

THE DIFFERENCE STUDENT LEARNING OUTCOMES USING DISCOVERY LEARNING AND INQUIRY LEARNING IN ELEMENTARY SCHOOL

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ABSTRACT: *This research adopted the quasi experimental research design which aims to identify the differences student learning outcomes taught with discovery learning and inquiry learning. The research population is all students at SD Negeri 1 Jeumput Aceh, the sample in this research consisted of 2 classes at grade V that are class A and B taken by cluster random sampling technique where class A as discovery learning class which amounted to 27 students and class B as inquiry class which amounted to 28 students. The data collecting instruments were student activity observation sheets and achievement test that first conducted by content validation and empirical validation. The data analysis technique was the two-side quality test, first calculate the normality and homogeneity test of two sample group variants and initial ability tests. Results of data processing obtained data of both classes are normally distributed and homogeneous. The result of research there are significant differences between student learning outcomes taught with discovery learning and inquiry learning in elementary school.*

KEYWORDS: Discovery Learning, Inquiry, Learning Outcomes

INTRODUCTION

Every nation in the world recognizes that education is a right of all children. Education has been regarded as a human right which should be owned and enjoyed freely by all the children. As stated in the Universal Declaration of Human Rights 1948 Article 26 (1) states that:

“Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit”

Through education, human trying to develop itself to be able to faces any changes that occur due to advances in technology and science. Therefore, education issues need attention and serious handling concerning the various issues relating to quantity, quality, and relevanced.

Low education in indonesian can be seen from the low student learning outcomes in various subjects. One of the subjects that has low grades but favored students is social science. This fact is in accordance with the preliminary study results of researchers when conducting field ebbservations at SD Negeri 1 Jeumput Aceh obtained data on learning outcomes in general is still low and has not reached the minimum mastery criteria (KKM) that is 75.

On the other hand many social science teachers in carrying out daily tasks often face problems regarding the low ability of students in applying the concept of social science. This evident from the number of student errors in working on questions and low values that students get both in the daily test or semester exam. This happens because of many factors such as methods and strategies used by teachers in teaching.

Based on the results of observations of researchers during the learning at SD Negeri 1 Jeumput Aceh, many students are less cooperative with each other so as to affect the results of learning in classical. From teachers' observation and experiences, the low ability of students to apply and understand the subject of social science caused by: 1) the assumption that social science is a difficult, because the number of memorization so that students are less motivated to learn. 2) teachers have not found an interesting and fun atmosphere in learning. Therefore, teachers should be able to create an atmosphere of learning that involves mental-physical-social students to observe and explain while arguing and other reasoning.

There are many things that cause the low learning outcomes, one of which is the learning process that is not in favor of the students. In learning students only as listeners and teachers are more dominant (teacher centered). The dominance of teacher in learning makes students wait more for the teacher's presentation than to find out knowledge, skills and attitudes for themselves that they needed. Consequently, students can only memorize without understanding what they learned and just record what the teacher says without seeking the truth of the concept itself. Another thing that causes low learning outcomes that is, the use of learning model is still less than optimal in teaching and learning process. Lack of interaction between teachers and students consequently students do not have too many opportunities to express what is in their minds. The mastery of the low basic concepts in understanding the material of social science will allow a false understanding of the concept and the subsequent effect on the learning outcomes of the students.

Various efforts have been done by teacher in overcoming the problem, such as conducting discussions and frequently asked questions in the classroom and help students who have difficulty in learning social science. But the effort has not been able to stimulate students to be active, because students who answer teacher questions tend to be dominated by only a few students, while the other students just listen and record the information submitted by his friend. Another attempt by the teacher is to carry out the discussion. However, not all problems can be solved by group discussion. This condition encourages teacher to be more creative in using the learning model to make the learning process more active and creative.

Innovative and creative learning can foster the spirit of learning and strengthen students' memory of the subject being studied. The efforts of teacher to achieve learning objectives include choosing the appropriate learning model of the subject so as to create a conducive learning. Joyce, et al. (2009) said that a learning model is a design that may be employed to design the curriculum, to make learning materials, and also to lead any learning activities welleither in or out of the classroom. Meanwhile Eggen & Kauchack (2009) suggested that learning model is a learning perspective designed to attain certain learning objectives.

