THE INFLUENCE OF DISCOVERY LEARNING METHOD AND MOTIVATION TO RESULT OF STUDENT LEARNING MATHEMATICS

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ABSTRACT

The purpose of this research is to know (1) Influence of discovery learning method to student learning result of mathematics, (2) Influence of motivation to result of student learning of mathematics, (3) Interaction between discovery learning method with motivation learn in influencing student learning result of mathematics. The population of this research is the students of class V State Elementary School 18 of Banda Aceh. The sample in this study was chosen by purposive sampling class as much as two classes. The experimental class is treated by discovery learning method and control class is treated with expository learning method. Instrument used consists of test results of mathematics learning in the form of a description of 10 questions that have been declared valid and reliable. Data analysis was performed using two-way ANAVA. From the results of this study obtained the average learning outcomes taught discovery learning method that is 81.23 while the average learning outcomes taught expository learning method that is 73.35. So it can be concluded that the results of learning mathematics students taught by discovery learning methods higher than students taught by Expository learning method, the results of learning mathematics students who have higher learning motivation higher than students who have low learning motivation and there is interaction between learning methods and Motivation to learn the result of learning mathematics of student in influencing student learning result of mathematics.

Keyword: *Discovery, Learning Motivation, and Mathematics Learning Outcomes*

Introduction

Education is a form of human change. In the Dictionary of Psychology in Sagala (2005: 3) states that education means the stages of institutional activities such as schools and madrasas that are used to perfect the development of individuals in mastering knowledge, habits, attitudes and so forth. One of the containers in receiving education through the school where implemented a series of planned and organized activities, including activities in the context of teaching and learning process in class. This activity aims to produce positive changes toward maturity, insofar as these changes can be cultivated through learning.

Education makes an important contribution to the progress of a nation. The progress of a nation is demonstrated by the quality of the people in that nation. Through proper education will improve the

quality of human beings for the better. Education through schools is expected to shape students into competent individuals in the future. The school environment as a formal environment has several levels namely the level of primary education, secondary education, and higher education. Each level is interconnected and continuous to provide supplies to students in the future. The knowledge given each level also support each other. Each level of education provides a different science but are related to each other.

Mathematics is one of the sciences taught in formal education. Mathematics honed critical thinking skills, logical, and systematic that are important to students because it is useful for life. Therefore, the need for quality mathematics learning. Evidence of mathematics learning success can be seen in student learning outcomes. Based on observations made in class V State Elementary School 18 of Banda Aceh, that learning mathematics still tends to listen and do the exercises in the book, the teacher tends to use the lecture method so that learners are just spectators only, and carry out activities if there is an order Or input from the teacher.

Other findings from these observations, that still get a lot of students' mathematics learning results are still relatively low. The average score of student learning outcomes obtained is still below the KKM score of 60-45. While the Minimum Exhaustiveness Criteria Score (KKM) that has been set at State Elementary School 18 of Banda Aceh is 65. One of the causes of this is the method of learning that is not appropriate that applied by teachers in the process of learning mathematics. So that students difficult to understand the material and solve the problem about mathematics learning materials

To overcome this phenomenon the teacher has done remedial but just re-test without preceded by the ability of teachers in managing quality learning. Besides the ability of teachers who lack the classroom management, other factors that affect student learning outcomes is the level of learning motivation which is an internal factor of students. The fact shows that student motivation in SDN 18 Banda Aceh is still low. Students who have motivation in learning, will be able to think logically and can be motivated in learning activities. Motivated students will try to cultivate their curiosity, one of them by asking questions to the teacher by asking questions to the teacher by attributing them to their daily lives and besides the highly motivated students are more active in the learning process. Therefore, teachers should strive to further develop student motivation, especially in generating a drive to learn. Motivation to learn is very important for the development and achievement of student learning because it has a big influence on the totality of one's personality.

In order to achieve the expected learning objectives required an appropriate method of learning so that students can understand the material being studied and in the end can improve student achievement. One of the teaching methods that has an active and creative student learning method is the discovery method.

