

The Effectiveness of Problem-Based Learning Model in Developing Critical Thinking Skills on the “Youth Pledge” Topic Within the Framework of “Bhinneka Tunggal Ika”

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ABSTRACT

This research aims to determine the effectiveness of the Problem-Based Learning (PBL) model in developing critical thinking skills on the "Youth Pledge." The method employed in this study is a quasi-experiment with a non-equivalent control group design. The sample consists of Grade VIII A as the experimental group (n=30) and Grade VIII C as the control group (n=30). The data collection techniques include questionnaires, observations, and documentation analysis, which were analyzed using alternative paired sample test and independent sample t-test with results of 0.000 0.05, indicating that the Problem-Based Learning model effectively cultivates critical thinking skills among students. This is supported by the results of the n-gain present test, which yielded a score of 61.81% for the experimental group and 34.31% for the control group. The effect size test yielded a value of 2.61, falling into the category of high influence

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1. INTRODUCTION

On the previous observation and interview with the English teacher in SMAN 2 Mendo Barat, there are several problems that contribute to the students' lack of reading comprehension. The first problem was the students lack vocabulary understanding. The second problem was that the students were less active in the learning process, especially in the reading skill lesson, because they were embarrassed to read a narrative text in class, and they felt bored when learning because the narrative text was very long. Then, the last problem was the students found some difficulties in identifying the main idea in a complicated part or structure of narrative text and identifying the detail information of narrative text. That is the reason for the researcher to use narrative text with a short text to make the students interested to learn about reading, because they don't like to learn with a long text. Besides that, determining the problems of the students' face will make it easier for the teachers to manage and respond to those problems and requirements (Haiyudi, 2023: 1).

Education plays a vital role in shaping intelligent citizens. It goes beyond the mere transfer of knowledge from one person to another; rather, education is a process of maturing, character-building, and humanizing individuals. The advancement of time necessitates adjustments in the education process, with the ease of access to information supported by modern technology. This requires the ability to think critically in managing acquired knowledge. Critical thinking is a process in which information undergoes analysis, identification, and reasoning, resulting in complex and logical conclusions. Critical thinking

entails reasoned and reflective thinking, emphasizing decision-making regarding what should be believed or done (Junaidi, 2020:34). The scarcity of critical thinking skills among students is primarily due to the inadequate guidance provided by teachers in fostering critical thinking.

Another issue contributing to the lack of students' critical thinking skills is the insufficient opportunity given by teachers for students to think freely, express opinions, and engage in arguments with their peers. According to Ratminingsih et al (2018:277), teachers are recommended to promote the use of self-assessment to enhance the students' independence and writing competence. This is further reinforced by Junaidi's statement (2020:26) that critical thinking abilities will emerge in students if teachers establish interactive and communicative patterns that emphasize active knowledge formation by students during the learning process. The level of critical thinking skills in Civic Education (PPKn) learning is still low, primarily due to teachers' lack of skills in utilizing instructional models that can guide students to think critically. According to Kiranadewi & Hardini (2021:1), the low level of critical thinking skills in PPKn learning necessitates the use of instructional models that can train students' critical thinking abilities. This demonstrates that teachers' ability to utilize instructional models influences students' level of interest in participating in the learning process. According to Suratno & Kurniati (2017:43), students' interest in proving a principle, conducting investigations, and generalizing is still lacking. One of the factors contributing to the low level of students' interest in the learning process is the utilization of instructional models that are not suitable, resulting in a lack of critical thinking skills among students.

The ability of critical thinking is closely related to the level of literacy in Indonesia. Azrai et al. (2020:1) elucidate that one of the factors influencing an individual's literacy skills is their ability to think critically. This is further supported by Shihab's statement (2011:209) that critical reading is intertwined with thinking, highlighting the inseparable connection between literacy and critical thinking. The low level of literacy reflects the deficiency in critical thinking skills among students. According to the Programme for International Student Assessment (PISA) 2013 research findings, the literacy and critical thinking abilities of Indonesian students are still low due to the ineffectiveness of daily learning processes in developing students' interests, talents, and potentials. Furthermore, UNESCO states that Indonesia ranks second to last in global literacy, with Indonesian students only able to solve level 1 and level 2 questions out of 6 levels. In this regard, teachers play a crucial role in enhancing the literacy level in Indonesia. Literacy in Indonesia is significant as it determines the success and achievements of the younger generation.

