

The Effect of The Application of Problem-Based Learning Model on Learning Outcomes in PPKn Subjects for Class XI Students at MAN 2 Mataram

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Abstract: Student learning outcomes are the result of changes in a person's behavior obtained during interaction with the environment which includes cognitive aspects, affective aspects, and psychomotor aspects. This study aims to determine the effect of applying the Problem-Based Learning model on the learning outcomes of grade XI students in Civics subjects. The research method used is a quantitative approach with the type of research quasi-experimental design and sampling through purposive sampling using two classes, as well as data collection through observation and multiple-choice tests. Based on the results of data analysis of the average class value, the experimental class average on the pretest was 68.03, and on the posttest was 82.29. In contrast, the control class obtained an average value on the pretest of 62.35 and the posttest of 69.62. Using the t-test calculation with the Paired Sample t-test formula at a significance level of 5% with a Sig value. (2-tailed) $0.000 < 0.05$ then H_a is accepted and H_o is rejected or the two population averages differ. This means that there is an effect of applying the Problem-Based Learning learning model on learning outcomes in Civics subjects for grade XI students at MAN 2 Mataram compared to only using conventional learning models

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Introduction

The National Education System Law Article 3 No.20 of 2003 reads “National education functions to develop abilities and form the character and civilization of the nation, aims to develop the potential of students to become human beings who are faithful and devoted to God Almighty, have a noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens”. The objectives and functions of National Education are a large enough provision that serves as a guide for the next generation of the nation to achieve the ideals of the Indonesian nation (Dakhi & Selatan, 2020). Therefore, teachers as educators and components that make education possible must be able to provide renewal in the world of education itself, must be able to provide learning innovations in the classroom to improve thinking skills and improve learning outcomes, an appropriate learning method, and learning media are needed so that the goals of national education can be achieved

(Dahlia et al., 2023). According to the problems that have been described, teachers must be able to have a strategy for learning and be able to determine the right learning model in providing knowledge to students so that it is easily accepted and understood because the selection of an inappropriate learning model also makes students unable to understand the material presented and also affects learning outcomes (Nafiati, 2021). This is also caused by the lack of innovation of the learning process itself (Novianti et al., 2020). In the future, students who are able to think critically, creatively but must remain in accordance with the values and morals of Pancasila are expected to be able to become good citizens ((Khomaidah & Koeswanti, 2020: 371). One of the efforts made so that learning outcomes, especially in Civics subjects, can improve by using the Problem-Based Learning model or problem-based learning model (Sujani et al., 2021). Using Problem-Based Learning allows students to establish two way communication and is considered to be able to solve problems given by the teacher, the topic of the problem given is also problems that occur in real life so the objectives of the Problem-Based Learning (Ardianti et al., 2021) learning model which emphasizes learning and stimulates the skills possessed by students in solving a material can be further improved.

Based on initial observations made by researchers in the field when they were teachers in the Teaching Assistance Program at MAN 2 Mataram from March 07, 2023 to June 19, 2023. Problems that occurred in class XI were identified, namely the lack of focus and attention of students during learning in the classroom because learning also tends to be done in presentations using Power Point. This has an impact on the low learning outcomes of students, when the grade promotion exam or Madrasah Assessment scores of some Learners are still not achieved according to the KKM value of 80. This is shown based on the scores of two exam rooms totaling 42 students with a standard KKM score of 80, students who reached the KKM standard score were only 33.33%, while students who scored less than the KKM standard were 66.66%. In addition to using observation techniques, the author also used initial interviews conducted by the author with Civics subject teachers at MAN 2 Mataram, he said that it was still difficult to be able to master learning in the classroom due to the diverse characteristics of students in the classroom so that to make it easier the teacher made groups for students and discussed then presented them in front of the class, but this method was still ineffective because when students made presentations in front of the class, other students paid less attention and were busy talking to their friends. However, the learning media available at MAN 2 Mataram is very sufficient to facilitate the learning process in the classroom. Problem-Based Learning can be used as one of the learning models needed by students to be able to face the upcoming era (Junaidi, 2020). Teachers also have an equally important role in the learning process owned by students because teachers help shape critical student characters and do not make learning outcomes a mere reference but also pay attention to learning models given to students such as the Problem-Based Learning (Nafiati, 2021) learning model. Student learning outcomes are used as one of the important factors so that teachers can find out the extent of understanding possessed by students (Murdani et al., 2022). Learning outcomes are also referred to as the cognitive domain which emphasizes the ability to think logically and rationally. Increasing student learning outcomes can be achieved depending on the results of the learning methods and media provided by the teacher, of course, the teacher must prepare it interestingly so that it provokes students to be active in class and this can improve student learning outcomes (Indriani et al., 2022). The low learning outcomes of Civics students who tend to be low is caused by many factors that can affect student learning outcomes, one of the main factors for low student learning outcomes in Civics subjects is the lack of student focus while in class in

