

THE INFLUENCE OF THE DISCOVERY LEARNING MODEL ON THE LEARNING OUTCOMES OF CLASS VII STUDENTS OF BINTANG LANGKAT JUNIOR HIGH SCHOOL

Dini Puji Anggraini^{1*}, Anis Syafitri², Diah Kesumawati³, Azrina Purba⁴, Haryati⁵, Unita Sukma Zuliani Nasution⁶

^{1,2,3,4,5,6} STKIP Al Maksum - Langkat

*Corresponding Author: diagaraini@gmail.com

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ABSTRAK

Rendahnya hasil belajar siswa merupakan permasalahan yang umum ditemukan dalam proses pembelajaran. Model pembelajaran yang belum bervariasi menjadi salah satu penyebab rendahnya hasil belajar siswa. Penelitian ini bertujuan untuk melihat pengaruh model Discovery Learning terhadap hasil belajar siswa kelas VII SMP Bintang Langkat. Penelitian ini dilaksanakan di SMP Bintang Langkat. Populasi dalam penelitian ini adalah seluruh siswa kelas VII SMP Bintang Langkat. Kelompok sampel dibagi menjadi 2 kelas yaitu kelas kontrol dan kelas eksperimen. Setiap kelas akan diberikan pretest dan posttest. Instrumen yang digunakan adalah instrumen tes pilihan ganda dengan jumlah soal sebanyak 20 soal. Sebelum menguji hipotesis, data diuji normalitas dan homogenitasnya. Dari hasil analisis diketahui bahwa sampel berdistribusi normal dan dikategorikan homogen. Selanjutnya dapat dilakukan uji hipotesis statistik dengan menggunakan uji t. Hasil pengujian hipotesis dengan uji t menunjukkan H₀ ditolak. Jadi dapat diartikan terdapat pengaruh penggunaan model Discovery Learning terhadap hasil belajar siswa SMP Bintang Langkat.

ABSTRACT

Low student learning outcomes are a common problem found in the learning process. Learning models that are not yet varied are one of the causes of low student learning outcomes. This research aims to see the effect of the discovery learning model on the learning outcomes of class VII students at Bintang Langkat Junior High School. This research was carried out at Bintang Langkat Junior High School. The population in this study were all class VII students at Bintang Langkat Junior High School. The sample group was divided into 2 classes, namely the control class and the experimental class. Each class will be given a pretest and posttest. The instrument used was a multiplechoice test instrument with 20 questions. Before testing the hypothesis, the data was tested for normality and homogeneity. From the analysis results it was found that the samples were normally distributed and categorized as homogeneous. Next, a statistical hypothesis test can be carried out using the t test. The results of hypothesis testing with the t test show that H₀ is rejected. So it can be interpreted that there is an influence of the use of the discovery learning model on the learning outcomes of Bintang Langkat Junior High School students.

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INTRODUCTION

Education is one of the most important things in human life, because through education it will create people who are potential, creative and have brilliant ideas as provisions for obtaining a better future (Fitriyah, 2017). Education is an important factor in creating quality human resources to develop a nation. One way to obtain education can be done at school through learning activities.

Learning is a process of teaching and learning activities that plays a role in determining student learning success. The success of learning objectives at school is determined by many factors, including the teacher's factors in implementing the learning process in the classroom. From the learning process there will be a reciprocal activity between the teacher and students in achieving better goals. The teacher's ability to manage learning can take the form of determining the learning model used during the teaching and learning process. The learning model used by teachers in implementing classroom learning aims to ensure that all students' potential can develop so that learning objectives can be achieved. Teachers must be able to choose appropriately learning models that are relevant to the material being studied.

Regulation of the Minister of Education and Culture of the Republic of Indonesia No. 65 of 2013 concerning basic and secondary education process standards in chapter II states that to strengthen the scientific approach in a subject, research-based learning needs to be implemented. Then in chapter IV it is explained again that the core activities use learning models, learning methods, learning media and learning resources that are adapted to the characteristics of students and subjects.

Natural Sciences subjects are subjects where the delivery of material must use effective, creative and innovative learning models in the classroom. This learning can be packaged with an appropriate learning model to convey the concept. The natural sciences learning process is more student-oriented. Students are required to be able to discover the concepts of the material being studied, which is generally done through practical activities.

