

The Effect of Inquiry Method on Geography Learning Result

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Abstract—This study aims to find out information related to learning methods in Geography class X Senior High School 1 Plakat Tinggi. The research method used in this study is an experimental method with a correct experimental design consisting of groups and control groups. Meanwhile, the data list technique used in this research is using the test. Data analysis techniques were conducted through the steps of normality test, homogeneity test and hypothesis test. To test the hypothesis t test analysis is implemented. Based on the results of the study, it is known that the average of student learning outcomes in grade 84.83 and control class 63.6 shows a positive influence. Hypothesis in this research is H_0 rejected and H_a accepted, this means there is a significant effect of inquiry learning methods on student learning outcomes on Geography subject in grade X Senior High School 1 Plakat Tinggi.

Keywords—*methods of inquiry learning, learning outcomes*

I. INTRODUCTION

The dynamic and increasing development of education requires students to master all lessons, especially geography, because it is a science that may support life time and motivate sustainable and better improvement of life; moreover, the geography has more uniqueness than other sciences. Geography has uniqueness because it integrates physical and human aspects of space. Also, it is consistent with what [1] said that: Geography is an integrative discipline that brings together the physical and human dimensions of the world in the study of people, place and environment.

However, in the learning process, geography is a discipline that is known as a lesson that is easily understood and followed by students. It is proven that based on the results of observations conducted by researchers in SMA 1 Plakat Tinggi. This shows that the geographical learning outcomes in class X are still low and insufficient to meet the minimum learning completeness (KBM), where the KBM criteria in this school are 60. This is because the learning process tends to use speech and conventional. method so that

it involves students in playing an active role in the learning process. Therefore, students sometimes feel less enthusiastic to study in class and some of them still believe that geography is a tedious discipline that affects students' learning outcomes that are not achieved optimally yet.

Therefore, the role of a teacher is very important in designing and implementing effective and efficient learning so that learning becomes more effective and can increase students' motivation especially in their learning process. To be able to make students motivated in learning requires a learning method that can involve students actively in the learning process, mentally, physically and socially [2]. Learning methods are a very important component in the learning process. Learning methods are the ways or stages used in interacting between students and teachers to achieve learning targets that are determined consistent with the material and mechanism of the learning method [3]. In regard to the understanding of the method, [4] it is revealed that the learning method is the method used to implement plans that have been arranged in the form of real and practical activities so the students are able to achieve learning objectives. Besides, using learning methods can also make it easier for students to understand the concepts of knowledge and improve students' learning outcomes.

One method of learning that can improve student learning outcomes is to use the inquiry method. [5] said that inquiry based learning (IBL) is a student-centered approach, that emphasizes skills, high-level thinking and can strengthen the relationship between teaching and research so that students can think critically and skillfully in solving a problem. This is similar to what was revealed [6] which states that inquiry based learning is a learning approach that can make students more active in learning and can improve scientific processes that they can use in critical thinking skills through various discussions and other activities. Besides that, the inquiry learning process emphasizes active participation and

responsibility of the students to be able to find new knowledge [7], in the process of discovering new knowledge students often do the learning process independently, both learning inductively and deductively by doing experiments to investigate the relationship between dependent and independent variables [8]. Thus, using the inquiry method is expected to develop active, creative and innovative student attitudes in the learning process, as it provides students with a better learning experience especially for independent learning, both through learning books and the internet. They will form patterns and discover new concepts of knowledge.

Generally, characteristics of inquiry-based learning method are as follows: (1) learning based on new understanding and knowledge of development process, (2) active approach to learning, involving learning by student-centered approach to teach, where teacher's role is to function as a facilitator, (3) moving to independent learning where students take increasing responsibility for their learning [9]. According to [10], steps of investigation methods are as follows: (a) planning, such as, making plan to do investigation. Teacher and students need to decide the learning topics and also select appropriate learning sources or information sources; (b) collection (taking) of information, such as, collecting, selecting and evaluating information. These activities are also included in doing investigation activities to gain necessary information; (c) processing, such as, analysis of information to find correlation and make conclusion; (d) making, such as, management of information, making and improving of product; (e) sharing, such as, communication or exposure of results to relevant public; (f) evaluating, such as, activities to evaluate product and process of done investigation.