Based on the observations conducted at SMP Negeri 3 Ajibarang, it is evident that the eighth-grade students of SMP Negeri 3 Ajibarang lack critical thinking skills. This statement can be seen from the students' lack of enthusiasm in the learning process, whether it's in terms of asking questions, answering, objecting, and so on. One of the reasons for the low level of students' critical thinking skills is the predominant use of conventional teaching models such as lectures and assignments, which give the impression that PPKn learning is merely memorization and not enjoyable. This causes students to pay less attention, be less actively involved in the learning process, and achieve lower learning outcomes. According to Sundari and Fauziati (2021:1), the success of PPKn learning depends, among other things, on the use of effective teaching methods or models. This statement proves the need for an effective teaching model to develop students' critical thinking skills. The teaching model significantly influences students' understanding or comfort in participating in the learning process. An engaging and student-involved teaching model will facilitate the achievement of learning objectives.

By implementing varied instructional models, students can be directed towards acquiring critical thinking skills. This is also one of the goals of Civic Education (PPKn) learning, which aims to shape a younger generation with critical thinking, love for the homeland, and active participation in Indonesia's independence. Therefore, the Implementation of the 2013 Curriculum, as stated in the Ministry of Education and Culture Regulation Number 22 of 2016 concerning process standards, utilizes three instructional models that are expected to cultivate scientific and social behavior and develop curiosity. These three models are: (1) Discovery/Inquiry Learning, (2) Problem-based Learning (PBL), and (3) Project-based Learning (PJBL).

The presence of the Problem Based Learning instructional model has a positive impact on the learning process, as it is one of the instructional models that can guide students to think critically in solving or finding solutions to a problem. According to Dipa et al. (2019:2), the Problem Based Learning model differs from other instructional models. The role of the teacher is to present various problems, ask questions, and facilitate investigation and dialogue. The teacher allows students the freedom to search for the topic of the problem to be discussed, even though the teacher already has a topic in mind. Additionally, the teacher must provide a supportive framework to facilitate students in solving the problem at hand. Researchers choose the Problem Based Learning instructional model because it focuses on the students,

actively involving them in the learning process, and supporting the development of critical thinking skills among students.

Based on the issues and phenomena that have been previously discussed, the researcher is interested in conducting a study entitled "The Effectiveness of the Problem Based Learning Model in Developing Critical Thinking Skills in the Sumpah Pemuda Material within the Framework of Bhinneka Tunggal Ika (A Quasi-Experimental Study in Class VIII at SMP Negeri 3 Ajibarang)". The innovation in this research is presented in *Khazanah Pendidikan* Volume, No, August 2023, page. The material used is the Sumpah Pemuda material, which is introduced with practices that can enhance students' critical thinking skills. The research problem formulation is "To what extent is the effectiveness of the Problem Based Learning Model in developing critical thinking skills among students at SMP Negeri 3 Ajibarang?". The purpose of this research is to determine the students' critical thinking skills before and after receiving the treatment.

2. FINDINGS

2.1 The normality tests

The result of normality test in pre-test and post-test from experiment and control class will be describes below:

Table 1. The Normality Test of Pre-Test in Control and Experiment Class

Class	Kolmogorov-Smirnov		Shapiro-Wilk		Description
	Statistic	Sig	Statistic	Sig	
Control	0.148	0,094	0,965	0,424	Distribution is normal
Experiment	0,115	0,200	0,957	0,263	Distribution is normal

Table 2. The Normality Test of Post-Test in Control and Experiment Class

Class	Kolmogorov-Smirnov		Shapiro-Wilk		Description
	Statistic	Sig	Statistic	Sig	
Control	0.154	0,069	0,946	0,133	Distribution is normal
Experiment	0,112	0,200	0,973	0,638	Distribution is normal

Based on the explanation, it can be concluded that both the Kolmogorov-Smirnov and Shapiro-Wilk tests indicate that the data is normally distributed, as the significance value is greater than 0.05.

