



THE INFLUENCE OF PROJECT-BASED LEARNING MODELS IN GEOGRAPHICAL LEARNING FOLLOWED IN CLASS XI IPS I IN NATIONAL SENIOR HIGH SCHOOL 1 WUNDULAKO.

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Abstract

The purpose of this research is to determine the influence of the project-based learning model in learning geography on the learning results of students in class XI IPS I in senior high school in Wundulako. This type of research is experimental. The sample in this study is students of grade XI Ips I in High School 1 in Wundulako. The results of the application of the learning model project-based learning have an influence on the learning outcomes of students in the geography subjects of students in class XI IPS 1 High School State 1 Wundulako. This is seen from the result of the pretest, which had an average of 65 with a minimum value of 50 and a maximum value of 78, whereas the posttest result was greater with an average value of 80 with a minimal value of 67 and a maximal value of 94. The result of the analysis test the hypothesis that Sig. (2-tailed) $0,000 < sig 0,05$, then H1 is accepted and H0 is rejected means there is an average difference between the learning results pretest and posttest, meaning there is influence of the use of a learning model based on project learning in improving learning results.

Keywords: Project-based learning, learning outcomes

A. Introduction

Education is the process of enhancing, improving, and changing the knowledge, skills, attitudes, and identity of a person or group in an effort to enlighten human life through learning and guidance activities. (Abdul & Chaerul, 2013). Learning is a process to help students learn well. Learning is in fact a process, that is, the process of organizing the environment around students so that it can grow and encourage students to do the learning process. The teaching activities carried out by teachers are very important to train students to think critically and logically and to solve environmental problems. (Samsi Awal & Muchsinatun Siasah Masruri,

2019). Learning is also understood as the process of providing guidance or assistance to the pupil in the learning process. (Aprida & Darwis, 2017).

The learning process in school requires the role of a teacher who will manage learning. A teacher must have adequate skills as a professional teacher. This ability must continue to evolve with rapid technological developments. (Mustari & Rahman, 2014). At least for now, the ability to plan learning is the key to success in the implementation of learning. One of the ways that can be done to improve student activity and understanding of concepts is by applying a project-based learning model.

Project-based learning is one of the learning models that focuses on the use of projects as the core of learning. (Furi, dkk., 2018). Project work is a form of work that involves complex tasks based on highly challenging questions and problems and guides students to plan, solve problems, make decisions, conduct investigative activities, and give students the opportunity to work independently.

Project-based learning has the advantages of improving the motivation of learners to learn, boosting their ability to do important work, improving problem-solving skills, making students more active and successful in solving complex problems, enhancing collaboration, providing learning experiences that involve learners complexly and are designed to develop according to the real world, involving students to learn to take information and demonstrate their knowledge, and making learning an enjoyable atmosphere so that both learners and educators enjoy the learning process (Nurfitriyani, 2016). With these advantages, the use of a project-based learning model should be applied at Wundulako State High School 1.

Based on an initial interview conducted by a researcher with a geography teacher at 1st Wundulako State High School, geography learning on volcanic activity materials uses PowerPoint media with lecture methods, and questions are answered. Based on the initial data received by the researchers from the results of interviews, the teacher stated that the students in Class XI IPS 1 had a total of 26 people, where the score at Criteria Completeness Minimum (75) was 9 and the score below KKM was 17; most of them have low learning results. This is due to the lack of active role of students in learning, so the researchers try to plan a more interesting and innovative learning process for geography by applying the learning model of project-based learning. To find influence on the improvement of student learning outcomes, the researcher feels interested and needs to carry out research by formulating the title of the research "The Influence of the Learning Model of Project-Based Learning in Geographic Learning on the Learning Outcome of Students of Class XI IPS I at State High School 1 Wundulako".

B. Methodology

1. Research Design

One group pre-test and post-test is a research activity that provides initial tests before giving treatment. The use of this research design is tailored to the purpose of determining the level of understanding of students. This design is used because there are pre-tests before the given treatment. Treatment results can be known more accurately because they can be compared to conditions before and after the given treatment (Fitrianingsih, 2015).

2. Population and sample

The population in this study is the total student class XI IPS State High School 1 Wundulako academic year 2022-2023, consisting of three classes with a total population of 97 students. The sample is part of the population that exists in the research area. Samples are part of the quantity and characteristics that a population has (Sugiyono, 2019). This research uses purposive sampling techniques, which are samples taken using certain considerations according to the desired criteria, to be able to determine the number of samples to be examined. (Sugiyono, 2019). The sample in this research is class XI IPS 1, with a total of 26 people as an experimental class.

