The Influence of Project-Based Learning with a Science Technology Community Approach on Elementary School Social Studies Learning Outcomes

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Abstract

This study uses a quasi-experimental research methodology with samples in this study, namely class IV, Group A as an experimental class taught with the Project Based Learning Science Technology Society Approach learning model and group B as a control class taught with conventional methods. The results of the study showed that the social studies learning outcomes of students taught with the Project Based Learning learning model (experimental class) were higher than the learning outcomes with conventional methods (control class). The social studies learning outcomes in the control class with the conventional method obtained an average posttest of 68.4 while in the experimental class with the project based learning model obtained an average posttest of 82.4. Based on the results of hypothesis testing in the experimental class, the sig. (2-failed) value was obtained 0.000 <0.05 at a significance level of α = 0.05 means that Ha is accepted and Ho is rejected, which states that the use of the Project based learning model has an effect on improving student learning outcomes in social studies subjects at Sedau 3 Elementary School.

Keywords: *Project Based Learning, Science Technology Society Approach*

INTRODUCTION

Social science is a science that studies a set of events, facts, concepts, and generalizations related to social issues and various social realities in life (Anshori, 2016). Some of the shortcomings in social studies learning include: 1) The assumption that social studies is a "second-class" subject that does not require high abilities and tends to be relaxed in learning; 2) Social science is often considered a major that is difficult to guarantee the future and difficult to get a prestigious job in society; and 3) social studies is a subject that emphasizes memorization of material (Hermansyah, 2022). To solve these problems, it is necessary to apply more creative and enjoyable learning models and approaches that can make students more active in the learning process and can develop their scientific creativity.

The development of students' scientific creativity can be done by giving problems through working on project assignments. The project assignments given are linked to problems and technologies that are easily accessible to students so that they can increase students' motivation to learn and enable contextual learning (Rachmawati, 2018).

The method that is considered suitable for the characteristics of social studies education, the goals and developments of social change that are currently occurring is the Science Technology and Society (STM) Approach in the perspective of social sciences and humanities, basically providing an understanding of the relationship between science, technology (social engineering) and training students' sensitivity to environmental impacts as a result of the development of science and technology. Thus, the important role of technology can function as a means of action and investigation in the Science Technology and Society approach. This Science Technology Society (STM) learning model has an advantage in that it can stimulate students' understanding of concepts (Amilda, 2017).

Science Technology Society (STM) is a learning model that can be used as an alternative in class management in learning (Jayadiningrat, 2022). Almost every aspect of modern society's life today is in direct contact with problems that contain issues of science, technology, and society (Atika, 2018). One of the learning models that can be used by teachers is project-based learning. *(Project Based Learning)*, this learning model is

an innovative learning model that involves project work where students work independently in constructing their learning and culminating it in real products (Fadilah, 2023).

The Project Based Learning approach has become an increasingly embedded educational approach due to its student-centered educational advantages in recent years (Tasci, 2015). The use of this model provides an opportunity for students to explore the material using a way that is meaningful to them and to conduct experiments together. This learning is an in-depth discovery of a real-world topic, which is suitable for social studies learning. Thus, the formulation of the problem to be studied is to test the influence of the project-based learning model with the Science Technology Society approach in class IV of Sedau 3 Public Elementary School.

METHOD

The research conducted is an experimental research type. More precisely, it is a quasi-experiment because not all variables (symptoms that appear) and experimental conditions can be strictly regulated and controlled (Sugiyono, 2018). The location of this research is at Sedau 3 Elementary School which is located in Lebah Suren Village, Sedau Village, Narmada District, West Lombok Regency, West Nusa Tenggara.

The steps of Quasi Experimental Research include: 1) Identifying and defining the problem; 2) Conducting a literature study 3. Formulating a hypothesis based on the results of the study; 4) Formulating a definition of terms or operational definition of variables; 5) Preparing an experimental design that includes identifying relevant variables, identifying non-experimental variables, determining the design, selecting a representative sample for a particular population, treatment, preparing an experimental measurement tool, designing procedures, collecting data, and testing the hypothesis; 6) Conducting the experiment; 7) Analyzing data and conducting a significance test to determine the level of significance of the results; 8) Interpretation of results, formulating conclusions, discussions, and making reports (Added, 2021).

The research design for the Pretest-Posttest Design can be seen in the following table:

Research Design Model Table

Group	Initial test	*Treatment*	Final test
Experiment	Y1	X	Y2
Control	Y1	-	Y2

Information:

Y1= Pretest, students' initial learning outcome scores

Y2= Posttest, to measure students' results after using the model.

X= Treatment, Implementation of Project Based Learning model

Population is a generalization area consisting of: objects or subjects that have certain qualities and characteristics that are applied by researchers to be studied and then conclusions are drawn (auliya, 2020). So, the population is an object and other natural objects, and also includes all the characteristics/properties possessed by the subject/object itself. The population studied by the researcher was all 29 students in grade IV.

A sample is a part of the number and characteristics possessed by a population. If the population is large, researchers cannot possibly study everything in the population. If the sample is not representative, then it will also be different in drawing conclusions depending on where the sample is viewed.

Data collection techniques

The data collection technique used in this study to collect the data needed by the researcher is a test is a tool or procedure used to find out or measure something, in a predetermined manner and rules. In this test, the study uses a test to determine or measure student learning outcomes. The test used is a multiple-choice formative test held at a predetermined time. There are two stages of the test that will be carried out, namely

the pretest and posttest. This is done to find out the initial and final values in class IV of Sedau 3 Elementary School.

