

The Influence of Application of The Discovery Learning Model and Learning Styles on Science Learning Outcomes in Primary School Students

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Abstract: The aim of this research is to determine the effect of implementing the discovery learning model and learning styles on the learning outcomes of fifth grade elementary school students. The research method uses quantitative experimental methods. The research results show that student learning outcomes using the discovery learning model and learning styles with a Mean Square number of 429.577 and a significance value of $0.001 < 0.05$ or (A) less than 0.05 means there is a significant influence, which means H1 is accepted. Learning style has a significant influence with a Mean Square of 414,502.817 and a significance value of 0.01, which is smaller than 0.05, meaning it is significant. On the other hand, if we look at the interaction between the model and student learning styles, they can be correlated so that there is an interaction effect using discovery learning and learning styles on student learning outcomes with a Mean Square value of 301.517 with a significance value of 0.01, which is smaller than 0.05

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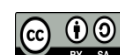
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Introduction

In life, education plays a very active role in the progress of humanity. It is clear that education is an activity to communicate with each other regarding knowledge that is known and understood in order to broaden the foundation and increase knowledge in life. Opinions (Abd Rahman BP1; Sabhayati Asri and Munandar Andi Fitriani (2022) explain that the educational foundation applied in life is useful for improving the life system so that it is more orderly and based on the religion one adheres to.

Nowadays, education is very advanced, one of which is in the field of information technology. Information technology in education is very necessary to increase insight and find out the latest information from abroad. The use of technology in education makes it easier for teachers to convey material and increase students' understanding by using media or study materials that use technology in their learning (Gunarti et al., 2022). In accordance with the objectives of national education as explained by Kholis, N. (2014), national education aims to develop every potential contained in each individual student with the aim of

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becoming a human being who has faith in God Almighty, behaves in a noble, healthy, knowledgeable, capable, creative, independent and become a democratic and responsible society in all assigned tasks.

In order for national education goals to be achieved optimally, it is very necessary for an educator to master technology and use relevant learning models in learning to achieve learning goals. However, in reality there are many teachers whose learning lacks management of learning, lacks preparation in the learning process, so that learning in the classroom is less focused and less organized so that a lot of time in the learning process is wasted. One of these problems occurs in elementary school science subjects, these problems include internal factors and external factors. According to Syah (2004), internal factors experienced by students include; attitude when studying, things that motivate him in concentration, studying, ability to process reading material, ability to store learning results, ability to analyze any deficiencies in learning results, self-confidence, learning habits and desire to achieve goals. This internal factor becomes a problem if the action is serious so it will result in something that is not good either. External factors can have an influence; namely the teacher. The teacher is a facilitator and supervision is a tool of change, so teachers in solving problems is a good learning process so that students are able to learn and actualize themselves. The results of a study conducted by the PISA institution in 2018 released by the OECD showed that Indonesia had a score in reading with an average score of 371, with an OECD average score of 487. Then for the average score in mathematics with an average score -an average of 379 with an OECD average score of 487. Furthermore, for science, the average score of students in Indonesia reached 389 with an average score in the OECD of 489.

From the problems above, the problems can be identified as follows: Learning tends to be passive. In the teaching and learning process, students are not encouraged to be active, meaning that when participating in learning, many students just watch and stay silent, do nothing and only pay attention to the teacher's lecture regarding the learning material, resulting in less interesting and boring learning for students and resulting in a level of understanding. students' basic material and concepts do not meet the KKM and this has an impact on students' low learning outcomes. (1) Many students lack self-confidence, especially when given the opportunity to ask questions about material or explanations that they don't understand, and if students make mistakes, students will tend to give up, then they are afraid of making mistakes so that students convey suggestions or opinions as well as most students. students imitate the answers of their friends who they consider proficient when asked the same question. (2) Teachers still spend a lot of time outside the classroom during the learning process (3) Teachers still do not pay enough attention to children's learning styles. (4) The quality of learning is low, resulting in less effective learning processes. both due to students' interests, educators' abilities and the availability of school infrastructure. (5) Students' interest and motivation is low, because students' learning styles are different from one student to another, but educators force them to learn not according to students' abilities, teachers regulate students' understanding. This means that the performance of educators is quite low in providing motivation and encouragement to students, plus inadequate infrastructure can be the cause of less effective learning. This problem can be overcome by using the discovery learning model and learning styles, the discovery learning model is a learning process that involves students to organize, develop knowledge and skills in problem solving, so that by applying the discovery learning model it can improve students' discovery