3. Data Collecting

The data collection technique used in this study uses tests. The test is a form of evaluation tool to measure how far a teaching goal has been achieved. (Kadir, 2015). The number of questions given to students in XI grade IPS I at State High School 1 in Wundulako consists of 20 questions about multiple choice.

4. Teknik Analisis Instrumen

1) Uji Validitas

A validity test is the ability to accurately measure something to be measured. An instrument is said to be valid when the instrument, for a specific purpose and group, measures what should be measured; the degree of accuracy measures it correctly; and the validity is high. (Sugiyono, 2019). Validity testing on a question instrument using a biserial point formula

2) Reliability test

The reliability of an evaluation instrument or tool depends on the determination of the evaluation tool in measuring or the determination of the student in responding to the assessment tool. (Verawati, 2017). The reliability test is calculated using the Kuder-Richardson 20 formula.

3) Difficulty level

A good question or test is a question that is not too easy, in the sense of a question that is too easy that can be answered correctly by the whole student as a test participant. Also, a good question is a matter that isn't too difficult; in the sense that is too difficult, it is an issue that has not been correctly answered by the entire student as an examiner (Novrizal, 2015).

4) Difference

Besides finding the level of difficulty of each issue, it is also necessary to know the differentiator in each matter. (Novrizal, 2015).

5. Data Analysis

1) Descriptive Statistical Analysis

A descriptive analysis is a statistical technique used to analyze data by describing or describing data that has been collected as it is without the intention of drawing conclusions that apply to generalizations (Sugiyono, 2017). In this study, we will describe or describe data from each variable processed to describe or describe relevant research data about the minimum, maximum, mean, and standard deviation values.

2) Inferential Statistical Analysis

Inferential statistics is a statistical technique used to analyze data. Inferential statistical analysis in this section is used to determine whether the application of project-based learning models has an influence on student learning outcomes. There are three stages of inferential statistical analysis: the normality test, the homogeneity test, and the hypothesis test.

a. Normality Test

The normality test aims to determine whether the student's test data is distributed normally or not. The normality test in this study uses the Kolmogorov-Smirnov test through the SPSS 27 for Windows program with a significant 5% rating. (0,05).

b. Homogeneity Test

When it is distributed normally, then the homogeneity test is used. A homogeneity test is a test of the equality of variations of two or more distributions. The calculation of homogeneity is done based on the pre-test and post-test learning results of students in the ex-experiment class. The homogeneity test in this study used the SPSS program with a significant 5% scale (0,05).

c. Hypothesis Test

hipotesis penelitian statistik dalam penelitian ini adalah sebagai berikut:

Jika nilai signifikan < 0.05, maka H_0 ditolak dan H_1 diterima.

Jika nilai signifikan > 0.05, maka H_0 diterima dan H_1 ditolak.

H_0 : Tidak ada perbedaan rata-rata antara hasil belajar pretest dengan posttest yang artinya tidak ada pengaruh penggunaan model pembelajaran project based learning dalam peningkatan hasil belajar.

The statistical research hypothesis in this study is as follows:

If the value is significant (< 0.05), then H_0 is rejected and H_1 is accepted.

If the significance is $> 0,05$, then H_0 is accepted, and H_1 is rejected

H_0 : There is no average difference between the pre-test and post-test learning outcomes, which means there is no influence of the use of the project-based learning model on the improvement of the learning outcome.

H_1 : There is an average difference between the pre-test and post-test learning outcomes, which means there is an influence of the use of project-based learning models on improving the learning outcome.

RESULT AND DISCUSSION

A. Description of Data Instruments

Research conducted at State High School 1 Wundulako aims to determine the influence of the learning model on the project-based learning model through the test of learning outcomes. Before researchers conduct research and treat variables, they test the validity, reliability, difficulty, and differential levels of questions before using them so that the questions used can support the writing of good and quality questions. After the study is completed, the results will be tested for normality, homogeneity, and hypothesis to obtain the results and the average difference between the results before and after the treatment that the researcher did based on the related variables.

1. Validity Test

Based on the validity test calculations, it is known that $r_{hitung} > r_{tabel}$ then the item is valid with $r_{hitung} > r_{tabel} = 0,381$. It's a total of 19 questions, suggesting there's one item about invalidity that's shown at number 5 so that the instrument is eliminated in the research.