the learning process, another factor is also that Civics learning is considered boring because there are no innovations (Yuliatin et al., 2022).

One of the learning models that can be applied by teachers to be used as an alternative to overcoming the above problems is the Problem-Based Learning (PBL) learning method because with the Problem-Based Learning method, students become more innovative and student activeness and become more critical (Handayani, 2023) but it is no definite data related to the increase in the effect of using the application of the learning model or not increasing learning outcomes compared to the conventional system whose results show significant differences in Civics subjects. To find out more, the researcher is introducing a study entitled “The Effect of the Application of the Problem-Based Learning Model on Student Learning Outcomes in Civics Class XI at MAN 2 Mataram”.

Research Method

The research is a quantitative approach. Quantitative Research according to Kurniawan (Gendro, 2022) is research whose direction and focus of research is to build theories from existing data. Researchers choose to use quantitative methods because using quantitative methods can help in analyzing and measuring the relationship between variables using statistics. Research place MAN 2 Mataram and research time from July 18 to August 28, 2024. This type of research is Quasi Experiment or pseudo-experiment. Quasi Experiment Design has a control class and an experimental class. The research used quasi-experiments because it was difficult to find a control class to use in the research (Murdani et al., 2022). The pretest-posttest control group design of this research is a nonequivalent control group design. This design requires two groups, namely the experimental group and the control group. After that, a pretest is given to determine the initial state of the difference between the experimental group and the control group whose values are not significantly different (Mariskhantari et al., 2022). The experimental group was given learning using the Problem-Based Learning learning model while the control group was given conventional learning following the Teaching Module based on the Merdeka Curriculum. All eleventh grade students of MAN 2 Mataram or a total of 478 students became the population in this study. Sugiyono (2013) the sample is part of the population obtained from the sampling technique, the sample must be able to reflect the state of the population or the sample must be the conclusion of a population. In this study, the entire population including 76 students of MAN 2 Mataram was used.

The author uses a multi-choice test of 30 first validate the pretest with 2 expert lecturers, followed by conducting a validity test, then reliability test, then a level of difficulty test, and differentiation test to find out whether the multiple choice questions that will be tested are feasible in research, author trial on a sample that was not an original sample of the population to be used or tester at another class except experimental and control class to validate the pretest and posttest question instruments uses a class XI Soshum. Data analysis techniques when the normality test uses Shapiro-Wilk because the data sample in the study did not reach 50 people (Risnawati et al., 2022). The data homogeneity shows that the data is homogeneous, so the difference between the two averages is tested using parametric statistical tests with the Independent sample t test uses the Levene Test (Surya et al., 2023) and hypothesis test uses a paired sample t test to determine the conclusion the t value of the results is then compared with the t table value at a significant level of 5% using the left party test with H_0 if it is greater or equal to \geq then the calculated price of t count \geq t table then H_0 is accepted and H_a is rejected but if the right party test with H_0 is smaller or equal to \leq then the calculated price of $t \leq$ t table

then H_0 is accepted and H_a is rejected. Data analysis in this study used IBM SPSS 22 for windows.

