The effectiveness of conventional and inquiry learning methods in improving student learning achievement

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Abstract. The aims of this study are to find out: (1) student learning achievement taught by the Inquiry method, (2) student learning achievement taught by Conventional methods, (3) differences in student learning achievement taught by the Inquiry method and student learning achievement taught by Conventional Method. This research is a quasi-experimental research. The population of this study was all students of class X of the Islamic Senior High School in Kabanjahe, totaling 179 students. The sample of this study was students of class X-2 consisting of 37 students. The instrument in this study was a multiple choice test that was carried out before learning (pre-test) and after learning (post-test). Based on the results of the t test, found that t count > t table (4.924> 1.667), there was a significant difference in students' mathematics learning achievement. Mathematical learning achievement of students using the Inquiry Method is greater than student learning achievement using Conventional methods.

1. Introduction

The development of science and technology has brought a change in almost every aspect of human life, brings people into the area of global competition is getting stronger. One of the effects of changes in the situation seen in the effort to prepare the human resource potential of quality. Therefore, improving the quality of human resource potential should be well planned, focused, intensive, effective and efficient in the development process. In order to develop this potential, people need help and guidance from adults. Help and guidance is what is called education.

Based on the constitution of Republic Indonesia Number 20 of 2003 on the national education system, education is a conscious and deliberate effort to create an atmosphere of learning and the learning process so that learners are actively developing the potential for him to have the spiritual power of religion, self-control, personality, intelligence, noble character, and skills needed him, society, nation and state [1].

Ki Hajar Dewantara argues that education is the effort to provide guidance on all the forces nature that exist in children, so that they are both as individuals and as members of society, can achieve the safety and happiness of life is born and inner as high [2]. Education is a human child process undertaken to prepare the younger generation. Education is also a conscious and deliberate effort to guide the man to develop all capabilities (potential) he has to adulthood.

Math is a subject greatly influenced the development of science and technology. Muhlisrarini and Ali Hamzah said that mathematics is the study of the relationship between the numbers and the
number of operational procedures used in solving problems concerning numbers [3]. Mathematics is also a way or method of logical thinking, language symbols that can be used by all civilized nations. Math is not only able to train numeracy, but also be able to train how to think critically, analyze problems, evaluate and eventually were able to solve a problem. Learning math is not only limited to arithmetic, but the form of logic thinking. Counting can be done with rock tools such as calculators and computers. However,

Mathematics education is a process that helps people to gain the ability or skill in organizing numbers or symbols on a regular basis under the rules and theories that have been clearly defined in order to obtain correct results and can be applied in life. The beauty of mathematics lies in the complexity and puzzles that appear in a mathematical problem, and complacency will appear when the puzzle is done properly.

Based on interviews with one of the study areas of mathematics teachers in Madrasah Aliyah Kabanjahe namely Mr. Syahrial S.Pd, and the calculation of student questionnaire conducted by researchers of the 30 respondents showed that students' interest in learning mathematics is usually dependent on the material being studied. Student interest will be high when dealing with material that is easy to understand and will be lower when the encountered material that is difficult to comprehend. In learning activities only a few students are actively involved and enthusiastic. This shows a lack of attention of students to the field of study of mathematics that have an impact on student learning outcomes. Learning that is teacher-centered is not the only choice in the learning process because it is monotonous. Procurement of interactive discussions held to raise again the spirit of the students in learning activities.

The proper training and understanding of the concept is indispensable in the learning activities. This is because of student learning outcomes are still low. Not infrequently encountered students understand the subject matter only when the learning is ongoing. But when do the test, the results are still unsatisfactory. Many factors affect student learning outcomes among students is the lack of exercise, means, media and interest of the students towards learning mathematics. Procurement of interactive discussions held to raise again the spirit of the students in learning activities. The proper training and understanding of the concept is indispensable in the learning activities. This is because of student learning outcomes are still low. Not infrequently encountered students understand the subject matter only when the learning is ongoing. But when do the test, the results are still unsatisfactory. Many factors affect student learning outcomes among students is the lack of exercise, means, media and interest of the students towards learning mathematics. Not infrequently encountered students understand the subject matter only when the learning is ongoing. But when do the test, the results are still unsatisfactory. Many factors affect student learning outcomes among students is the lack of exercise, means, media and interest of the students towards learning mathematics. Not infrequently encountered students understand the subject matter only when the learning is ongoing. But when do the test, the results are still unsatisfactory. Many factors affect student learning outcomes among students is the lack of exercise, means, media and interest of the students towards learning mathematics. Not infrequently encountered students understand the subject matter only when the learning is ongoing. But when do the test, the results are still unsatisfactory. Many factors affect student learning outcomes among students is the lack of exercise, means, media and interest of the students towards learning mathematics. Not infrequently encountered students understand the subject matter only when the learning is ongoing. But when do the test, the results are still unsatisfactory.

Vienna Sanjaya states that there are several factors that affect the activities of the learning system, including teacher factors, factors of students, facilities, tools and media available, as well as environmental factors [4]. M. Ngalim Purwanto said that learning is influenced by two main factors namely the individual factors that exist in the organism itself and factors outside the individual or who is often called social factors [5]. Among the many factors that affect student learning outcomes one of which is a method of teaching teachers. Appropriate learning methods is crucial to the effectiveness of teaching and learning in the classroom. Various methods can be selected by the teacher to carry out the
learning process with the students more efficiently. Selection of appropriate methods are not hamper students' learning process. Even the failure of students in grasping the substance of science is taught by the teacher.