Table 1. Result of validity test of multiple choice

No	Validity		Status
	R_{hitung}	R_{tabel}	
1.	0,425	0,381	Valid
2.	0,397		Valid
3.	0,431		Valid
4.	0,644		Valid
5.	0,339	0,381	Invalid
6.	0,403		Valid
7.	0,412		Valid
8.	0,403		Valid
9.	0,393		Valid
10.	0,430	0,381	Valid
11.	0,433		Valid
12.	0,411		Valid
13.	0,412		Valid
14.	0,559		Valid
15.	0,412	0,381	Valid
16.	0,445		Valid
17.	0,395		Valid
18.	0,394		Valid
19.	0,392		Valid
20.	0,438	0,381	Valid

For further testing, the researcher tests other than question number 5. After obtaining a valid question element, this question element will be used in the next test.

2. Reliability Test

The reliability test results for the question were obtained on a sample of 29 students with

a significant grade of 5%, resulting in $r_{table} = 0,381$. Intermediate pressure of the reliability results through Microsoft Excel received a r_{11} of 0.77. So, based on the results of the reliability test, it can be said that the research instrument for each issue is declared reliable according to the high reliability index criteria.

3. Discriminatory Power

Based on the results of the upgraded calculation of the Difficultan question through Microsoft Excel, I obtained question number 12 in the category Very Easy, with this issue number 12 stated cannot be done in the subsequent test, which is the power test of the question.

Table 2. Result of discriminatory power

No	Number of correct answers	TK	Description
1.	22	0,76	Easy
2.	21	0,72	Easy
3.	8	0,28	Difficult
4.	24	0,83	Easy
6.	16	0,55	Intermediate
7.	20	0,69	Intermediate
8.	16	0,55	Intermediate
9.	20	0,69	Intermediate
10.	13	0,45	Intermediate
11.	24	0,83	Easy
12.	25	0,86	Very Easy
13.	13	0,45	Intermediate
14.	19	0,66	Intermediate
15.	20	0,69	Intermediate
16.	22	0,76	Easy
17.	13	0,45	Intermediate
18.	18	0,62	Intermediate
19.	15	0,52	Intermediate
20.	16	0,55	Intermediate

4. Differential Test

Based on the results of the calculation of the difference power test questions through Microsoft Excel, we obtained 16 questions with sufficient categories and 2 questions about good categories. So, the questions tested on numbers 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, and 20 can be used in the test for research, so all the questions that fall in the 4 tests, namely questions 5 and 12, cannot be used for research.

Table 3. Hasil uji daya pembeda soal

No	Differential	Description
1.	0,21	Cukup
2.	0,35	Cukup
3.	0,35	Cukup
4.	0,36	Cukup
6.	0,36	Cukup
7.	0,34	Cukup
8.	0,22	Cukup
9.	0,42	Baik
10.	0,22	Cukup
11.	0,21	Cukup
13.	0,57	Baik
14.	0,43	Baik
15.	0,21	Cukup
16.	0,21	Cukup
17.	0,43	Baik
18.	0,28	Cukup
19.	0,29	Cukup
20.	0,5	Baik

B. Description of Research Data

1. *Pretest dan posttest learning data*

Students of class XI IPS numbered 26; before giving treatment, a pretest was given to know the ability of the early-understanding students. After giving a pretest, students were given treatment using the learning model of project-based learning, which ended with the provision of a posttest. As for the number of pretests and posttests, respectively, as many as 18 questions. The pre-test and post-test values of IPS I class XI are as follows:

Table 4. Result of pretest dan posstest

NO	Name	PRETEST	POSTEST
1.	MA	50	78
2.	SS	50	83
3.	GF	78	94
4.	PW	72	83
5.	AJP	61	67
6.	RW	78	83
7.	DNN	78	83
8.	ACD	67	72
9.	A	67	78
10.	DP	61	89
11.	RF	50	72
12.	SL	67	78
13.	N	61	89
14.	FS	72	83
15.	MRB	50	67
16.	SF	78	83
17.	NW	67	72
18.	R	78	83
19.	STR	61	94
20.	LAN	72	89
21.	N	78	94
22.	M	67	78
23.	MR	50	72
24.	MF	55	72
25.	MS	61	83
26.	SM	61	67

Students' learning outcomes on pre-treatment tests have a minimum score of 50 and a maximum score of 78, with an average of 65, a variance of 100, and a standard deviation value of 10. Students' learning outcomes on post-treating tests have a minimum rating of 67, a maximal score of 94, a median of 80, a variation of 69, and a default deviation of 8.

2. *Data hasil belajar*

Students' learning results on the post-treatment test have a minimum score of 67 and a maximum score of 94, with an average of 80, a variance of 69, and a standard deviation of 8. This means that in the experimental class that was taught using the project-based learning model, it was said that it was successful because, based on the learning results, more students were above the KKM.