Not all teachers deliver material in Natural Sciences subjects using appropriate learning models. It is still found that material is delivered using conventional learning models. Conventional learning can be defined as an attitude and way of thinking and acting that always adheres to the norms and customs that have existed for generations (Hidayatullah, 2015). Previous research conducted by Zaini & Marsigit (2014) and Ruhullessin, Ratumanan, & Tamalene (2019) regarding learning with a conventional approach

stated that learning with a conventional approach was not effective on student learning outcomes.

Based on the results of observations and interviews with class VII students at Bintang Langkat Junior High School, learning activities have been carried out quite well. Teachers give students assignments in groups so that learning involves discussion activities, but students rely more on textbooks and do not explore much from other sources. Students more often study natural science material using the lecture method, by listening to the teacher's explanations in class. This causes student activity in class to decrease (Anggraini, 2023).

The effort to overcome this problem is to improve the learning process through the application of the discovery learning model. The discovery learning model is a learning model that can make students more active and fun so that students are enthusiastic to ask questions, pay attention to the teacher's explanations and students are able to find concepts from what the teacher conveys. This learning model is applied in groups. Lieung (2019) explains that the discovery model is a way of presenting that involves students in mental processes in their discovery of material, so that it can facilitate students in observing, digesting, understanding, classifying, making guesses, explaining, measuring and making conclusions. in an effort to understand material.

According to Darmawan and Dinn (2018) discovery learning is a learning process that is able to assign roles to students so that they are better able to solve existing problems according to the material they are studying and in accordance with the learning framework presented by the teacher. Furthermore, according to Ana (2019) discovery learning is a learning model that can help students assimilate a concept or principle.

Discovery learning model has the advantage of fostering a sense of enjoyment in students because of the growing sense of joy in searching which of course is always successful, causing students to direct their own learning activities by involving their own minds and motivation during the learning process in class. The discovery learning model helps students strengthen their self-concept to gain confidence in working together with their friends, students will understand basic concepts and ideas better in each lesson they take part in and encourages students to always think and work hard on their own initiative. (Eka Fitri, 2018).

The application of the discovery learning model to the learning process is expected to improve student learning outcomes. Bloom stated that learning outcomes are the abilities that

students have after receiving learning experiences which include cognitive/knowledge, affective/attitude, and psychomotor/skill aspects (Sudjana, 2012). Through the discovery learning model applied by teachers in the classroom, it is hoped that students will gain learning experiences that are in accordance with the learning objectives.

METHOD

This research was carried out at Bintang Langkat Junior High School. This type of research is quasi-experimental, namely research that aims to determine the effects of something imposed on the subject, namely students. The population in this study were all class VII students at Bintang Langkat Junior High School. Sampling was carried out using a cluster random class method where each class (random class) had the same opportunity to become a sample in the research. The sample was divided into two classes, namely one experimental class taught using the discovery learning model and one control class taught using conventional learning.

Experimental classes are taught by applying the syntax (stages) of the discovery learning model. According to Rizal, et al. in (Dari & Ahmad, 2020) states that the steps for discovery learning are (1) Providing stimulation (Stimulation), (2) Identification of the problem (Problem statement), (3) Data collection (Data collection), (4) Processing data (Data processing), (5) Proof (Verification), (6) Drawing conclusions (Generalization). Meanwhile, the control class was taught using conventional learning by the teacher at the school.

Data collection techniques were carried out using research instruments, namely learning outcomes tests. Before being given to students, researchers carried out content validity analysis and test item analysis of the learning outcomes instruments. The prerequisite data analysis used is the normality test, homogeneity test, and the final test used is the t test.

RESULTS AND DISCUSSION

In this research, the assessment instrument used was a test. The test prepared consists of 25 multiple choice questions. Tests are used to measure students' achievement of learning outcomes in learning Natural Sciences. The test instrument is then analyzed for content validity and test item analysis. Content validity is carried out by giving tests that have been prepared to expert validators, namely lecturers. Content validity is used to see the suitability of the test content that is prepared with the competencies that will be achieved by students in the learning process (Utomo, 2022).

Before conducting research, the research instrument is first analyzed to see the values of validity, reliability, distinguishing power and level of difficulty. An instrument needs to be analyzed to ensure that the test items used in the research have been proven to be good for measuring student learning outcomes (Ida & Musyarofah, 2021). Analysis of test items is carried out classically with the help of the Excel computing application. To analyze each item, the test items were first tested on class IX students at Bintang Langkat Junior High School. The results obtained were then analyzed with the help of a computing application, namely Excel. The results of the validity test analysis obtained 20 valid questions and 5 invalid questions. Validity results can be seen from Table 1.

