

The Effect of Project Based Learning on Students' Motivation and Learning Outcomes at SMP Negeri 1 Sape

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Abstract

This study aims to determine the effect of student motivation and learning outcomes by using the Project Based Learning at SMP Negeri 1 Sape. The research method that will be used in this study is a quasi-experimental research with a descriptive quantitative approach. The research design uses the Posttest Only Control Group Design form, the sample to be used in this study consists of two classes, namely the VIIIA experimental class of 25 students and the VIIIB Control Class of 28 students. The types of instruments used in this study are questionnaires and learning outcomes tests. Data analysis in this study used prerequisite tests, namely normality test, homogeneity test. To test the correctness of the hypothesis, the help of statistical analysis of ManovaSPSS v.22.0 was used. Based on hypothesis testing using the SPSS v.22 Manova test, it is known that the value of learning outcomes Sig. 0.081 or 0.081 > 0.05, it can be concluded that $t_{hitung} < t_{tabel}$ then H_0 is accepted and H_a is rejected. Likewise, in the learning motivation hypothesis test there is a sig value. 0.369 or 0.369 > 0.05 which means H_0 is accepted and H_a is rejected. Thus it can be concluded that there is no difference in the effect of motivation and learning outcomes of students taught using the Project Based Learning learning model in the experimental class and students taught using conventional learning in the control class.

Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh motivasi dan hasil belajar siswa dengan menggunakan model pembelajaran Project Based Learning di SMP Negeri 1 Sape. Metode penelitian yang akan digunakan dalam penelitian ini adalah penelitian eksperimen semu (Quasi eksperimen) dengan pendekatan kuantitatif deskriptif. Desain penelitian menggunakan bentuk Posttest Only Control Grup Design, Sampel yang akan digunakan dalam penelitian ini terdiri dari dua kelas, yaitu kelas eksperimen VIIIA sebanyak 25 Orang siswa dan Kelas Kontrol VIIIB sebanyak 28 siswa. Jenis instrumen yang digunakan pada penelitian ini yaitu berupa angket dan tes hasil belajar. Analisis data dalam penelitian ini menggunakan uji prasyarat yaitu uji normalitas, uji homogenitas. Untuk menguji kebenaran hipotesis digunakan bantuan analisis statistik hitungan ManovaSPSS v.22.0. Berdasarkan uji hipotesis dengan menggunakan uji Manova SPSS v.22, diketahui nilai hasil belajar Sig. 0,081 atau 0,081 > 0,05, dapat disimpulkan bahwa $t_{hitung} < t_{tabel}$ maka H_0 diterima dan H_a ditolak. Begitupun pada uji hipotesis motivasi belajar terdapat nilai sig. 0,369 atau 0,369 > 0,05 yang berarti H_0 diterima dan H_a ditolak. Dengan demikian dapat disimpulkan bahwa tidak terdapat perbedaan pengaruh motivasi dan hasil belajar siswa yang diajarkan menggunakan model pembelajaran Project Based Learning pada kelas eksperimen dan siswa yang diajarkan menggunakan pembelajaran konvensional pada kelas kontrol.

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1. INTRODUCTION

Mathematics is one of the subjects taught from elementary school to high school level. Studying it is very important as part of the knowledge that everyone must have in building the nation, improving the quality of human life in the fields of industry, commerce, science and technology, as well as in solving human life problems so that they are highly competitive. Thus, learning mathematics does not only emphasize the cognitive domain (Mutmainah, 2019), but rather the existence of meaningful education for students (Rigusti & Pujiastuti, 2020). According to Silviana et al (2022) Mathematics is a symbolic language that enables accurate and precise communication. So, learning mathematics is the basis of human life in developing all activities that can be applied in everyday life.