This discovery learning method requires students to find more solving problems of math through scientific steps. Learning method with discovery is one method that teaches students from a view that learners have the basic ability to develop optimally according to their ability. According to Suryosubroto (2009: 178) that "Discovery method is a component of educational practice that includes teaching methods that promote active learning, process-oriented, self-directed, self-seeking, and relative". Discovery learning prepares students to carry out their own experiments, ask their own questions, find answers themselves and draw conclusions based on observations that have been made with teacher guidance that ultimately can improve students' learning motivation and make learning more meaningful, so that learning is done by self-discovery, self-investigation , It will be durable in students' memory.

According to sund (in Roestiyah, 2008: 20) "Saying discovery is mental where students are able to assimilate a concept or principle. What is meant by mental processes include: Observing, digesting, understanding, classifying, making guesses, explaining, measuring, making conclusions and so forth. Using discovery method is one way of teaching that involves students in the process of mental activity through the exchange of opinions, with discussions, seminars, self-reading and self-test, so that children can learn alone.

Review of Theory

1. Learning

Learning comes from the word learning is the process of becoming a human whose sental role lies in the student that is while studying. In the learning process, contained two activities at once, namely teaching activities (teachers) and learning activities (students). According to Hamalik (2010: 57) "said that learning is a combination that is composed of human elements, materials, facilities, equipment, and procedures that affect each other to achieve learning objectives.

Another opinion expressed by Hamalik (2010: 61) "learning to teach students using the principle of education and learning theory is the main determinant of educational success". Learning is a two-way communication process, teaching is done by the teacher as an educator, while learning is done by students or students. The concept of learning according to Corey (in Hamalik, 2010: 61) is a process whereby a person's environment is deliberately managed to enable him to participate in certain behaviors in specific conditions or generate responses to specific situations, learning is a special subset of education.

From the above definition it can be stated that learning is a conscious effort of a teacher to teach students to achieve the expected goals.

2. Results of Mathematics Learning

Learning outcomes are the scores or scores obtained by the students through the test before and after the learning process. The results obtained by the students certainly differ from one to another. This is due to the ability of the students, to get good learning outcomes influenced by many factors, such as interest, motivation, activity, environment, models, methods, strategies, techniques, and others.

Sudjana (2010: 22) states that learning outcomes are the abilities that students have after receiving their learning experience. Howard Kingsley in Sudjana (2010: 22) divides learning outcomes into three types: (a) skills and habits, (b) knowledge and understanding, (c) attitudes and aspirations. Each type of learning outcome can be filled with material that has been established in the curriculum.

According Purwanto (2009: 34) learning outcomes is a change in student behavior due to learning. The change is sought in the process of teaching and learning to achieve educational goals.

3. Discovery Learning Method

According to sund (in Roestiyah, 2008: 20) "Saying discovery is mental where students are able to assimilate a concept or principle. What is meant by mental processes include: Observing, digesting, understanding, classifying, making guesses, explaining, measuring, making conclusions and so forth. Using discovery method is one way of teaching that involves students in the process of mental activity through the exchange of opinions, with discussions, seminars, self-reading and self-test, so that children can learn alone. The method of discovery is often called the discovery method. The method of discovery according to Suryosubroto (2009: 178) is defined as a teaching procedure that emphasizes teaching, individual, object manipulation and others, before it comes to generalization. Meanwhile, according to Sund (in Suryosubroto,

2009: 179) that: "Discovery is a mental process in which students assimilate a concept or something principle. The mental processes such as observing, classifying, making allegations, explaining, measuring, making conclusions, and so on.

4. Motivation

Sardiman (2009: 75) said that 'Motivation to learn is a non-intellectual psychic factor that has a very distinctive role that is in order to cultivate the passion, feel happy and the spirit to learn'. Purwanto (2010: 73) says, "in general the purpose of motivation is to move or arouse a person to arise desire and willingness to do something so as to obtain results or achieve certain goals".

Method

The study was conducted at SDN 18 Banda Aceh. This research uses experimental method with experimental Quasi design with 2x 2 factorial design. The dependent variable is mathematics learning result, active free variable that is discovery learning method and moderator free variable that is learning motivation.