Table 1. Validity Test Results

Question number	Number of Questions	Validity
1, 2, 3, 4, 5, 6, 8, 9, 11, 12, 13, 14, 16, 17, 18, 19, 20, 22, 23, 24	20 questions	Valid
7, 10, 15, 21, 25	5 questions	Invalid

Next, a reliability analysis was carried out by comparing the Cronbach Alpha values. Reliability testing functions to see the consistency of test items in measuring student learning outcomes (Alhakim, et al., 2021). Test items are categorized as reliable by looking at the calculated r value $> r$ table. The test analysis results show that all tests are categorized as reliable. Then the item difficulty level was obtained as 8 questions in the easy category, 11 questions in the medium category, and 6 questions in the difficult category. The results of the difficulty level analysis can be seen in Table 2.

Table 2. Difficulty Level Test Results

Question number	Number of Questions	Difficulty Level
1, 6, 7, 12, 19, 20, 21, 24	8 questions	easy
2, 3, 4, 13, 14, 15, 16, 17, 22, 23, 25	11 questions	medium
5, 8, 9, 10, 11, 18	6 questions	difficult

Then the results of the discriminating power analysis can be seen in Table 3. Discriminating power is carried out to see whether the test items are able to differentiate students with high abilities or students with low abilities (Magdalena, et al., 2021). Differentiating power is seen from the differentiating power index. From the results of the

analysis, there were 14 questions in the quite good category and 9 questions in the good category.

Table 3. Differentiating Power Test Results

Question number	Number of Questions	Distinguishing Power
1, 9, 11, 12, 15, 21, 22, 23, 24	9 questions	Good
2, 3, 4, 5, 6, 7, 8, 10, 13, 14, 16, 17, 18, 19, 20, 25	14 questions	Good Enough

After the assessment instrument meets the criteria for good question quality, the instrument is then used to collect research data in the control class and experimental class. The pretest results in the control class and experimental class can be seen in Table 4.

Table 4. Pretest results in the control class and experimental class

Data	Pretest	
	Control	Experiment
Max	75	75
Min	25	25
Mean	50,89	51,33
Me	50,00	50,00
Mo	50	50
SD	14,4	14,5

The control class and experimental class were then given treatment. Each class is given treatment in the form of learning using different models, namely the conventional model and the discovery learning model. After being given treatment, students were given posttest questions. Posttest results in the control class and experimental class can be seen in Table 5.

Table 5. Posttest results in the control class and experimental class

Data	Posttest	
	Control	Experimen
Max	100	100
Min	37,5	50
Mean	72,4	80,6
Me	75,00	81,25
Mo	75	87,5
SD	17,8	15,7

Next, an analysis of the prerequisites is carried out before testing the hypothesis. Prerequisite tests are normality and homogeneity tests. The normality test is an analysis technique to determine whether data is normally or abnormally distributed (Usmadi, 2020). The Lilliefors analysis technique

was chosen to determine the normality of the data in this study. If $L \text{ count} < L \text{ table}$ then the data distribution is categorized as normal. Based on the results of normality test calculations on the learning outcomes of students taught using the Discovery Learning model, a calculated L value of 0.133 was obtained with an L table value of 0.161. These results show that $L \text{ count} < L \text{ table}$, so the sample used is normally distributed.

Next is the homogeneity of variance test carried out using the Bartlett test. Homogeneity test results are considered homogeneous if calculated $X^2 < X^2 \text{ table}$. From the calculations, the calculated X^2 value is 4.3251. Meanwhile, the X^2 table value is 7.81. These data show that the sample has homogeneous variance.

The next test, namely hypothesis testing. Hypothesis testing is carried out using the t test. Hypothesis criteria with a significance level of 0.05. If $t \text{ count} > t \text{ table}$ then H_0 is rejected. After testing the hypothesis with the t test, the Sig value was obtained. 0.808 which means it is greater than 0.05. This result indicates that $t \text{ count} > t \text{ table}$ so H_0 is rejected. This means that there is an influence of the discovery learning model on the learning outcomes of class VII students at Bintang Langkat Junior High School.

CONCLUSION

Based on the results of research in the control class and experimental class, the average score for the experimental class was higher than the control class at 80.6 and 72.4. Then the results of the hypothesis test show that there is an influence of the discovery learning model on student learning outcomes. This result is strengthened by the higher average value of the experimental class compared to the control class.

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