are less active and passive as a teacher. listeners in science learning.

The class activity is still dominated by smart or highly capable; students' interest in learning science is still low, and only a few are interested in learning science. Students also easily forget the material that has been taught because students tend to memorise the material being taught. As a result, students will have difficulty in working on the practice questions given, which have an impact on student learning outcomes.

These problems can be overcome by using models, methods or approaches to the characteristics of the students to be studied. Teachers must be able to choose learning strategies that can support student development in science learning. Teachers must also be able to make students construct their understanding and not receive full knowledge from the teacher. Therefore, the researcher tried to use the Think Talk Write type of cooperative learning model. This learning model makes students play an active role and play a more dominant role than the teacher. The teacher's task in the Think Talk Write learning model is only as a facilitator and motivator in learning. However, the teacher as a facilitator must constantly monitor the progress of student activities and encourage students to achieve their goals. In addition, this learning model is relatively easy to implement so that students can do it at home in study programs from home during the corona covid-19 pandemic.

Several studies have shown that the TTW type of cooperative learning model can also improve student learning outcomes is a study conducted by Dewayani (2016) showed that using the TTW type of cooperative learning model can improve student learning outcomes in learning. Sogandi (2019) that there is a significant difference between student learning outcomes in classes using TTW learning strategies assisted by Student Worksheets and classes using TTW learning strategies without the aid of Student Worksheets. Learning uses the TTW strategy assisted by Student Worksheets on the subject matter of redox reactions.

In addition to using the think talk write learning model, efforts to improve science learning achievement use the discovery learning model. The Discovery learning model is a learning process that is not given as a whole but involves students organising and developing knowledge and skills for problem-solving. So that the application of the discovery learning model can increase the ability of personal discovery in addition to the initially passive learning conditions to become more active and creative (Amin et al., 2021). So that teachers can change learning that was initially teacher oriented to student oriented.

Several previous studies have shown that the discovery learning model can improve learning outcomes as Yuliana's (2018) research that the discovery learning model can help increase student activity in the learning process with students finding their information so that it shows an increase in student learning outcomes both in elementary school and education level in on it. The results of Suprayanti et al. (2017) research that applying the discovery learning

model is an alternative to improve student learning outcomes, especially in the material of changing the shape of objects.

Several previous studies concluded that discovery learning, and think-talk write learning models can improve student achievement. The two learning models are both learning models that involve the active participation of students so that students are not only objects but also subjects in learning. Therefore, the researchers will focus on trials (experiments) to compare which learning model can be used more effectively in learning science for grade 5 in elementary schools.

3. Methodology

3.1 Research Design

This research is quasi-experimental or quasi-experimental with two research groups, namely the experimental class learning with discovery learning and think talk write models and the control class learning using the conventional model. Before being given treatment, the experimental group was first given a pretest, then given treatment using discovery learning, and think-talk write models. After that, was given a posttest.

3.2 Respondents of the Study

The population in this study amounted to 63 fifth-grade students from Karangsari 1 State Elementary School, Karangsari 2 State Elementary School and Karangsari 3 State Elementary School. The technique used to select samples in this study was the saturated sampling technique. Sugiyono (2017:85) explains that the saturated sample is a sampling technique in which all population members are used as samples. Thus, the sample of this study amounted to 63 students.

4. Findings and Discussion

The following are the research results on the effectiveness of the think talk, write and discovery learning model towards learning achievement of natural science class v in elementary school.

Table 1: Paired Samples of Student Achievement Test

		Paired Differences			T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	Pre- Post-Test Ekperimen1	27.665	8.454	1.890	14.634	19	.000
Pair 2	Pre- Post-Test Ekperimen2	23.030	10.231	2.181	10.558	21	.000
Pair 3	Pre- Post-Test Control	12.063	6.540	1.427	8.453	20	.000

4.1 Implementation of the Control Class of Discovery Learning Methods at Karangsari 3 Karangtengah Demak State Elementary School

Based on the output of Pair 1 on the paired samples test, it can be concluded that there is a difference in the average student achievement for the pre-test experimental class 1 and the post-test experimental class 1. This is based on the Sig value. (2-tailed) obtained is 0.000 <0.05, or t-count 14.634 >t-table 2.10982. Thus, it can be concluded that there is an influence of the discovery learning model on learning achievement in science learning materials for class V elementary school Karangsari 3 Karangtengah Demak. The large influence of the discovery learning model on science learning achievement in class V material for breathing at Karangsari 3 Karangtengah Demak state elementary school is 27.665.