Form some existing learning models, there is no learning model is considered better among other models. Each model has certain characteristics with all the advantages and disadvantages of each. A model may be good for a particular purpose, subject or situation and particular condition. As well as a model considered good for a subject be taught by a particular teacher, sometimes necessarily not succesfully be taught by other teachers.

LITERATURE

Minister of Education and Culture of Republic of Indonesia 2014 regulation number 103 about learning in primary and secondary education mentioned that the implementation of the curriculum 2013 it is advisable to use scientific approach with inquiry based learning, discovery learning, project based learning dan problem based learning (Permendikbud 2014: 648)

Then on the learning process of strengthening characteristics include; a) using a scientific approach through observing, asking, trying, reasoning, communicating with regard to students characteristics, b) using science as the driving force of learning for all subject, c) guide students to find out, not to be told (discovery learning), and d) emphasize the ability to speak as a means of communication, the carrier of knowledge and logical thinking, systematic and creative (Permendikbud 2014: 13).

Depart from the background is clear that in the learning process students are required to find out, not to be told so that the relevant model is discovery learning. The discovery learning model is one that gives opportunities to the students to find any information without help from the teacher (Saab et al., 2005; Hosnan, 2014). This model is known as a guided discovery method, where students are guided to discover a solution of a problem (Klahr & Nigam, 2004). Discovery learning is proven to improve the quality of learning compared to conventional methods, and learners can improve their knowledge during the learning process (Martins & Oyebanji, 2000; Bajah & Asim, 2002).

The using of discovery learning wants to change the passive learning conditions to be active and creative, which is teacher oriented to be student oriented, and changing the expository (student only receive information from teacher) to be discovery (student find information itself) (Eko, 2015). So do Illahi (2012: 33-34) states that discovery strategy is one way that allows students to be directly involved in teaching and learning activities, so that with his mental ability to find a concept or theory.

Discovery learning is a type of learning where learners construct their own knowledge by experimenting with a domain, and inferring rules from the results of these experiments. The basic idea of this kind of learning is that because learners can design their own experiments in the domain and infer the rules of the domain themselves they are actually constructing their knowledge. Because of these constructive activities, it is assumed they will understand the domain at a higher level than when the necessary information is just presented by a teacher or an expository learning environment (Van Joolingan, 1998).

Other than that, the discovery learning could make learning more meaningful for the students to understand the material being studied with the capability and the relevant information that he/she has (Mayer, 2003).

Through this model, students discover something they learn by themselves. It does not mean that what is found in the learning activities is really new, but they, because of their own efforts, may discover a solution to a problem they face in learning (Krischner, et. al, 2006; Hosnan, 2014). This discovery method is a component of the education implementation as heuristic learning, namely a learning model consisting of methods designed to make processoriented students being active: leading by them, finding by them, and making their own reflections during their learning activities.

Learning activities using discovery method (discovery) is actually similar to inquiry (inquiry). Inquiry is the process of answering questions and solving problems based on facts and observations, while discovery is finding concepts through a series of data or information obtained through observation or experimentation. The inquiry process emphasizes the intellectual (mental) development of the child. According to Piaget intellectual development (mental) is influenced by 4 factors, namely maturation (maturity), physical experience, social experience, and equilibration (Hamdani: 2011: 182).

METHODOLOGY

This research adopted the quasi experimental research design which aims to identify the differences in student learning outcomes taught with discovery learning and inquiry learning.

The research population is all students at SD Negeri 1 Jeumput Aceh, the sample in this research consisted of 2 classes at grade V that are class A and B taken by cluster random sampling technique where class A as discovery learning class which amounted to 27 students and class B as inquiry class which amounted to 28 students. The research design was as follows:

Tabel 1. Quasi experimental research

Variable x, y Group	Pre-test	Independent Variable (Treatment)	Post-test	Dependent Variable (Learning Outcomes)
Discovery learning class	CD	XDiscovery	CD	XDiscovery
Inquiry class	CI	XInquiry	CI	XInquiry

The data collecting instruments were student activity observation sheets and achievement test that first conducted by content validation and empirical validation. The data analysis technique was the two-side quality test, first calculate the normality and homogeneity test of two sample group variants and initial ability tests. The data should be normal and homogeneous.