Table 1. Experiment design

Method Motivation	*Discovery* (A1)	Expository(A2)
High Motivation (B1)	A1B1	A2B1
Low Motivation (B2)	A1B2	A2B2

Data analysis techniques used in this study consists of two parts, namely descriptive data analysis and inverential data analysis. According to Sugiyono (2013: 207) the purpose of descriptive statistics is to describe or describe the object of the object through the data or population as it is, without doing the analysis and make conclusions that apply to the public. While inferential data analysis is used to test the research hypothesis. Inferential statistics aims to test the research hypothesis, where the inferential technique used is a two-lane variance analysis technique with a significant level of 0.05. Before this technique is used it is necessary to test the requirements. The test requirements are normality test using liliefors test (Sudjana, 2002: 466) and homogeneity test using F test, and Barlett test (Sudjana, 2002: 261).

Result and Discussion

1. Effect of Learning Method on Student Mathematics Learning Outcomes

Tests conducted on the statistical hypothesis formulated as follows:

H_0 : $\mu A_1 = \mu A_2$

H_a : $\mu A_1 \neq \mu A_2$

The hypothesis statement is:

H_0 = no influence of discovery learning method to student learning result of mathematics.

H_a = there is influence of discovery learning method to student learning result of mathematics.

Based on the results of data calculations can be seen that students who taught by using discovery learning method obtained an average value of 81.23, while the results of learning mathematics students who were taught by expository learning method obtained an average score of 73.35.

The result of variance analysis for both learning methods shows that the Fh price of 22.6 is greater than the Ft value of 4.03 at the significant level α = 0.05 so that H_0 is rejected. Thus, it can be concluded

that the group of students taught using discovery learning method obtained higher mathematics learning outcomes than the group of students taught by the expository method of validated learning.

2. The Effect of Learning Motivation on Student Mathematics Learning Outcomes

Testing statistical hypotheses tested are:

H_0 : $\mu B_1 = \mu A_2$

H_a : $\mu B_1 \neq \mu A_2$

The hypothesis statement is:

H_0 = no influence of learning motivation on student learning result of mathematics.

H_a = there is influence of learning motivation to student learning result of mathematics.

Based on the results of data calculations can be seen that the results of learning mathematics students with high learning motivation obtained an average score of 83.4 while the results of learning mathematics students with low learning motivation to obtain an average value of 67.5.

The result of variance analysis for both learning motivation shows that the price of Fh is 12,8 bigger than Ft value equal to 4,03 at significant level $\alpha = 0,05$ so H_0 is rejected. Thus, it can be concluded that a group of high motivated students gained higher learning outcomes than low-motivated student groups tested their truth.

Interaction between Learning Method and Learning Motivation to Student Learning Result Testing statistical hypotheses tested are:

H_0 : $A \gtrless B = 0$

H_a : $A \gtrless B \neq 0$

The hypothesis statement is:

H_0 = there is no interaction between learning method with learning motivation toward mathematics learning result of class V student of SDN 18 Banda Aceh (elementary school).

H_a = there is interaction between learning method with motivation learn to result of student mathematics learning of class V SDN 18 Banda Aceh (elementary school).

Based on the results of hypothesis testing above obtained Fh of 9.42 and Ft criticized value of 4.03 at the level of $\alpha = 0.05$. This result indicates that Fh> Ft is 9,42> 4,03 so it can be concluded that there is Ha research hypothesis which read: there is interaction between learning method and motivation learn to result of student's mathematics learning is true, hence H_a accepted and H_0 refused at Level of trust $\alpha = 0,05$.

Conclusion

Based on the formulation, objectives, results and discussion of research the influence of discovery learning method and motivation to result of student learning of mathematics in the class V SDN 18 Banda Aceh (elementary school) previously mentioned, can be concluded as follows:

1. The result of learning mathematics of students taught by discovery learning method is higher than the result of student learning taught by expository method.

2. Results of mathematics learning students who have high motivation higher than the students' learning outcomes that have low motivation.

There is an interaction between learning methods and learning motivation in influencing students' mathematics learning outcomes. Students with high learning motivation will gain higher learning

results if taught by discovery learning method. Similarly, students who have low motivation will obtain higher learning results if taught by discovery learning method.

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