

APPLICATION OF PROBLEM-BASED LEARNING (PBL) LEARNING MODEL ON CLASS VIII STUDENT'S CRITICAL THINKING ABILITY STATE JUNIOR HIGH SCHOOL 6 BORONG

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Abstract

This study aims to determine the effect of applying the problem-based learning (PBL) model on the critical thinking skills of eighth-grade students of SMP Negeri 6 Borong. The type of research used is quantitative with a quasi-experimental research design (quasi-experimental) with a Posttest-Only Control Group Design. The population in this study were all students of class VIII SMP Negeri 6 Borong totaling 89 people who were obtained using a random sampling technique. The data collection technique used a test in a description test to measure students' critical thinking skills. Data analysis used normality test, normality test, and hypothesis testing. The results of the study using SPSS 24 obtained the results of the research, namely a significant value for (sig 2-tailed) of $0.000 < 0.05$, which means that there is an effect of implementing the Problem Based Learning learning model on critical thinking skills so that H_0 is rejected and H_1 is accepted.

Keywords: *Critical thinking skill, Problem-based learning teaching model*

1. INTRODUCTION

All humans are educational because one's education can change one's mindset to have a view that requires a broad view and creates quality and character individuals. A person is expected to adapt to the changing times developing rapidly, and realize the desired goals with education. Education is a teaching and learning process carried out by individuals with individuals, individuals with groups, and groups with groups that aim to broaden insight and mindset towards the scope of education Dewi et al., (2020), by educating someone with various knowledge, skills, and the ability to develop. One of the abilities that need to be produced by a person or student is thinking critically. Critical thinking ability is an ability possessed by a person or student to analyze before making the right decision. Irawan & Kencanawaty (2017).

According to Wahyuni (2015), critical thinking is reasoned and reflective thinking by emphasizing making decisions about what to believe and do. Critical thinking is an activity of analyzing ideas or ideas in a more specific direction, distinguishing sharply, selecting, identifying, reviewing, and developing them in a perfect direction. This mental process analyzes ideas

and information obtained from observation, experience, common sense, or communication. Meanwhile, according to Yustyan et al., (2015), critical thinking is always curious about existing information to achieve a deep understanding.

Based on several experts' explanations regarding the ability to think critically, it can be said that critical thinking is a process of thinking in a more detailed or deeper direction. Critical thinking requires students to improve further their ability to analyze a problem, find problem-solving, and provide new ideas that can provide a new picture of problem-solving. Students who have critical thinking skills do not only know an answer. They will try to develop other possible answers based on the analysis and information obtained from a problem. Indicators of Critical Thinking Ability According to Hidayat et al., (2016), namely 1) Giving simple explanations (elementary clarification) includes: questions, analyzing arguments, asking and answering questions that require explanation, 2) Building basic skills (essential support) including: considering sources and make observations, 3) Drawing conclusions (inference) includes: making decisions and considering the results. A group or individual who thinks

critically can be seen with the characteristics of evidence that matches the criteria obtained through observation in a decision. According to Suardi (2018), the characteristics of critical thinking skills can distinguish between statements or facts that can be proven based on value, distinguish relevantly about irrelevant information, or reasons, determine the accuracy of the facts of the word.

Currently, some schools in Indonesia are implementing the 2013 curriculum. The current curriculum is being developed through a student-centered learning approach, by the 21st century learning paradigm, which emphasizes students' thinking and learning skills. (La & Kaleka, 1970).

The 2013 curriculum demands that active activities occur in learning. It is also hoped that teachers as facilitators in learning can design learning to solve real problems and Sinambela (, 2013). The 2013 curriculum is no longer a teacher-centered approach, but learning uses a student-centered approach. Students are required to find and find their answers to the problems they face.

Based on the results of observations at SMP Negeri 6 Borong, the teaching and learning process in the classroom is still teacher-centered. The teacher explains and explains more, while the students only listen and record what the teacher explains. If students are given exercises in class, students sometimes wait for answers from friends who can do it. So that student interaction is less than optimal, causing students to be lazy to develop their abilities because they are too monotonous and do not provide access for students to develop independently in finding their knowledge. As a result, students are not able to develop their critical thinking skills. Thus, the teacher's role is needed in determining the suitable learning model to improve students' critical thinking skills. A teacher should guide and awaken the potential that exists in students to develop specific skills, including thinking critically (Fikry et al., 2018). Critical thinking skills can be developed by integrating the Problem Based Learning (PBL) model in learning.

Problem Based Learning (PBL) is a learning model that presents a problem to solve with high thinking skills Asriningtyas & Kristin (2018). According to Ariandi (2016), the Problem Based Learning learning model is a learning model that uses real-world

problems as a context for students to learn about critical thinking and problem-solving skills and acquire essential knowledge of the subject matter. Meanwhile, according to Yanti (2017), the Problem Based Learning learning model can provide active learning conditions to students by directing students to solve a problem jointly. This teaching uses real-world problems to teach students about critical thinking skills and problem-solving skills. The Problem Based Learning (PBL) learning model can provide real and direct experience to students, especially in solving real problems in everyday life.

Based on the problems that have been described above, the researchers are interested in conducting a study entitled "The Application of Problem Based Learning (PBL) Learning Models on Critical Thinking of Class VIII Students of SMP Negeri 6 Borong".