If the research data is normally distributed and homogeneous, then to test the hypothesis using t-test with the formula (Sudjana 2005:239) that is:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where S is the composite variance calculated by the formula:

$$S^2 = \frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}$$

RESULTS

This research is a quasi experimental research. Involves two classes given different treatment, before applied the treatment, first two classes are given pretest which aims to know the ability of the beginning of student learning in each class. Furthermore, after being given treatment, both classes were given post test to find out student learning outcomes after learning. In more detail, pretest grade data can be represented in the bar chart as follows:

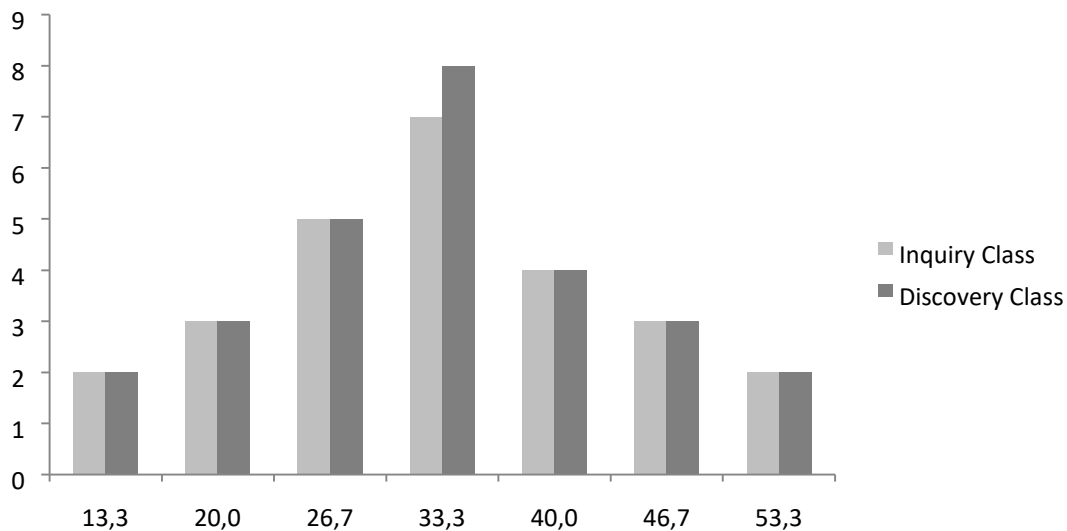


Figure 1. Discovery class and inquiry class pretest bar chart

After applying discovery learning model in discovery class, it is found that the average value of post test of discovery class is 71,8 with standard deviation 11,7 while in inquiry class applied inquiry learning model obtained average value is 61,18 with standard deviation 15,29. Comparison of post test values between the two classes can be seen in the following bar chart image:

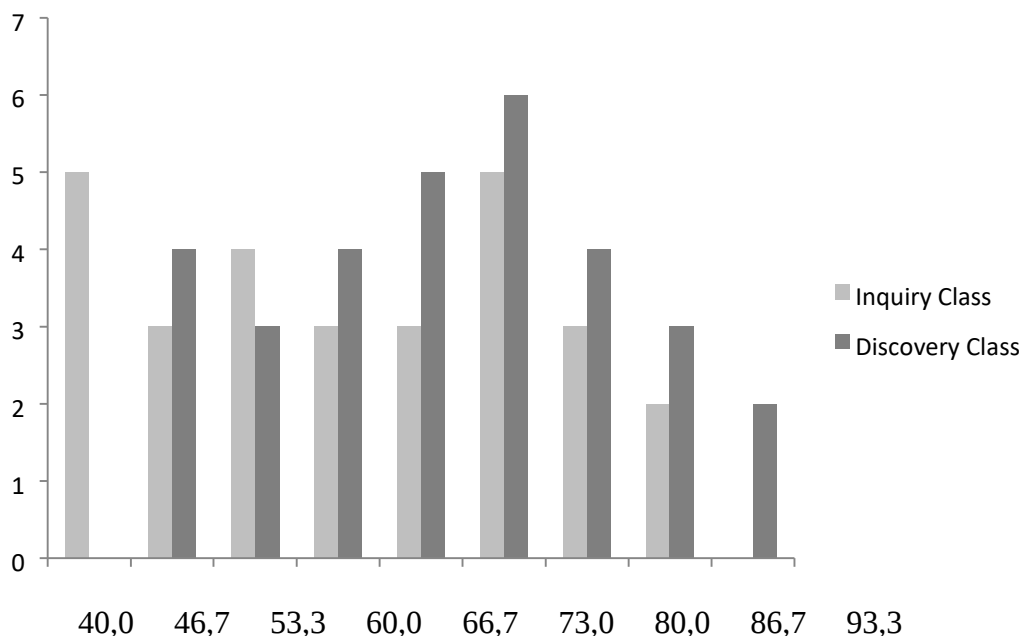


Figure 2. Discovery class and inquiry class posttest bar chart

To observe student learning activities during learning. Observation is done by an observer. This teaching-learning activity is conducted three times that observed by observer. The types of activities observed in the class are: (1) conducting an experiment (2) conducting discussions (3) listening/hearing (4) answering questions. Aspects of activity observation were scored 1 to 5 based on observation scores of student activity. The bar chart from both class student activity is described as follows:

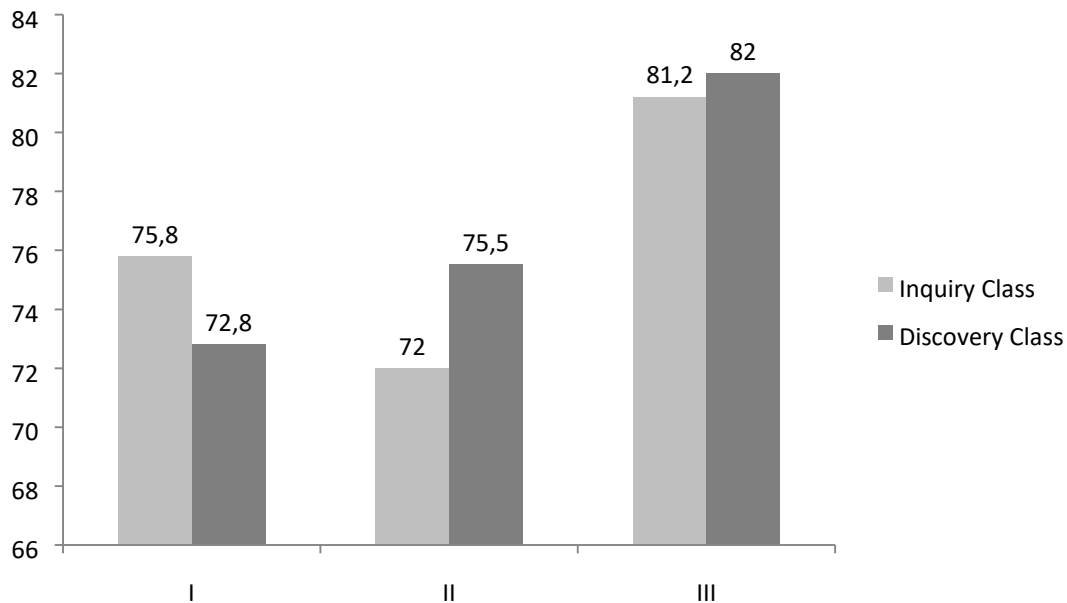


Figure 3. Student activity bar chart

The result of observation based on the students' assessment sheet by the researcher after given the learning obtained the average value on the performance appraisal is 72,76 in good category, on the duty performance appraisal sheets got the average value equal to 78,09 in good category, and on the discussion score sheet obtained an average value to 74,3 in good category. In addition to instrument assessment skills researchers also observed/assessed attitudes of discovery and inquiry class students. In the affective appraisal students obtained an average score of 74,1 in good category. In accordance with the results obtained it can be concluded that during the learning process, students have good cognitive, affective, and psychomotor aspects.