Result and Discussion

The application of the Problem-Based Learning model was carried out for 7 meetings following the Learning Module design. At the first meeting, a test of the question instrument was carried out to test the validity and reliability of the questions to find out if the questions that had been prepared were suitable for use in research, the questions prepared were 30 items and tested on 32 students in the class selected for validity testing and the results showed that 21 items were valid and 9 items were invalid. Then proceed with learning activities in accordance with the learning syntax and teaching modules that have been prepared and carried out for 4 meetings in the experimental class using the Problem-Based Learning method and in the control class using conventional learning methods that have been prepared by the subject teacher. The last meeting carried out the final test (posttest) to determine whether there was an effect or not from the application of the Problem-Based Learning learning model with the control class using a conventional learning model. Based on the results of research and discussion in the previous chapter, it can be concluded that the application of the Problem-Based Learning learning model can improve student learning outcomes in Civics subjects (Makmun et al., 2023). Analysis of hypothesis test calculations using the Paired Sample t-test has a significant level of 5% with a Sig. (2-tailed) value of $0.000 < 0.05$, so H_a is accepted and H_0 is rejected or the two population averages have differences or are not identical. After the pretest and posttest, the average difference before and after using the Problem-Based Learning learning model in the experimental class is different. The average student pretest score = 68.03 is still below the KKM value of 80 while the average student posttest score = 82.29 has reached the KKM value of 80, therefore there is a difference in student learning outcomes before and after treatment. The learning outcomes in the experimental class XI Soektis 2 which was given the treatment of the Problem-Based Learning learning model were higher than the learning outcomes of students in the control class XI Soektis 1 given the treatment of conventional learning models.

The Problem-Based Learning learning model is a learning method that involves students being active in the learning process and having critical thinking to solve problems both individually and in groups (Rachmawati, 2021), so the Problem-Based Learning learning model can be used as an effective choice to improve student learning outcomes. It can be concluded that there is an effect of the application of the Problem-Based Learning learning model on learning outcomes in Civics subjects for class XI students at MAN 2 Mataram.

Before conducting research using question instruments, researchers conducted a test of question instruments to students in order to test with construct validity. Validity is the degree of accuracy of research data and also things that happen to the object of research according to reports reported by researchers (Sugiyono, 2013). There were 30 question items in the research instrument prepared based on the learning outcomes of grade XI Pancasila material in Civics. 30 question items and other research instruments were also consulted with experts, namely supervisor 1 and supervisor 2. Then after being given input and changed according to the expert input given. The instruments in this study were tested on students of class XI Soshum MAN 2 Mataram. The validity of the question is calculated using the Product Correlation formula $r_{count} > r_{table}$ Moment significant level of 5% which is 0.349 with the number of students $N = 32$. Of the 30 number of questions that were tested, 21 items were valid and 9 items were invalid.

Table 1. Results of validity test

Number	Criteria	Question Number	Number of Questions
1	Valid	1, 3, 4, 5, 7, 8, 9, 10, 11, 12, 17, 18, 23, 24, 25, 26, 27, 28, 29, 30	21
2	Invalid	2, 6, 13, 14, 16, 19, 20, 21, 22	9
Amount			30

The reliability test is the degree of consistency and stability of the data or results of the findings. In the opinion of Ghazali (2017) the variable construct can be said to be reliable if it has a Cronbach alpha > 0.70 , but if the Cronbach alpha < 0.70 , it is not said to be reliable. The reliability test is conducted once when testing the instrument, the reliability test can use the KR 20 (Kuder Richardson) formula. After calculating the instrument that has been tested, the reliability coefficient value is 0.862, this means that the instrument has reliable criteria.

Table 2. Reliability Statistics

Cronbach's Alpha	Part 1	Value	.751
		N of Items	16 ^a
	Part 2	Value	.450
		N of Items	15 ^b
Total N of Items			31
Correlation Between Forms			.757
Spearman-Brown Coefficient	Equal Length		.862
	Unequal Length		.862
Guttman Split-Half Coefficient			.761

Data collection was carried out by conducting two stages, the first stage was through giving an initial test (pretest). Pretest was conducted before the two classes were given treatment, giving pretests in experimental and control classes to find out that the two classes had the same and homogenous abilities.