2. RESEARCH METHODS

The type of research used in this research is quantitative research because the data collected was in the form of numbers which were then analyzed using statistical formulas. The research design used in this study was a quasi-experimental (quasi-experimental) with a Posttest-Only Control Group Design. A quasi-experiment was a way to test a causal relationship, which gave treatment to the subject to determine whether the treatment had an impact or the researcher on certain outcome variables or factors and did not have the flexibility to control external variables that affected the implementation of the experiment Nurqomariah & Gunawan (2015). In this study, two classes would be formed, one experimental class and one control class. The research design is as shown in the image below.

Team	retest	Treat	Posttest
perimet	-	X ₁	Y ₁
ntrol	-	X ₂	Y ₂

Image 2. Posttest-Only Control Grup Design.

X₁ = Treatment in the experimental class using the learning model *Problem-Based Learning* (PBL)

X₂ = Learning in the control class used the conventional model

Y₁, Y₂ = *Posttest* in the experimental and control class

The design of this study used two groups, namely one experimental group and one control class. The practical class was treated using a problem-based learning (PBL) model, while the control class used a conventional model. After being given a different treatment, both groups were given a posttest to determine the students' final critical thinking ability. The population in this study were students of class VIII SMP Negeri 6 Borong totaling 89 students. The sample of this research was the students of class VIII SMP Negeri 6 Borong totaling 40 students. The sampling technique in this study was by (sample random sampling). The sampling technique was done randomly without regard to the existing strata in the population. The data collection technique used in this research was a test technique. The test technique was used to measure critical thinking skills on the material that had been studied. The test that will be given to students is in the form of a description test. The independent variable in the study is a problem-based learning model. At the same time, the variable used in this research is critical thinking ability. The data analysis technique used descriptive analysis and inferential analysis, namely normality, homogeneity, and hypothesis—research variables using SPSS 24.

3. RESULT AND DISCUSSION

Data from the test result variables analyzed with the help of SPSS 24 will provide information about the test result scores. The descriptive results of data analysis on each variable that has been tested with SPSS version 24 can be described for each variable as follows:

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Posttest_Kelas_Eksperimen	20	67	90	79.90	7.305
Posttest_Kelas_Kontrol	20	60	85	74.90	6.223
Valid N (listwise)	20				

Table 1. Descriptive Analysis of Critical Thinking Ability Test Questions

Based on the descriptive table on the value of critical thinking skills above, the average posttest in the control class was 74.90, with the highest score of 85 and the lowest score of 60. In the experimental category, the average posttest score was 79.90, with the highest score of 90 and the lowest score was 67. Overall after being given different treatments between the control class and the experimental class, the average value in the

practical course was higher than the average value in the control class.

Tests of Normality							
Kelas	Statistic	df	Sig.	Shapiro-Wilk			
				Statistic	Df	Sig.	
Post_Eksperimen	.157	20	.200 ^a	.938	20	.221	
Post_Kontrol	.106	20	.200 ^a	.965	20	.652	

^a. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Table 2. Normality Test

Based on table 4 above, from the results of the normality test contained in the Shapiro-Wilk table, it is known that the significant level is more than 0.05 (sig. > 0.05). The results of these data can meet the requirements of the normal distribution of data.

Test of Homogeneity of Variances

Hasil Posttest			
Levene Statistic	df1	df2	Sig.
1.189	1	38	.282

Table 3. Homogeneity Test

Based on table 5 above, from the results of the Levene test, the score is 1.189 and is not significant at 0.05. This shows that the posttest data is homogeneous.

One-Sample Test						
Test Value = 60						
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Hasil	15.369	39	.000	17.400	15.11	19.69

Table 4. Hypothesis Testing of Problem Based Learning on Critical Thinking Ability

Based on table 6 above, it can be seen that the significant value for (sig 2-tailed) is 0.000 <0.05, which means that there is an effect of applying the Problem Based Learning model to critical thinking skills so that H0 is rejected and H1 is accepted.

The purpose of this study was to determine the effect of the application of the problem-based learning (PBL) model on the critical thinking skills of eighth-grade students of SMP Negeri 6 Borong. A problem-based learning model was applied in the experimental class, while a conventional model was applied in the control class. The data analysis process was carried out after obtaining the data and using SPSS version 24.

The analysis used was descriptive analysis and inferential analysis. Descriptive analysis was conducted to determine the minimum value, maximum value, mean and standard deviation. Then proceed with the inferential analysis, namely prerequisite tests and hypothesis testing.

There are two prerequisite tests used, namely the normality test and the homogeneity test. Normality test to find out whether the research data comes from a population that is normally distributed or not. The sample used is 40 people, then the normality test uses the Shapiro-Wilk method because the sample is less than 50. At the same time, the homogeneity test is to test whether the data from each piece has the same variance or not. The results of the homogeneity test of the posttest data in the control class and the experimental style with a significant level (p) of 0.282, it was found that (p) > 0.05. This shows that the posttest data is homogeneous.

4. CONCLUSION

The process of data analysis through hypothesis testing using a one-sample t-test. The basis for decision making is if significant (sig 2-tailed) < 0.05. Then H_0 is rejected, and H_1 is accepted. The output of SPSS 24 in the coefficient table shows that the significant value for (sig 2-tailed) is 0.025 < 0.05, which means that there is an effect of implementing the Problem Based Learning learning model on critical thinking skills H_0 is rejected and H_1 is accepted.

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