DISCUSSION

At the beginning of the study each class is given a pre test that aims to determine students' early abilities in social science. From the pretest result the students in the inquiry class got the result with the average of 31,9 and the discovery class with the average of 33,1. The average pretest for both classes has not exceeded the KKM limit which is 75.

Then the pretest result data is performed by normality test using liliefors test. The test results showed that the pretest value of both groups of sample which is discovery class $0,1587 < 0,161$ and inquiry class $0,1307 < 0,161$ or $L_{\text{Count}} < L_{\text{Table}}$ at significant level 0,05. Thus it is proven that the pretest data of both groups of samples is normally distributed.

Homogeneity test of research data aims to find out whether the two samples come from a homogeneous population or not. Based on the calculation of pretest homogeneity test results obtained value $F_{\text{Count}} = 0,8871$ and $F_{\text{Table}} = 1,893$ at a significant level $\alpha = 0,05$. Because $F_{\text{Count}} < F_{\text{Table}}$ then the pretest data of both homogeneous samples means that the data obtained can represent the entire population.

Discovery class and inquiry class are given the same treatment. Then after the two classes are treated, each class is given post test. From the post test data of both classes, the average post test for discovery class was 71,8 with the standard deviation of 11,7 and the average value of the inquiry class post test of 61,18 with the standard deviation of 15,29. From the average calculations obtained on the discovery class post test have crossed the limit of KKM 75 but the inquiry class has not exceeded the KKM limit.

Test analysis after homogeneity test is a two-side quality t test. The criterion of t test

($t_{\text{Count}} > t_{\text{Table}}$) is obtained $t_{\text{Count}} = 2,99$ and $t_{\text{Table}} = 1,673$ because the data post test both classes in accordance with the criterion t test ($t_{\text{Count}} > t_{\text{Table}}$) it can be concluded there is a significant difference between discovery learning model and Inquiry learning model to student learning outcomes.

In addition to data analysis, the researchers also observed the activity and observed the students' cognitive, affective, and psychomotor aspects. With the stages contained in the learning taught with discovery learning and inquiry learning model, student activity continues to increase in each meeting, from meetings I, II, and III in the discovery class. The average value of the students' activity obtained by the discovery class is 76,76 and in the inquiry class the students' average score is 76,33. Likewise on the assessment of cognitive, affective, and psychomotor aspects of students, obtained an average score above 70 that is on the cognitive aspect obtained an average value of 78,09, the affective aspect obtained an average value of 74,1 and the psychomotor aspects obtained an average score of 72,76, so this indicates that these aspects are in good category.

In this study there are still some students who get low score, this is due to time constraints in discussing the exercise that causes there are still a small number of students who are less active in learning. To overcome this the researcher must really take the time by paying attention and supervise the students during the learning process and doing the exercises, the students who look less attention to the learning guided to take an active role, for example in doing the exercise problem.

The difficulties and obstacles encountered when the researcher while doing research is less conducive learning atmosphere because the school position is very close to the highway so that when delivering the material must be in a loud voice, the narrow classroom causes inconvenience in learning. But this condition can be minimized with the creativity of a teacher in doing the teaching and learning process.

CONCLUSION

Based on the results of research concluded that there is a significant difference between discovery learning model with inquiry learning model on student learning outcomes in social science lessons

Based on existing data can be said that discovery learning model is better than inquiry learning model of student learning outcomes on social science lessons in grade V at SD Negeri 1 Jeumput Aceh.

RECOMMENDATIONS

Based on the results of research and conclusion above, then as follow up from this research some things as follows:

- 1) Teachers can vary discovery learning model and inquiry learning model in delivering social science
- 2) Classroom conditions are noisy during the learning process, it can reduce the effectiveness in learning so that the next researcher is expected to set the good communication between teachers with students and between students and students, especially during the learning process.
- 3) To the next researcher is expected to communicate better with observer about condition of student.

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