II. METHOD

Research methods are a scientific way to get data with specific goals and uses [11]. In connection with the research to be conducted, this study uses an experimental method. The experimental design used is True Experimental Design in the form of Posttest-Only Control Design [12]. In the design there are two groups, in which each of the members is chosen randomly (R). The first group is treated (X) and the other group is not. The group given treatment is called the experimental group and the group that is not treated is called the control class.

The respondents of the study were all students of Class X Social Sciences of State High Schools in Musi Banyuasin Regency. In this study, researchers took a purposive sample. The purposive sampling was carried out by taking subjects, not based on strata, regional, or even a random way, but it is based on specific objectives based on information obtained by the researchers [13]. The research sample was taken from 2 classrooms, namely, Class X Social Sciences 3

as an experimental group with 36 students and Class X Social Sciences 2 as a control group with 36 students. Data were collected by tests and documentation. Whereas, the analysis of the research data was conducted by using: normality test, variance homogeneity test, and hypothesis test t.

III. RESULTS AND DISCUSSION

A. Results

Data were processed by inquiry method and speech method. Each group was treated by applying inquiry method in experimental group and speech method in control group. To measure results of learning of each group, evaluation was conducted by giving test (*posttest*). The goal of the *posttest* was to understand how many materials had been mastered by students after they were given treatment with inquiry method and speech method. Based on the results of the learning, data on Geography *posttest* could be described as follows:

1) Data of experimental group

Results of experimental group *posttest* are described in the following Table:

TABLE I. RESULTS OF EXPERIMENTAL GROUP STUDENTS' LEARNING USING SPEECH METHOD

No	The Value of student	Frequency	Percentage
1	65-70	3	8.33 %
2	71-76	4	11.1 %
3	77-82	10	27.7%
4	83-88	5	13.8%
5	89-94	5	13.8%
6	95-100	9	25.0%
Total		36	100%

Based on the collected data, the lowest value of the experimental group is 65, while the highest value is 100. Values of 77-82 were obtained by 10 students. The students obtaining values of 65-70 were 3 students. Students who obtained values of 71-76 were 4 students. Students who obtained values of 83-88 were 5 students. Students who obtained values of 89-94 were 5 students and students who obtained values of 95-100 were 9 students. The results of study show average value of 84.86, and standard deviation is 9.296.

2) Data of control

The results of the controlled groups' *posttest* are described in the following table.

TABLE II. RESULTS OF CONTROL GROUP STUDENTS' LEARNING USING SPEECH METHOD

No	The Value of student	Frequency	Percentage
1	45-50	5	13.8%
2	51-56	3	8.33%

3	57-62	10	27.7%
4	63-68	5	13.8%
5	69-74	6	16.6%
6	75-80	7	19.4%
Total		36	100%

Based on the collected data, the lowest value of control group is 45 and the highest is 80. The range of the highest is 57 to 62. The details are as follows: Students who obtained values of 45-50 were 5 students; students who obtained values of 51-56 were 3 students; students who obtained values of 63-68 were 5 students; students who obtained values of 69-74 were 6 students, and students who obtained values of 75-80 were 7 students. The study results show the average value of 63.19 and the standard deviation is 9.79.

B. Discussion

Inquiry-based learning is a learning process where students are involved in process of question formulation leading to implementation of investigation in making efforts to develop new sciences and meaningfulness [14]. To develop science concept, we need the following steps, as [15] suggested: (a) orientation, (b) formulation of questions, (c) formulation of hypothesis, (d) collection of data, (e) testing of hypothesis, (f) making of conclusions.