Results Analysis

Analysis of learning outcomes is based on student achievement in completing the Posttest or learning outcome scores. The maximum score on the learning outcome test is 90% with the minimum completion criteria (KKM) set. The percentage of completion with the interval of the completion criteria for the results of the student learning outcome test is as follows:

1. Calculate student scores from learning test results.
2. Calculate the number of students who have completed or obtained the minimum score according to the KKM.
3. Calculate the percentage of learning completion (p) as follows:

$$P = \frac{nt \times 100\%}{n}$$

Information:
p = percentage of learning completion
nt = number of students who completed
n = number of students who took the test Next

RESULTS AND DISCUSSION

Data on student learning outcomes before being given treatment, students were first given a pretest of 10 multiple-choice questions to determine the initial abilities of students. From the pretest results, the average value obtained in the experimental class was 57.6 and the average value obtained in the control class was 58.46. In summary, the pretest results of the two classes are presented in the following table:

Summary table of pretest scores for experimental and control classes

No	Statistics	Experimental Class	Control Class
1	Number of Students (N)	25	25
2	Total Value	1440	1460
3	Rate-rate	57,6	58,4
4	Standard Deviation	11,6476	8
5	Variance	135,667	64
6	Maximum Value	80	70
7	Minimum Value	40	40

Based on the summary table of the Pretest values above, it was found that: N is the number of students in the experimental class, namely 29 students, while the number of students in the control class is 25 students. The number of values obtained from the experimental class is 1440, while the number of values obtained from the control class is 1460. Then, the average value obtained from the experimental class is 57.6 and the average value obtained from the control class is 58.4. Then the standard deviation obtained from the experimental class is 11.64 and the control class is 8. Furthermore, the variance obtained from the experimental class is 135.66 and the control class is 64. Then the maximum value obtained by the experimental class is 80 and the minimum value is 40, while the maximum value obtained by the control class is 70 and the minimum value is 40.

Posttest Result Data for Experimental and Control Classes After the development of learning in the classroom was known, there was a group formation for the experimental class. For the experimental class, learning was applied with the Project Based Learning model and for the control class, learning was applied with the conventional method. At the end of the meeting, the researcher gave a final test (Posttest) to students which aimed to determine the development of learning in both classes after learning was carried out with the model that had been applied. In summary, the posttest results for both classes are presented in the following table:

Summary table of posttest scores for experimental and control classes

No	Statistics	Experimental Class	Control Class
1	Number of Students (N)	25	25
2	Total Value	2060	1710
3	Rate-rate	82,4	68,4
4	Standard Deviation	8,3066	6,879

5	Variance	69	47,333
6	Maximum Value	100	80
7	Minimum Value	70	50

Based on the summary table of posttest scores above, it was found that: N is the number of students in the experimental class, namely 29 students, while the number of students in the control class is 25 students. The number of scores obtained from the experimental class is 2060, while the number of scores obtained from the control class is 1710. Then, the average score obtained from the experimental class is 82.4 and the average score obtained from the control class is 68.4. Then the standard deviation obtained from the experimental class is 8.306 and the control class is 6.879. Furthermore, the variance obtained from the experimental class is 69 and the control class is 47.333. Then the maximum score obtained by the experimental class is 100 and the minimum score is 70, while the maximum score obtained by the control class is 80 and the minimum score is 50.

From the initial and final calculation results above, it can be seen that there is a difference in the average pretest and posttest in the experimental class and the control class. In summary, the average scores of students in both classes can be seen in the following table:

Summary Table of Average Pretest and Posttest Scores

Is	Experimental Class		Control Class	
	Pretest	Posttest	Pretest	Posttest
Total Value	1440	2060	1460	1710
Rate-rate	57,6	82,4	58,4	68,4

Based on the summary table of the average values above, it is explained that in the experimental class, the average value obtained in the pretest was 57.6 and the posttest was 82.4. While the control class obtained an average value in the pretest was 58.4 and the posttest was 68.4.

Discussion

This research was conducted in Class IV of Sedau 3rd State Elementary School involving two classes, namely the experimental class and the control class. In the experimental class, treatment was given using the Project Based Learning model and, in the control, class using the conventional learning model.

Before being given different treatments to the two classes, the two classes were given a pretest first to determine the initial abilities of the students. The average pretest score for the experimental class was 57.6 and for the control class was 58.4. After the initial abilities of the two classes were known, the students were then given learning in different ways but on the same theme, namely on theme 1 subtheme 1 learning 3 with IPS material given learning using the Project Based Learning learning model in the experimental class and conventional methods in the control class.

CONCLUSION

Based on the research that has been conducted in this study, it can be concluded that:

1. Judging from the results obtained by students when learning using project-based learning and conventional methods, they are very different.
2. There is a difference between the experimental class and the control class, namely, in the experimental class the average value is 82.4 and, in the control, class the average value is 68.4. In the experimental class and the control class, the difference in the average value is 14.0 which if calculated in the form of a percentage, it is found that the difference in the average value in the experimental class and the control class is 16.9%, it is known that the value in the experimental class is 16.9% higher than the control class. So, there is an influence on the learning outcomes of social studies students with the project-based learning model in class IV of Sedau 3 Elementary School.

SUGGESTION

Based on the research results obtained, the researcher would like to provide the following suggestions:

1. For class teachers, choose a learning model that is appropriate to the subject matter being taught, in order to support a more active, effective and efficient teaching and learning process.
2. For further research, so that researchers can conduct research on the same material and learning models, so that they can be used as comparative studies in improving the quality and standard of education.

ACKNOWLEDGEMENT

Thanks to:

1. The Rector of the Nusantara Global Education Institute for supporting the implementation of this research both morally and materially.
2. The Principal of Sedau 3 State Elementary School who has supported and permitted the implementation of this research.

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