The conclusion from the discussion above is that the effective discovery learning model can be used in learning for science learning achievement for fifth graders at Karangsari 3 Karangtengah, Demak State Elementary School.

The results of this study align with the results of Rosa et al. (2021) study that the discovery learning model is quite effective in increasing student activity, participation and achievement at the elementary school level. Likewise, Herlanti et al. (2017) research explains that the discovery learning model tries to direct the analysis of students' thinking critically and analytically so that it has an impact on involvement in learning. In the end, learning achievement also increases as understanding increases.

This is in line with the theory (Hosnan, 2016) that discovery learning is a model for developing active student learning by finding themselves and investigating themselves; then, the results obtained will be loyal and long-lasting in memory and will not be easily forgotten by students. By learning discovery, children can also learn to think analytically and try to solve the problems they are facing on their own.

In addition, discovery learning is a cognitive learning method that requires teachers to be more creative in creating situations that can make students actively learn to find their knowledge. Hidayati (2016) suggest that students learn through active involvement with concepts and principles that can add experience and lead to experimental activities.

So, the discovery learning model is a method used by teachers in learning by hoping that students are involved in investigating a relationship, collecting data, and using it to find the law or principle that applies to the incident.

4.2 Implementation of Experiment Class 2 Think Talk Write Learning Method at Karangsari 1 Karangtengah, Demak State Elementary School

Based on the Pair 2 output on the paired samples test, it can be concluded that there is a difference in the average student learning outcomes for the pre-test experimental class 2 and post-test experimental class 2. This is based on the value of Sig. (2-tailed) obtained is 0.000 <0.05 or t-count 10.558 >t-table 2.09302, then. Thus, it can be concluded that there is an effect of the Think Talk Write learning model on learning achievement in science learning material for class V elementary school Karangsari 1 Karangtengah Demak. The large influence of the Think Talks Write learning model on learning achievement in science learning materials for class V elementary school Karangsari 1 Karangtengah Demak is 23.030.

Based on the discussion above, it can be concluded that the think-talk write learning model is quite adequate. It can be used in science learning and can improve the learning achievement of fifth-grade students in Karangsari 1 Karangtengah Demak State Elementary School.

The results of this study are in line with several other studies from Riski & Rizal (2017), the results of his research show that the think talk write learning model is quite adequate. It can be used in science learning and improve learning achievement in heat and transfer materials. Likewise, Angriani et al. (2016) that the think-talk write learning model is sufficient to encourage active student involvement so that students automatically want and follow the learning process, which in turn can improve their learning achievement.

The results of this study prove that the Think Talk Write learning model as a model that can increase student participation is in line with DePorter's theory (2013) that the Think Talk Write model in learning practices where students are given the opportunity for students to start learning by understanding the problem first, then actively involved in group discussions, and finally wrote in his language the learning outcomes he obtained.

According to Deporter (2013), Think Talk Write is learning where students are allowed to start learning by understanding the problem first, then being actively involved in group discussions and finally writing in their language the learning outcomes they get.

Similarly, according to Siswanto & Ariani (2016) that the existence of interpersonal relationship skills in the form of social skills in the form of tolerance, being polite to friends, criticising other people's ideas correctly, daring to defend thoughts logically, and other skills that are useful for establishing relationships between individuals.