Analysis of data indicated that average value of students' learning results of the experimental group is higher, namely 84.83, than average value of students of control group without treatment getting average value of 63.19. After obtaining data of experimental group and control group students' test results, the researcher analyzed data of the test. The data were analyzed by using t test consisting of data normality test and homogeneity test of variance. Data normality was tested to understand whether it is normal or not for the data distribution, then homogeneity of variance was test to prove similarity of sample group variance. Results of normality test calculation of the experimental group show $K_m = 0.29$, whereas the results of control group show that $K_m = 0.15$ and the price is located between (-1) and (1) as to say that data of experimental group and control group were distributed normally. Results of calculation of homogeneity test of variance show that $X^2_{count} = 1.082$ and $X^2_{table} = 3.841$ and homogenous requirement: $X^2_{count} < X^2_{table}$ ($1.082 < 3.841$). Of the calculation results, it could be concluded that study data deriving from experimental group and control group are homogenous variances.

After testing the normality of data and the variance homogeneity test had been conducted, the data were stated as homogenous normal distribution and variance in this study, so that next step was to test

study hypothesis using parametrical statistic, using t test equation with testing criterion of supporting H_a if $t_{count} > t_{table} (1-\alpha)$ and rejecting H_o if $t_{count} < t_{table} (1-\alpha)$. The results of data analysis using t test show that $t_{count} = 11.48$, and t_{table} with real level of 5% and $dk = 70$ shows that $t_{table} = 1.668$. Thus, in fact, $t_{count} > t_{table} (1-\alpha)$ ($11.48 > 1.668$). So, the hypothesis that "there is a significant effect of inquiry method on geographic learning results" is supported. Based on the results of hypothesis testing, it can be said that the inquiry method is better than conventional methods, similar to the results of research by [16] which states that the inquiry method is very effective to use in the learning process rather than conventional methods. This is because within the learning process through the Inquiry method, students are given more opportunities to build their knowledge concepts by themselves [17]. In addition, applying the inquiry method is expected to motivate students to be more effective in the learning process and improve competencies to solve a problem. This is similar to what [18] says that students who are guided to solve problems with their own thoughts will be more meaningful than learning material that needs memorizing, which is mostly difficult to understand by the students.

Furthermore, [19] said that inquiry-based learning is a learning approach where the students could obtain information and increase skill to think critically through finding and investigating. Success in learning process by applying inquiry method has significant effects because this learning method emphasized on students' activeness to increase their competence to think critically by finding most information possible to solve a problem and, at the same time, improve results of students' learning, especially Geography. Moreover, it is also based on the results of the study by [20], saying that the application of inquiry method of learning could increase results of Geography learning of the students. It is shown by the increasing average in learning values of the students. After implementing the process of learning by using inquiry method, the researcher found advantages and disadvantages of this inquiry method as follows: advantages of inquiry method are: (1) it helps students to think scientifically in solving problems they encounter; (2) it can generate learning motivation of the students; (3) it can develop talent; (4) it can develop individual talent and skill. However, it also has disadvantages such as: (1) it needs regular and mature planning; (2) it takes longer time; (3) process of inquiry would be inhibited, especially if the students had been habituated to learn "nerimo" without questioning, or even criticizing on what was given by teacher.

Based on the results of the study and discussion, it can be concluded that inquiry method is effective to use in the learning process, especially in Geography lesson requiring skill and activeness of students. The

results of test analysis show a significant effect of inquiry method on results of students' learning in Geography of Grade X students of State Senior High School 1 of Plakat Tinggi, shown by t_{count} which is higher, and that t_{table} or $11.48 > 1.668$. Thus, H_0 is rejected and H_a is supported.

After conducting this study, the researcher has some recommendations, especially for further studies. Some of the recommendations are as follows: (1) for students, this study must increase students' learning achievement in a Geography subject; (2) for teachers, this inquiry method can be an alternative to increase students' activities in learning-teaching process so that the competence of students increased. It could also help the teacher to present classroom learning materials more conveniently (3) for schools, this study is supposed to help schools to evaluate learning process that is consistent with the desired goals; (4) for other researchers, this study must give information on a study with same title or topic and it can be a reference to further studies; (5) for the readers, the study about using inquiry method in Geography subject must be increased, because the application of inquiry method in Geography subject can eliminate students' perception that Geography subject is a boring lesson, where the use of inquiry of students' learning will motivate them, especially to increase the results of the learning process.

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