C. Analysis of Prerequisite Test

1. *Normality Test*

Based on the calculations through SPSS, the sig value in the pre-treatment test (pretest) is 0.200, whereas the value in the post-treatment test (posttest) is 0.056. Based upon the deduction of the prescribed conclusion, if the sig value is > 0.05 , then it is distributed normally, and if the sig value is < 0.05 , then it is distributed abnormally. Then it can be concluded that the sig values in the pretest and posttest are all normal because of a sig value > 0.05 .

Table 5. Result of normalitas kolmogrov-smirnov

Tests of Normality				
	Tes	Kolmogorov-Smirnov ^a		
		Statistic	Df	Sig.
Result	Pretest	0.134	26	0.200
	Posttest	0.168	26	0.056

2. Uji homogenitas

On the basis of the mean value of the homogeneous test analysis, the sig value is 0.281. Where in the decision-making on the homogenic test, i.e., if sig value > 0.05, then the data is homogenous, and if sig value < 0.05, then the data is non-homogenic. Based on the table, it can be seen that the data with a sig value > 0.05 is the conclusion of the data. Then we can proceed with the hypothesis test.

Tabel 6. hasil uji homogen

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Hasil Belajar	Based on Mean	1.186	1	50	0.281

3. Uji hipotesis

From the data processing results, the learning results are obtained at the value of Signifikan of 0,000, wherein in the decision-making on the hypothesis test, if the value is significant < sig value, then H1 is accepted and H0 is rejected, and if significant > sig value, H1 is refused and Ho is accepted. In the table, it is seen that Sig. (2-tailed) 0,000 < sig. 0.05, then h1 is received and h0 is refused. It can be concluded that there is an average difference between the pre-test and post-test learning outcomes, which means there is an influence of the use of project-based learning models on improving the learning outcome.

Tabel 7. Hasil Uji hipotesis

One group	T	Df	Sig. (2- tailed)
pretest/posstest	-8.117	25	0.000

DISCUSSION

The result of the pre-test is 65 with a minimum score of 50 and a maximum score of 78, and the post-test results are 80 with a minimal score of 67 and a maximal score of 94. Based on the average of the results of the pretest and posttest, it is seen that the result of posttest learning is greater than that of pretest learning, and it is concluded that the outcome of learning with the project-based learning model has an influence on the improvement of the student's learning outcome. Based on the results of the hypothesis test using the paired-sample t-test test formula due to the normal and homogeneous distribution of data, From the above data, it can be seen that the learning results on the Signifikan value are 0.000, wherein in the decision-making on the hypothesis test, if the value is significant < sig grade value, then H1 is accepted and H0 is rejected, and if significant > sig grade, H1 is refused and Ho is accepted. It can be concluded that there is an average difference between the pre-test and post-test learning outcomes, which means there is an influence of the use of project-based learning models on improving the learning outcome. Application of project-based learning models has been shown to have an impact on improving learning outcomes when used in the learning process compared to conventional learning models on geographic subjects, in particular on topics of type and disaster mitigation, as they can add a pleasant learning experience about volcanoes, trigger the student's spirit in learning, and encourage students to create creativity in the learning process. (Nurfitriyani, 2016). Another study supporting this study was conducted by Alvin, dkk. (2021), where the learning model of project-based learning proved to have an influence on improving student learning outcomes and showed the study obtained that the pre-test learning outcome of

the majority of students in the category is inferior and not good, which means there is an improvement in learning output because students can acquire knowledge through practical experience and interpersonal cognitive negotiation in a collaborative working environment. Thus, it can be concluded that the application of the learning model project-based learning has an influence on the learning results of geography disaster mitigation topics for students of class XI IPS 1 High School State 1 Wundulako.

CONCLUSION

Based on the results of the survey that has been carried out, it can be concluded that the application of the learning model project-based learning has an influence on the learning outcomes of students on the geography subjects of students of class XI IPS 1 State High School 1 Wundulako. This is seen from the pretest results with an average score of 65 with a minimum score of 50 and a maximum score of 78, while the posttest results are greater with a mean score of 80 with a minimal score of 67 and a maximal score of 94. The analysis of the test hypothesis that Sig. (2-tailed) $0,000 < sig 0.05$, then H1 accepted and H0 rejected means that there is an average difference between the learning outcomes of the pretest and the posttest, which means there is an influence of the use of the learning model of project-based learning in improving learning outcomes.

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