4.3 Differences in the Effectiveness of Discovery Learning and Think Talk Write Learning Models on Science Learning Achievements of Grade V Elementary School Students

The average value of the pretest results of the experimental class 1 discovery learning model is 63.33, and the standard deviation is 6667. In the posttest experimental class 1, the mean value is 91.00, and the standard deviation is 5.833. The mean value of the pretest experimental class 2 of the think talk write learning model is 61.21, and the Deviation standard is 8.640, in the post-test experimental class 2, the mean value is 84.24 and the Deviation standard is 8.618. The control class has a mean value of 63.81 on the pretest, a standard deviation of 7,767 and a mean value of the posttest control class of 75.87 and a standard deviation of 6.490.

In the experimental class 1, the learning outcomes using the discovery learning model in class V Karangsari 3 State Elementary School Karangtengah Demak, the average score is 74,985, the standard deviation is 16,59774, during Std. The error means is 3.71137, and the range (range of values) is 60.01, with the lowest value of 39.99, the highest value of 100, and the median value of 77.4963.

Table 2: Recapitulation of Gain Index Values for Experiment 1 and Experiment 2

No	Category	Experiment 1		Experiment 2	
		Student	%	Student	%
1	Tall	14	70	6	27.3
2	Currently	6	30	13	59.1
3	Low	0	0	3	13.6
Amount		**20**	**100%**	**22**	**100%**

The results of the calculation on the Gain Index of learning achievement of experimental class 1 students are known that the increase in learning outcomes of students in the experimental class 1, which is included in the high category, is 14 students or 70%, which is included in the category of increasing medium learning achievement as many as 6 students or 30%, and which is included in the category of experiencing an increase in low learning outcomes as much as 0 students or 0.0%.

Then based on descriptive statistics, it is known that in experimental class 2, the learning outcomes using the Think Talk Write learning model in class V Karangsari 1 Karangtengah Demak State Elementary School, the average score is 59.2193, the standard deviation is 23,89655, during Std. the error of the mean is 5.09476 range (range of values) 80.02, with the lowest value of 19.98, the highest value of 100, and the median (median) of 61.2518.

Based on descriptive statistics, it is known that in the control class learning outcomes using the lecture learning model (conventional) in class V Karangsari 2 Karangtengah Demak State Elementary School, the average score is 32.5264, the standard deviation is 13.99687, while Std. The mean error is 3,05437, the range is 45.71, with the lowest value being 14.29, the highest value being 60.01, and the median value being 28.5837.

The influence of the discovery learning model on science learning achievement in class V Karangsari 3 Karangtengah Demak Elementary School is 27,665, and the influence of the Think Talk Write learning model on science learning achievement in class V Karangsari 1 Karangtengah Demak State Elementary School is 23.030.

Based on the explanation of the data above, it can be seen that there are differences in science learning achievement between class V students who are taught using discovery learning and Think Talk Write in elementary schools, it is known that the value of the experimental class 1 using the discovery learning model with a value of 27.665 is more excellent than Experiment 2 uses the Think Talk Write model with a value of 23,030. Also supported by the results of the post-test experiment 1 value of 91.00 and post-test experiment 2 of 84.24. This shows that there is a difference of 6.76.

5. Conclusions and Recommendations

Based on the research results and discussion on the study entitled The Effectiveness of Discovery Learning and Think Talk Write Learning Models on Science Learning Achievement in Class V at the Kumbokarno Cluster Elementary School, Karangtengah District, Demak Regency, the following conclusions and recommendations can be drawn.

There is a difference in the average student achievement for grades with the post-test experimental class 1 learning model of discovery learning. Thus, it can be concluded that there is an influence of the discovery learning model on Science Learning Achievement in Class V Elementary School Karangsari 3, Karangtengah sub-district, Demak Regency.

There is a difference in the average student achievement for the pre-test with the post-test of the experimental class 2 think talk write learning model. Thus, it can be concluded that there is an influence of the think talk write learning model on learning achievement in science class V Elementary School Karangsari 1, Karangtengah sub-district, Demak Regency.

There is a difference in learning achievement in science learning materials for breathing apparatus between class V students who are taught using discovery learning and think talk write in elementary schools. The difference is that the discovery learning model can be used more effectively than the think talk write learning model in science learning for respiratory materials. Class V in Elementary School.

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Conflict of Interest

The authors declare no conflicts of interest.

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