2.2 The homogeneity tests

The result of homogeneity test in pre-test and post-test from experiment class control class will be describes below:

Table 3. Test of Homogeneity of Variance

Hasil Belajar		Levene Statistic	df1	df2	Sig.
	Based On Mean	3.054	1	58	0,86
	Based on Median	2.802	1	58	0,100
	Based on Median and with adjusted df	2.802	1	49,923	0,100
	Based on trimmed mean	2.940	1	58	0,092

From the above output, the Significance (Sig) Based on Mean value is $0.86 > 0.05$. Therefore, it can be concluded that the variance of the experimental group's post-test data and the control group's post-test data is homogenous.

2.3 The hypothesis tests

Hypothesis testing in this study was conducted using parametric statistics due to the normal distribution of the data, specifically using the Paired Sample T-Test and Independent Sample T-Test. The Paired Sample T-Test was employed to determine the mean difference between two paired samples and to assess the impact of problem-based learning on critical thinking abilities. The following are the results of the Paired Sample T-Test conducted using SPSS 25:

Table 4. Results of the Paired Samples Test for the Variable of Critical Thinking Abilities in the Sumpah Pemuda Material Paired Differences

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		T	Df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Control Pretest - Control Posttest	-6.700	4.640	.847	-8.433	-4.967	-7.909	29	.000
Pair 2	Experimental Pretest - Experimental Posttest	-14.267	3.269	.597	-15.487	-13.046	-23.905	29	.000

Regarding the variable of critical thinking abilities, the output of pair 1 yielded a significance value (2-tailed) of $0.000 < 0.05$, thus it can be concluded that there is a difference in the mean scores between the pretest and posttest of the control group. Meanwhile, from the results of pair 2, a significance value (2-tailed) of $0.000 < 0.05$ was obtained, which means that the null hypothesis is rejected and the alternative hypothesis is accepted. Therefore, it can be concluded that there is a difference in the mean scores between the pretest and posttest of the experimental group.

The Independent Sample T-Test is employed to ascertain the comparison between the posttest results of the experimental group (problem-based learning model) and the control group (expository learning model). The following are the results of the independent sample t-test calculations using SPSS 25.

Table 5. Results of the Independent Sample Test for the Variable of Critical Thinking Abilities

		Levene's Test for Equality of Variances		T-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Hasil Belajar	Equal variances assumed	3.054	.086	18.071	58	.000	21.467	1.188	19.089	23.845
	Equal variances not assumed			18.071	50.246	.000	21.467	1.188	19.081	23.852

From the aforementioned results, due to the homogenous distribution of the critical thinking abilities variable data, the data from the independent sample test can be observed from the assumption of equal variances, resulting in a significance value (2-tailed) of $0.000 < 0.05$. Therefore, it can be concluded that there is a significant difference between the post-test results of the experimental group, which utilizes the problem-based learning model, and the control group, which utilizes the expository learning model.

3. DISCUSSION AND CONCLUSION

The Problem Based Learning instructional model is effective in cultivating students' critical thinking skills in the Sumpah Pemuda material. This can be observed through the outcomes of the observation conducted during each phase of the Problem Based Learning instructional model, which contributes to the development of students' critical thinking abilities. The phases of the Problem Based Learning instructional model, as described by Rusmono (2012:81), are as follows:

Phase 1 (Providing orientation on the issue to the students) The teacher initiates the lesson by having the students gather in a circle. Subsequently, the teacher distributes a sheet of paper containing various images and texts related to the Sumpah Pemuda material. The students are encouraged to observe and read the available texts, as well as engage in question-and-answer sessions with their peers. Once the students have finished reading and participating in the question-and-answer session, the teacher reads the provided text and allows the students to ask further questions. In this phase, the students are introduced to the critical thinking skill of constructing questions and providing simple explanations.