Motivation has an important role in encouraging students' enthusiasm for learning so that learning activities can be carried out well so that there is an increase in learning outcomes. (Nurrawi

et. al., 2023). As Keban et al. argue(2018) that someone who learns always involves their own cognitive abilities, as well as other abilities such as: motivation. The same thing was also expressed by Anggraini et al(2023)that one of the factors that determines student success is student motivation in learning. The learning outcomes according to Sari et al(2021)is one of the outputs that can be observed from the learning process. To find out, this can be done by measuring or evaluating(Nur, 2016).

Teachers as educators who determine student success are the most important object, innovating in managing the class with various methods/ways that can have a big influence on student motivation and learning outcomes, one of which is by determining learning methods/models that are effective and meaningful for students. The Project Based Learning (PjBL) learning model is learning that is considered capable of building an interesting learning atmosphere, learning that involves students in project assignment activities in solving mathematical problems. According to Ismail(2018)Project based learning facilitates students to investigate, solve problems, be student centered, and produce real products in the form of project results. In line with Mahendra's opinion(2017)Project based learning is generally related to discussing real problems. According to Ariyanti(2017)argue that mThe project-based learning model also has enormous potential to create a more interesting and meaningful learning experience. Project Based Learning uses projects/activities as media(Setyowati & Mawardi, 2018).

2. RESEARCH METHOD

This type of research is quasi-experimental research (Quasi experimental) with a quantitative approach using two sample groups, namely the experimental group (treatment group) and the control group (comparison group). Posttest Only Control Group Design research design, where the experimental group was given the Project Based Learning model and the control group was given the conventional learning model, and at the end of the learning both groups were given a posttest to determine the learning outcomes of students in each group. The population was 273 students spread across 10 classes of students at SMPN 1 Sape and samples were taken from two classes, namely class VIII A (25 people) as the experimental class and class VIII B (25 people) as the control class. Data collection was carried out using learning outcomes test techniques and distributing learning motivation questionnaires. The analysis test uses the Manova test

3. RESEARCH RESULTS AND DISCUSSION

3.1. Research result

In the results of this research, the analytical data is presented in the form of learning achievement test scores and motivation questionnaire data obtained from students after being given treatment in two classes, namely the experimental class and the control class. Based on the results of data analysis, the test scores for the experimental class and control class learning outcomes are shown in the following table

Table 1. Experimental Class and Control Class Learning Outcome Test Scores

Class	The number of students	Results	Average
Experimental Class	25	2035	81.40
Control Class	25	1886	75.44

Table 1 above shows that the experimental class score for the total number is 2035, with an average of 81.40 in a total of 25 students. Meanwhile, the control class score was 1886, with an average of 75.44 for a total of 25 students.

The results of the Motivation Questionnaire for the Experimental Class and Control Class can be presented in Table 2 below

Table 2. Motivation Questionnaire Values for Experimental Class and Control Class

Class	The number of students	Results	Average
Experimental Class	25	3124	124.96
Control Class	25	3059	122.36

Based on Table 2 above, it shows that the motivation score for the Experimental class is 3124 in total, with an average of 124.96 in a total of 25 students. Meanwhile, the control class score was 3059, with an average of 122.36 for a total of 25 students.

Table 3. Normality Test of Learning Outcomes and Learning Motivation

	Class	Shapiro-Wilk		
		Statistics	df	Sig.
Learning outcomes	Experimental Class	,954	25	,301
	Control Class	,947	25	,211
Motivation	Experimental Class	,886	25	,009
	Control Class	,950	25	,248

Based on the results of the normality test using SPSS v.22 using the Manova formula, it is known that student learning outcomes are normally distributed with a significance value of $x_{count} > 0.05$, while student learning motivation in the experimental class is not normal because the significance value of $x_{count} < 0.05$ but student learning motivation in Control class normally distributed. Then the results of the homogeneity test can be presented in Table 4 below

Table 4. Homogeneity Test Results

	F	df1	df2	Sig.
Learning outcomes	,796	1	25	,377
Motivation	4,076	1	25	,049

Based on the homogeneity test, it is known that the significance value is > 0.05 , so it can be concluded that the sample is homogeneous.