Table 3. Pre-test results in Experimental Class and Control Class

Data	Maximum	Minimum	Average	Number of samples
Experimental Class	86	47	68.03	34

Control Class	76	42	62.35	34
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Then in the second stage the final test (posttest) was given after the experimental class was given treatment through the Problem Based Learning learning method and the control class used conventional teaching methods. According to the data in table, it can be seen that the experimental class got the highest score of 86 and lowest score of 47 with an average of 68.03 out of 34 students while the control class got the highest score of 76 and lowest score of 42 with an average score of 62.35 out of 34 students. Based on the table data above, it can be seen that the difference between the highest and lowest scores in the experimental class is 100 and the control class is 85, and the lowest score in the experimental class is 66 and the control class is 52.

Table 4. Post-test results in Experimental Class and Control Class

Data	Maximum	Minimum	Average	Number of samples
Experimental Class	100	66	82,29	34
Control Class	85	52	69,62	34

According to Sugiyono (2013) after the problem has been identified and limited, the next step is to make a question that is used as a guide by researchers for further research activities, the answer to the formulation using the theory whose answer is referred to as a hypothesis or temporary answer. Then the researcher uses a research instrument to find accurate data by doing his own development (Magdalena et al., 2021). After the data from the instrument has been tested for validity and reliability, it is used to measure the variables that have been determined. The collected data is then analyzed to direct the answer to the formulation of the problem and the hypothesis proposed, in this study the data analysis used statistical tests.

Normality test is an initial step used to analyze data specifically, in order to determine whether the results studied come from a normally distributed population or not. In this study, the normality test was taken from the learning outcomes of the experimental and control classes and the data used to make decisions were the results of the pretest and posttest. Using a significance level of 5% or 0.05 with the provisions of $p \text{ value} > 0.05$, the data is said to be normally distributed, while if the $p \text{ value} < 0.05$, the data is said to be not normally distributed. Shapiro-Wilk test and IBM SPSS 22 statistics were used for normality testing. It can be seen in the above table that the experimental class pretest data has a significance of 0.210, the experimental class posttest data has a significance of 0.215, the control class pretest data has a significance of 0.096 and the control class posttest has a significance of 0.063. The basis for making decision values in the first Shapiro-Wilk normality test if $\text{sig.} > 0.05$ then the data is normally distributed, then the second if $\text{sig.} < 0.05$ then the data is not normally distributed. The data obtained from the normality test results above can be concluded to have a significance level > 0.05 . This shows that the data on the value of learning outcomes in the experimental class and control class meet the requirements of the normality test.

Table 5 Normality Test

Class		Shapiro-Wilk ^a
		Sig.
Learning Outcomes	Experimental Class Pre-test (PBL)	.210
	Experimental Class Post-test (PBL)	.215
	Control Class Post-test (Conventional)	.096
	Control Class Post-test (Conventional)	.063

This research hypothesis test is a test used by researchers to be able to prove the truth of the hypothesis that has been proposed (Khomaidah & Koeswanti, 2020). The formula used is the Paired Sample t test formula (t-test 2 different samples). If the data can be normally distributed, it can use a two-sample t = test in testing the hypothesis. Using the two different alternatives in testing the hypothesis (Sugiyono, 2013). The results of the homogeneity test are used to determine whether the data is homogeneous or not. The data used is the data from the posttest results of the experimental class and control class whose data was tested using IBM SPSS 22 statistics.

Based on the results of the data in table 4.8 above, the results of the homogeneity test in the experimental class and the control class have a significance result Based on Mean 0.150 after calculation because the probability of learning outcomes is greater than 0.05, it is concluded that the data on the learning outcomes of the experimental class and control class have homogeneous variants or come from data that comes from the same variant population.