Phase 2 (Efforts to Organize Students for Learning) The teacher divides the students into 5 groups in a fair and balanced manner. Subsequently, the teacher engages in simple activities according to the instructions and provides worksheets to each group of students. The teacher also allows time for the students to discuss with their group members. In this phase, the students are introduced to the skill of engaging in discussions with their peers.

Phase 3 (Guiding Group and Individual Experiences) In this phase, the teacher provides explanations for each question on the worksheet. The first to third questions are related to the moral degradation of youth in Indonesia, the fourth to fifth questions require the students to explain the history and significance of the Sumpah Pemuda, and the sixth and seventh questions pertain to the values within the Sumpah Pemuda. The teacher directs the students to explain the results of their discussions to their group members. In this stage, the students are encouraged to take responsibility and complete their tasks.

Phase 4 (Developing and Presenting the Results of the Work) In this phase, the teacher instructs the students to present the results of their discussions to the entire class. It is possible that some students may be unwilling. Phase 5 (Performing assessment and evaluation) In this phase, the teacher provides reinforcement regarding the presented answers and, together with the students, summarizes the learned instructional material. The findings in this stage are related to the critical thinking skills that students are introduced to, which is the ability to draw conclusions. The critical thinking skills of students in the control and experimental groups exhibit significant differences.

Critical thinking skills can be manifested in every phase of the problem based learning instructional model. Furthermore, based on the descriptive analysis results of the critical thinking skills variable, it was found that the posttest results for the seven indicators of critical thinking skills showed improvement compared to the pretest results, and the experimental group obtained higher scores than the control group. This can be observed in the following table:

Table 6. Comparison of Pretest and Posttest Results Experimental Class and Control Class

No	Variable	Experimental Class		Control Class	
		<i>Pretest</i>	<i>Posttest</i>	<i>Pretest</i>	<i>Posttest</i>
		%	%	%	%
1	Focusing Questions	79,2	84.1	70.5	72,8
	Analyzing Arguments	78.3	84.8	69.8	73,1
3	Evaluate and assess the results of observations	77,4	85	72.4	73.2
4	Making Conclusions	73,8	81	69,3	67.8
5	Curiosity	70	91	70	82
6	Solve the problem with the correct source	84	91	62	80
7	Be open and Interactive	82	92	70	77

Table 1 elucidates that the experimental class obtains higher scores compared to the control class. This serves as evidence that the learning process utilizing the problem-based learning instructional model enhances students' critical thinking abilities. The highest score in the experimental class prior to the treatment was attained in the indicator of problem-solving with credible sources, with a percentage of

84%. On the other hand, in the control class, it occurred in the indicator of evaluating and assessing observation results, with a score of 72.4%. Additionally, the largest posttest result in the experimental class was observed in the indicator of being open-minded and interactive, with a percentage of 92%. Meanwhile, in the control class, the highest posttest percentage was achieved in the indicator of curiosity, with a score of 82%. The table indicates the existence of differences in critical thinking abilities regarding the Sumpah Pemuda material within the framework of "Bhinneka Tunggal Ika" before and after the treatment. The experimental group, implementing the problem-based learning instructional model, obtains higher scores compared to the students in the control group, who follow the conventional instructional model. According to Hotimah (2020:7), the problem-based learning instructional model possesses advantages, one of which is its capability.

Based on the results of the paired sample test, the critical thinking ability output pair 1 obtained a Sig. (2-tailed) value of $0.000 < 0.05$, thus it can be concluded that there is a difference in the average results between the pretest and posttest of the control class. Meanwhile, from the results of pair 2, a Sig. (2-tailed) value of $0.000 < 0.05$ was obtained, indicating a difference in the average results between the pretest and posttest of the experimental class. Furthermore, based on the homogeneity test results, a value of $0.86 > 0.05$ was obtained, indicating that the data is distributed homogeneously. Since the data is distributed homogeneously, the results of the independent sample t-test can be observed from the equal variances assumed, which obtained a Sig. (2-tailed) value of $0.000 < 0.05$. Therefore, the alternative hypothesis (HA) is accepted and the null hypothesis (HO) is rejected. Hence, it can be concluded that the problem-based learning instructional model has a significant and effective influence on developing students' critical thinking abilities. The effectiveness of problem-based learning in developing critical thinking skills can be observed through the comparison of pretest, posttest, n-gain, and n-gain present results in both classes as follows:

Table 7. Comparison of Pretest, Posttest, and N-gain Score Experimental Class and Control

Class	Pretest	Posttest	N-gain	N-gain Present	Category
Experiment	77	91	0,62	62%	Effective enough
Control	68	80	0,34	34%	Ineffective

Table 2 elucidates that the experimental class obtains a higher average compared to the control class. The average pretest score for the experimental class is 77, while the pretest score for the control class is 68. The posttest results for the experimental class show an average score of 91, whereas the posttest score for the control class indicates an average of 80. The n-gain present test results for the experimental class amount to 62%, falling into the category of moderately effective, whereas the control class only achieves 34%, categorized as ineffective. The effectiveness of employing the Problem Based Learning instructional model can be observed through the gain scores. The experimental class has an average gain score of 0.62, while the control class has an average gain score of 0.34, indicating that the experimental class attains a higher average than the control class. Moreover, the magnitude of the effectiveness of the problem-based learning instructional model in shaping critical thinking abilities is 2.6, which, according to Tamur (2020), falls within the category of significant influence.

The explanation provided demonstrates the effectiveness of the problem-based learning instructional model in cultivating critical thinking skills among students. Various factors contribute to the success of the learning process and the achievement of learning objectives, one of which is the selection of an appropriate, efficient, and effective instructional model. According to Mulyawati & Purnomo (2021:25) and Djonomiarjo (2019:40), teachers are expected to possess the skills to choose the right instructional model for the learning process. One such model is the problem-based learning instructional model. Rukmini (2021:46), Hidayat and Sulastri (2023:768), as well as Meriana et al. (2019:6), explain that the problem-based learning instructional model has an instructional impact, particularly in developing the 4C skills, including critical thinking. Based on this explanation, it is substantiated by the data obtained from the experimental class using the problem-based learning instructional model, which achieved higher average scores and n-gain test results compared to the control class.

On the other hand, in the control class, the students' critical thinking abilities tend to be lower compared to the experimental class. The control class itself utilizes an expository instructional model, which results in students being less interested in the learning process. The critical thinking abilities in civic education are still low, hence the need for an instructional model that can train students' critical thinking abilities (Kiranadewi & Hardini, 2021:1). The problem-based learning (PBL) instructional model can be a solution to address the low level of students' critical thinking abilities in civic education, as this instructional model can create a more active learning atmosphere, as demonstrated by the students' enthusiasm in asking questions, answering, discussing, and presenting the results of their discussions. The problem-based learning (PBL) instructional model has an impact on the learning process, involving all students in activities such as identifying problems, analyzing, and evaluating them, which are processes of critical thinking.

The interim conclusion of this study is that the problem-based learning instructional model is quite effective in cultivating students' critical thinking abilities in the subject of the Youth Pledge at SMP Negeri 3 Ajibarang. This is evidenced by the comparison of the experimental and control classes, where the experimental class obtained an n-gain score of 0.62, while the control class obtained an n-gain score of 0.34, indicating that the experimental class achieved higher results compared to the control class.

So, the conclusion of this study is the problem-based learning instructional model is effective in cultivating students' critical thinking abilities. This can be demonstrated through the comparison of the experimental and control classes. The experimental class obtained higher results in the n-gain score test compared to the control class, with an n-gain score of 0.62 and an n-gain present of 62%, falling into the category of moderately effective. On the other hand, the control class achieved an n-gain score of 0.34 and an n-gain present of 34%, categorized as ineffective. Furthermore, the problem-based learning instructional model has a significant influence on shaping students' critical thinking abilities, as evidenced by the effect size of 2.61218.

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