Based on the issues that have been raised can attempt a solution by trying actions - actions that can change the atmosphere of learning more engaging students in the learning process. One of the methods that can be used is a method of inquiry. Methods of Inquiry is a series of activities that highlight the process of critical thinking, analytical to seek and find their own answer to the problem in question. The thought process is usually done through a question and answer between teachers and students. The inquiry method emphasizes the development of cognitive, affective and psychomotor are balanced, so learning becomes more meaningful way and could lead more active learners in the learning process. By applying the method of inquiry, active and creative students are expected to find their own. Students are able to construct mathematical knowledge based on experience alone. Besides, it gives students rediscover the ideas, encourage the students, realizing and daring use their own learning strategies.

Research on the method of inquiry had been studied by previous researchers that I Wayan Sudia (2012) of the results obtained there are differences in learning outcomes between students who take mathematics learning by using inquiry learning and students following the conventional learning [6]. The study also found that there is an interaction between learning models and numerical skills of students towards mathematics learning outcomes. Research by AD Parjayanti and Wardono (2013) based on the results obtained conclusions and Advance Organizer Inquiry learning is equally effective for mathematical reasoning abilities of students in the geometry of the material [7].

Based on the explanation above, the purpose of this study are: (1) to assess the learning outcomes of students who are taught by the method of inquiry, (2) to assess the learning outcomes that are taught with conventional methods, (3) to determine differences in learning outcomes of students who are taught by method of inquiry and learning outcomes of students who are taught by conventional methods in the teaching material Quadratic Equations and Functions of class X of Islamic Senior High School in Kabanjahe.

2. Research Method
This study is experimental research with the type of research is quasi-experimental (quasi-experimental), for the class used previously formed. In this study, two groups will be compared to learning as a research subject that is group learning and group learning inquiry method with the conventional method. In this study, experiments conducted an experiment on the application of learning and Functions Quadratic Equations using the inquiry method and the conventional method.

The research was conducted in Islamic Senior High School of Kabanjahe, North Sumatra, which was implemented in the second semester. The population in this study were all students of class X Islamic Senior High School of Kabanjahe. The study sample consisted of two classes chosen randomly by cluster random sampling means that sample the research is a randomized groups with consideration of the existing population is divided into classes normally distributed and have the same homogeneity.

This study consisted of two variables: teaching methods consist of Inquiry and conventional training methods as independent variables and student learning outcomes On Teaching Materials Quadratic Equations and Functions of class X Islamic Senior High School of Kabanjahe as the dependent variable. The instruments used in data collection of this study is to test. In the preparation of the test used content validity (content validity) to adjust the test questions by referring to the curriculum SBC teaching materials Quadratic Equations and Functions. Instrument test results are valid, reliable, and has a difficulty level and distinguishing good.

3. Result
This study was first conducted preliminary tests on the class in two classes that have been previously sampled randomly using random cluster sampling technique. Results of preliminary tests on the
experimental class class taught by Inquiry Method 90 obtained the highest score and the lowest value of 55, with an average of 76.35. And the results of initial tests on the control class is the class that is taught by the conventional method obtained the highest score of 90 and the lowest value of 35 with an average of 76.38.

The results of initial tests given to two classes: the experimental class and the control class has an average value that is relatively flat at 76.4. Based on the early stages of data analysis with normality test, homogeneity, and median equality test initial test or test two parties obtained data showing that classes were sampled in the study had a normal distribution and homogeneous variance. This means that the samples come from the same condition or state that have the same knowledge.

The next step after the implementation of the initial tests on a second sample classes that implement different learning methods in both classes of samples where the class X-2 as the experimental class applied learning with inquiry methods and class X-1 as a grade control applied to learning by using conventional methods. To see the development and comparison of mathematics learning outcomes of the two groups of samples with the application of different methods of learning to do a final test.

The results of the final test on the experimental class taught classes with methods of inquiry obtain the highest value and the lowest value 70 95, with an average of 87.3. And the final test results on the control class is the class that was taught by the conventional method obtained the highest score 95 and the lowest value of 50 with an average of 85.4. Through the students' final test results can be seen that the average value of the experimental class is higher than the average value in the control class with a ratio of 87.3: 85.4.

Based on testing hypotheses about equality test average on tests end with one party using T test showed that score $t_{hitung} = 4.924$ so that $4.924 > 1.667$ or $t_{hitung} > t_{0.05}$ then H0 is rejected and Ha accepted.

So it can be concluded that there a significant difference on the results of students' mathematics learning in which mathematics learning outcomes of students in the experimental class (using the inquiry method) is greater than the learning outcomes of students in the control class (using the conventional method).

4. Conclusion

Learning by using the Inquiry method is better than learning by using Conventional methods to be applied to mathematics learning, especially in the Equation and Quadratic Function material. This is understandable because in the learning process with the Inquiry method students are taught to find and use various sources of information and ideas to improve their understanding of a particular problem, topic or issue, in their use this method requires students to be able to, not just answer questions, or get the right answer, but requires students to investigate, explore, search, experiment, search and research. While in the implementation of learning by applying conventional methods, students listen more to the teacher's explanation in front of the class and carry out assignments if the teacher gives exercises to students. This shows that the teacher's dominance in the teaching-learning process is very large while students are passive and only carry out activities through the teacher's deeds.

However, this does not mean that the Inquiry method is the sole determinant of student learning outcomes in solving math problems given by the teacher, but there are other supporting factors that
can influence student learning outcomes, such as student intelligence factors, facilities and student learning infrastructure.

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