abilities to become more active and creative. . So that teachers can change the learning system which was originally teacher-centred to become student-oriented. The use of the discovery learning model is said to be able to overcome the above problems. This can also be proven by research conducted by Artawan et al., (2020) dan Rahmayani, (2019) which states that the use of the discovery learning model has an influence on learning styles and student learning outcomes in terms of science lessons in elementary school. Meanwhile, students' learning style is how they react using the stimuli they receive in the Nasution learning process (Sofyan, H.2018: 79). So, in the above study, researchers were interested in conducting research with the title "The influence of the application of discovery learning models and learning styles on science learning outcomes in elementary school students."

Research Method

The design in this research is a 2x3 factorial type of quantitative experimental research, this design is where two or more independent variables are manipulated simultaneously to investigate their effect on the dependent variable. The population in this study was class V students at SDN 1 Kuta, and the research sample was VA SDN 1 Kuta, with a sampling technique using purposive sampling. Data collection techniques using question instruments, Creating a learning style instrument grid and validated by expert jugsman and data collection techniques according to the type of instrument used, namely observation, interviews and tests, Questionnaire: is to collect primary data from students about learning styles, Documentation: is for collecting primary data on semester exam results. Data analysis techniques include validating learning outcomes tests, test reliability tests and learning style instruments, homogeneity tests, hypothesis tests and statistical tests.

Result and Discussion

a. Student learning outcomes

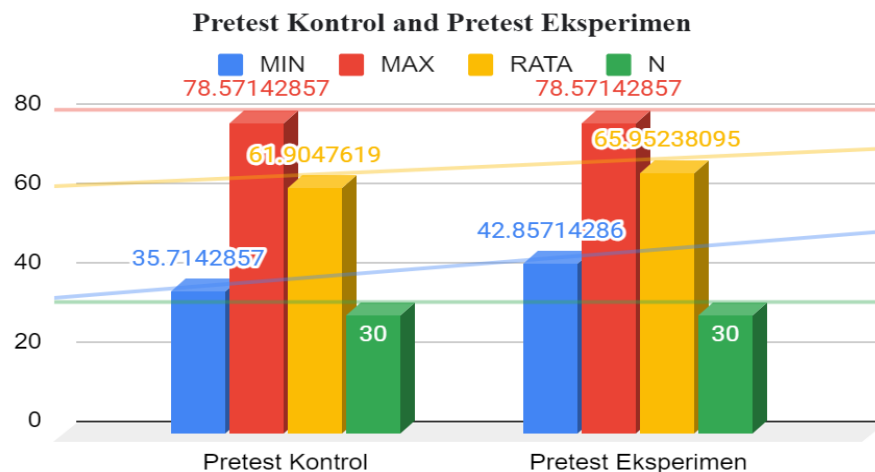
Initial ability (pretest) is a test given to students in both experimental and control classes before being given treatment or before the material is taught. This initial ability data is the score obtained by each student on the pretest. This pretest was carried out to determine the initial abilities of students in the experimental and control classes so that it could support that the research subjects taken had homogeneous characteristics. The following describes the initial ability test data for both groups. The capabilities of the experimental and control classes are presented in the following table.

Tabel 1. Hasil Belajar Siswa (Pretest)

	Min	Max	Average	N
Pretest Kontrol	35.7142857	78.57142857	61.9047619	30
Pretest Eksperimen	42.85714286	78.57142857	65.95238095	30

Based on table 1 above, it can be seen that the initial ability results of students in the experimental class pretest had an average score of 65.95, while for the control class the average score was 61.90. Based on the pretest data presented above, it can be seen that the average pretest score for the experimental class higher than the control class. However, the difference in the pretest results was not very significant. Based on these results, it can be

concluded that the initial abilities of the control class and experimental class are homogeneous. The pretest ability results are presented in graph 1.