The hypothesis testing uses a test of *Manova SPSS v.22*. The results of the hypothesis test can be shown in Table 5 below.

Table 5. Hypothesis Test Results

Dependent Variable		Sum of Squares	Df	Mean Square	F	Sig.
Learning outcomes	Contrast	444.020	1	444.020	3,172	,081
	Error	6718.160	48	139,962		
Motivation	Contrast	84,500	1	84,500	,823	,369
	Error	4926.720	48	102,640		

Based on hypothesis testing using tests of *Manova SPSS v.22*, the value of learning outcomes is known as Sig. 0.081 or $0,081 > 0.05$, then H_0 is accepted and H_a is rejected. Likewise, in the learning motivation hypothesis test there is a sig value. 0.369 or $0.369 > 0.05$ which means H_0 is accepted and H_a is rejected. Thus, it can be concluded that there is no difference in the influence of motivation and learning outcomes of students who are taught using the Project Based Learning model in the experimental class and students who are taught using conventional learning in the control class.

3.2. Discussion

Based on the results of research conducted in class VIII at SMPN 1 Sape, it can be seen that the average student learning outcomes in the experimental class was 124.96, which was taught using the Project Based Learning (PjBL) model, better than the control class with an average learning outcome of 122.36. Although the difference is slight. This shows that the learning carried out follows the learning stages of the Project Based Learning (PjBL) model which begins with posing problems or questions as a learning process, followed by the next stage, namely designing a project plan by each group, giving project assignments by the teacher to each group with same project tasks, determine the activity schedule to carry out project tasks. Next, the teacher monitors students' project work, and in the final stage, students present the results of their project work in front of the class. After the stages have been carried out, the teacher then evaluates the results of students' work in order to improve the implementation of project-based learning and students know the results of their work. Based on the research results, it was found that the use of the Project Based Learning (PjBL) model with its implementation stages shows students' enthusiasm for learning. This can be seen from the good response of students when receiving project assignments by following the steps or stages of project work well, and the results of teacher monitoring. During learning, students often ask questions and ask for teacher direction to get good results. In line with the opinion of Anggraini et al (2023) where project-based learning questions stimulate critical, active, and independent thinking. Students conduct research to satisfy their curiosity (Rani et al., 2021).

On *Project Based Learning* (PjBL) also, the teacher always reminds students to work together with their group members to solve problems submitted as project assignments in order to practice togetherness. Apart from that, each student has advantages and disadvantages to complement each other, thus Sunita et al (2019) revealed that in the process of group discussions and presentations, arguing by giving reasons regarding possible solutions found actually provided reinforcement to students so that they were able to remember them well.

The results of the hypothesis test analysis show that the Project Based Learning (PjBL) learning model does not have a good influence on learning outcomes and student motivation in both the experimental and control classes. This shows that there is no difference in the influence of motivation and student learning outcomes in both the experimental class and the control class. Thus, students need to be given strong encouragement to study so that their learning outcomes are even better.

To achieve optimal learning results, learning needs to be designed by adjusting the conditions and readiness of students in class, the environment and learning facilities that support students' active learning such as the internet, the provision of sufficient books in the library as student learning references, and a comfortable classroom environment for student learning. This is in accordance with the opinion of Fitriyani et al (2023) Students' intelligence in critical thinking is implemented by implementing a learning process that encourages students to be active in various learning activities, for example actively searching for learning materials from various references such as reading books, the internet, libraries and so on.

4. CONCLUSION

Based on hypothesis testing using tests of *Manova SPSS v.22*, the value of learning outcomes is known as Sig. 0.081 or $0,081 > 0,05$, it can be concluded that H_0 is accepted or H_a is rejected. Likewise, in the learning motivation hypothesis test there is a sig value. 0.369 or $0,369 > 0,05$ which means H_0 is accepted or H_a is rejected. Thus, it can be concluded that there is no difference in the influence of motivation and learning outcomes of students who are taught using the Project Based Learning model in the experimental class and students who are taught using conventional learning in the control class.

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