Table 6 Homogeneity Tests

		Levene Statistic	df1	df2	Sig.
Learning Outcomes	Based on Mean	2.118	1	66	.150
	Based on Median	1.600	1	66	.210
	Based on Median and with adjusted df	1.600	1	65.866	.210
	Based on trimmed mean	2.029	1	66	.159

Hypothesis testing is carried out after the results of the analysis of the research results in accordance with the requirements have been carried out (Annisa Putri & Rino, 2023). Hypothesis testing is carried out to determine whether or not there are differences in student learning outcomes in Civics subjects using the Problem Based Learning learning model with learning using conventional methods. In the requirements test that has been carried out on the normality test and homogeneity test that has been fulfilled, then proceed with hypothesis testing using the Paired Sample t-test in the experimental and control classes.

Table 7 Hypothesis Test

	Paired Differences	T	df	Sig. (2-tailed)
	95% Confidence Interval of the Difference			

		Upper			
Pair 1	PretestExperiment – Posttest Experiment	-12.359	-15.227	33	.000
Pair 2	PretestControl – PosttestControl	-4.038	-4.580	33	.000

The hypothesis proposed by the researcher is first H_a : There is an increase in the effect of the application of the Problem-Based Learning learning model on student learning outcomes in Civics class XI at MAN 2 Mataram while the second is H_0 : There is no increase in the effect of the application of the Problem Based Learning learning model on student learning outcomes in Civics class XI at MAN 2 Mataram. The basis for decision making is the first if the significance value or Sig. (2-tailed) is greater than 0.05 then H_0 is accepted and H_a is rejected, the second if the significance value or Sig. (2-tailed) is smaller than 0.05 H_0 is rejected and H_a is accepted. Data from the calculation results using the Paired Sample t-test on student learning outcomes obtained significance or Sig. (2-tailed) of 0.000. According to the hypothesis or conjecture and the basis for decision making, it can be concluded that H_0 is rejected and H_a is accepted. This is because the significance or Sig. (2-tailed) of $0.000 < 0.05$, then the data obtained proves that there are differences in student learning outcomes using the Problem Based Learning learning model at MAN 2 Mataram.

Conclusion

Based on the results of research and discussion in the previous chapter, it can be concluded that the application of the Problem Based Learning learning model can improve student learning outcomes in Civics subjects. Analysis of hypothesis test calculations using the Paired Sample t-test has a significant level of 5% with a Sig. (2-tailed) value of $0.000 < 0.05$, so H_a is accepted and H_0 is rejected or the two population averages have differences or are not identical. After the pretest and posttest, the average difference before and after using the Problem Based Learning learning model in the experimental class is different. The average student pretest score = 68.03 is still below the KKM value of 80 while the average student posttest score = 82.29 has reached the KKM value of 80, therefore there is a difference in student learning outcomes before and after treatment. The learning outcomes in the experimental class XI Soektis 2 which was given the treatment of the Problem Based Learning learning model were higher than the learning outcomes of students in the control class XI Soektis 1 given the treatment of conventional learning models.

The Problem Based Learning learning model is a learning method that involves students to be active in the learning process and have critical thinking in order to solve problems both individually and in groups, so the Problem Based Learning learning model can be used as an effective choice to improve student learning outcomes. It can be concluded that there is an effect of the application of the Problem Based Learning learning model on learning outcomes in Civics subjects for class XI students at MAN 2 Mataram.

Recommendation

The research that has been conducted is expected to be able provide assistance from various parties as useful information for future progress. The parties include. 1) for students to be more active in the classroom during the learning process and active in group discussions, provide critical thinking, pay attention to the subject teacher when presenting the material, 2)

for teacher can use the Problem Based Learning model in the Civics learning process on several student learning outcomes because it can improve student learning outcomes, 3) for schools also have an important role in achieving the learning process, therefore improving facilities and infrastructure such as LCD the teachers can use them in the learning process and the application of learning models, 4) for future writers, this research can be used as a reference in subsequent research related to the Problem-Based Learning learning model and can continue the research more optimally.

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