Grafik 1. Student Pretest Results

Student's final abilities

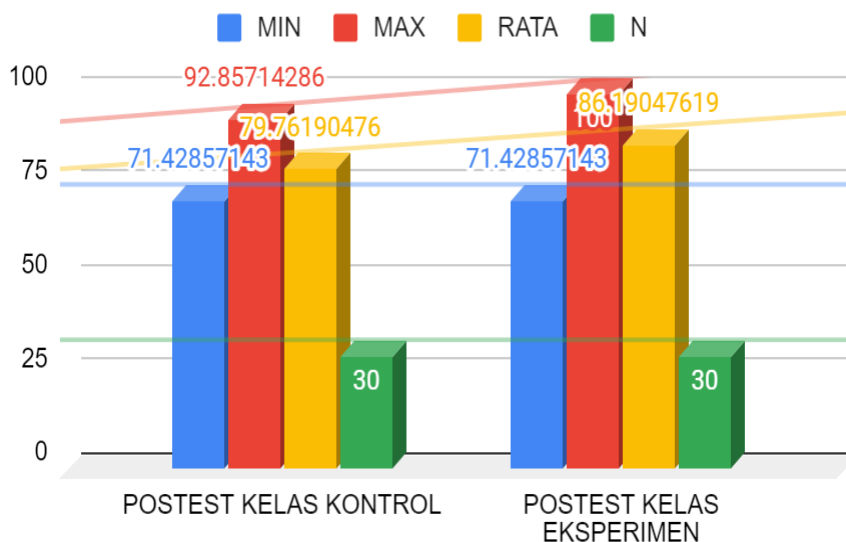
The final ability (posttest) is a test given to students in both experimental and control classes after being given treatment or after the material is given. This student's final ability data is the score obtained by each student in the post-test. This data aims to determine the final abilities of control and experimental class students. Apart from that, the aim is also to determine the distribution of the sample based on the scores obtained. The following describes test data on student learning outcomes after treatment for the experimental class and control class.

Tabel 2. Student Learning Outcomes (Posttest)

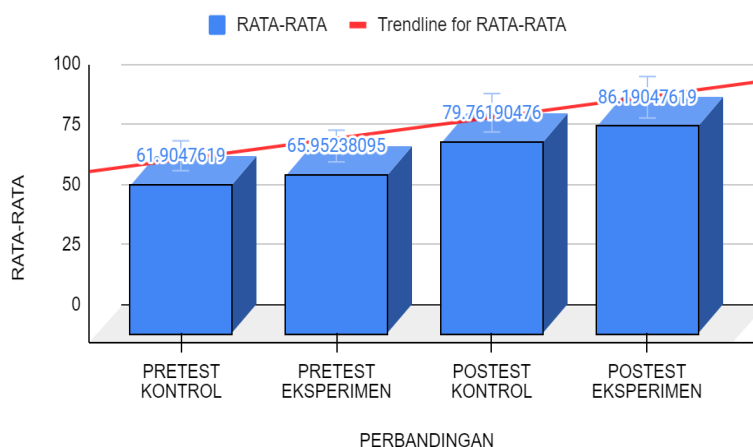
	Min	Max	Average	N
Postes kontrol	64.28571429	92.85714286	79.76190476	30
Postes eksperimen	71.42857143	100	86.19047619	30

Based on table 2 above, it can be seen that the final ability results of students in the experimental class have an average value of student learning outcomes obtained by the experimental class group of 86.20, while for the control class the average value is 79.80.

Based on the student learning test results data in table 2, it can be seen that the average final score for the control class is lower than the experimental class, so it can be said that the final abilities of the experimental class and the control class are different. This was caused by the use of different learning models between the two classes, both the experimental class and the control class experienced an increase. The experimental class experienced a higher average score increase. This happens because of the teaching and learning process carried out in the classroom. The posttest student learning outcomes are presented in graph 2.



Grafik 2. Posttest Student Learning Results



Grafik 3. Difference in Average Pretest and Posttest for Each Class

a. Student Learning Style Questionnaire Results

The results of the student learning style questionnaire were used to determine the learning styles of students in the experimental class and control class.

Tabel 3. table of student learning style questionnaire results

No	Learning styles	Total
1	Visual learning style	10
2	Auditory learning style	10
3	Kinesthetic learning style	10

Dari data diatas dapat dijelaskan bahwa terdapat 10 orang yang memiliki gaya belajar visual, dan 10 orang dengan gaya belajar auditori, serta terdapat 10 orang dengan gaya belajar kinestetik.

Conclusion

Based on the results of research and discussion regarding the influence of discovery learning models and learning styles on student learning outcomes, it can be concluded as follows: 1) There are differences in the learning outcomes of students who are taught the learning outcomes of students who are taught using the discovery learning learning model and conventional learning. The rationalization is that it can be seen from the results of the pretest and posttest that there is an increase, then we can see the results of data analysis. So, the way the model is used can have an influence on students' final results, and discovery learning has more advantages on a regular basis compared to conventional learning, meaning that if this discovery learning model is applied by following good and structured procedures, it is guaranteed that there will be maximum results, and it is guaranteed to be successful. There is a significant difference in learning outcomes between discovery learning and conventional models. 2) There is an influence of learning interactions using the discovers learning learning model and the rationalization learning style can be seen from the results of data analysis which has been proven by results and real work. Therefore, student learning styles are also taken into account in the classroom learning process. This means that the combination of existing models and student learning styles determines the student's final results. Without looking at the student's learning style, we will not be able to see the student's final results objectively, in other words, the student's final results cannot be good or good if we don't look at how the student learns. It could be that some students don't listen to the teacher's explanation or their friends' explanations because they don't like their way of learning, so students can be grouped based on their learning abilities and their own way of learning. 3) For students who are taught using the discovery learning model and the learning style is higher than the conventional model, the rationalization can be seen from the results of data analysis which has been proven by results and real work o the proof is clear that discovery learning and learning style results are high compared to conventional learning. Whereas conventionally only provides material through lectures, it will be seen that students quickly feel bored because the activities carried out by students are monotonous without direct involvement, only hearing and eyes function, whereas there are students who can and can only do so by carrying out the process directly. learning activities. 4) For students who are taught using the discovery learning model and learning styles, student learning outcomes are higher compared to conventional models. The rationalization is that not all of the discovery learning models have maximum results, only a few are not in accordance with their learning style so they have low grades, so the proof is clear that discovery learning with low learning results and low learning style results will be inferior to students who studied in a conventional way means that when compared with conventional. Conventionally, it is only by providing material through lectures, so it will be seen that students who have low scores in their results are because these students do not match the model used by the teacher with the student's learning style. However, only a very few were classified as having low levels of learning outcomes. In the normal classroom arena, only a very small number of students are classified as having low intelligence abilities, the rest are with average abilities. So it is possible that with conventional learning students can get good results, but once again this method is not suitable for most students in a class. The influence of the discovery learning model on visual learning models with an average of 89.30. Meanwhile, the discovery model. learning towards audio learning style has an average of 83.10. Likewise, the discovery

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learning model for the kinesthetic learning style has an average of 86.60. Then for the conventional model with a visual learning style it has an average of 87.40, for the conventional model with an Audio learning style it has an average of 81.10, and for the kinesthetic learning style it has an average of 71.20. So from discovery learning towards Learning styles have an average sum of the three data of 86.33. If we look at the total score for each discovery learning model and the three learning styles, the average is 86.33. and the conventional model has an average number of 79.90. So it can be concluded that the discovery learning model looks higher than conventional learning models. Then, after further testing, this research proved that there was an influence of the discovery learning model and learning styles on science learning outcomes in elementary school students, proven by a sig for learning styles of $0.001 < 0.05$. There is an interaction effect between the discovery learning model and learning styles on science learning outcomes with the sig value of the interaction between the discovery learning model and student learning styles, namely $0.001 \leq 0.05$.

Recommendation

Recommendations I hope that future research can use other learning models and teaching media to improve and improve learning and education in order to produce work that can be developed and used as innovation in change for the better.

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