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## ***Comparison of critical thinking skills of grade 4 students in pancasila education lessons at SDN Sepang between problem based learning models and conventional methods***

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### **Abstract**

According to the results of PISA 2018 students, Indonesian students are in the low performance quadrant with high quality and show low critical thinking skills, especially in solving complex thinking problems. This situation highlights the need to improve the standard of education, particularly in primary schools. A number of studies have been conducted to overcome this problem, one of the strategies that has succeeded using the Problem Based Learning (PBL) model. This model encourages the development of critical thinking skills in students by solving problems that require in-depth analysis. The purpose of this study is to examine how the PBL model affects student performance in learning *Pancasila* education at SDN Sepang. The research method used was a quasi experiment with the population of all 4th grade students of *SDN Sepang*, where class IVA was the experimental class while class IVB was the control class. The data analysis technique uses a description test instrument through pretest and posttest. The results of the data analysis showed that the Problem Based Learning model applied in the experimental class was larger than the control class that used conventional methods. The critical thinking ability of students who used the PBL model obtained an average score of 78.00, while students who used conventional methods obtained an average of 68.41. This research shows that the PBL model can improve students' critical thinking skills and benefit the learning process in elementary schools.

**Keywords:** problem based learning; critical thinking; students

### **INTRODUCTION**

A person's knowledge, skills, and character are shaped by their education, which allows them to realize their full potential and prepare for life's challenges. According to Omeri (2015), education creates moral, ethical, and social values that are important for society in addition to instilling knowledge. People can live happily with high-quality education, and as said by (Safitri et al., 2022) the progress of a nation depends on its ability to provide quality education.

Access to high-quality education is very important today to create an educated society that is able to change with the times. Everyone has the right to education, which equips future generations to face various opportunities and difficulties. This is not just the task of a select few. Education must be a "generating agent" and an "agent of change" to bring change to the next generation (Safitri et al., 2022).

*Pancasila* education teaches students to love their country and appreciate diversity which is one of the keys to teachings taught in elementary school. The basic principles of the nation, tolerance for diversity and identity are all included in the teaching materials of *Pancasila* education. In this case, *Pancasila* education also teaches students to appreciate and recognize the diversity of society, including racial, religious, and cultural differences.

An effective learning model is necessary to achieve the best learning outcomes. One of the models that is often found is Problem Based Learning, which encourages student participation in problem-solving and learning processes. According to Kusuma (2020), PBL allows students to hone their critical thinking skills. With this model, students are encouraged to collaborate in groups or individuals to achieve common goals and to analyze and solve problems methodically.

The main pillar that supports high-quality education is teachers. Critical thinking skills are essential for filtering and evaluating information in the 21st century. Critical thinking, according to Paul & Elder (1992) is the art of analyzing and evaluating thoughts with the aim of improving them. Critical thinking assists students in understanding learning in detail and preparing for their intellectual demands in an educational environment.

According to the scores of the 2018 International Student Assessment Program (PISA), Indonesian students scored 64th out of 65 countries, showing a lack of critical thinking skills. The purpose of this study is to find out how the Problem Based Learning model affects the critical thinking skills of students in grade 4 of SDN Sepang in *Pancasila* education lessons, especially related to Social and Cultural Diversity material. This research is expected to have a good impact on improving educational standards and motivate educators to use the Problem Based Learning model.

## METHOD

The design of this study uses a quasi-experimental method with the type of Nonequivalent Control Group Design, which involves pretest and posttest to evaluate the influence of the Problem Based Learning model. This study aims to compare the learning outcomes between the experimental group that applied PBL and the control group that used conventional methods. The experimental and control groups were not randomly selected, and the same instruments were used for both groups to measure the effectiveness of the treatment.

Participants in this study are grade 4 students at SDN Sepang for the 2024/2025 school year, with a total of 86 students divided into 45 students in class 4A as an experimental group, and 41 students in class 4B as a control. The selection of participants is considered important to ensure the validity and representativeness of the data obtained. This study uses a purposive sampling technique that allows the selection of samples based on certain criteria that are relevant to the research objectives.

The research instrument consists of two types, namely test and non-test. The test serves to measure student competence through the pretest and posttest and is used to evaluate students' understanding of the material being taught. Meanwhile, non-tests are in the form of documentation that collects information without formal test tools, such as photos of ongoing activities. These two instruments aim to quantify and describe the phenomenon being studied, thereby providing a deeper understanding of the influence of the Problem Based Learning model.

## RESULTS AND DISCUSSION

After receiving approval from the school in August 2024, the research was conducted at *SDN Sepang, Serang City, Banten*. This research started from October to November 2024. A

total of 86 students were divided into two groups, namely class 4A with 45 students as the experimental class and class 4B with 41 students as the control class. 4A will be treated with the Problem Based Learning model and class 4B will be taught conventional methods. To evaluate students' critical thinking abilities, a pretest consisting of the same number and type of questions was initially given to both groups. Class 4A uses the PBL model after the pretest, while class 4B uses the conventional method. After the learning process, a posttest was carried out to assess the impact of the PBL model on students' critical thinking skills and compare the results between the two groups.

Before the treatment was given to the experimental and control classes, both conducted a pretest aimed at ensuring students' initial critical thinking skills. In class 4A, activities were carried out on October 28 and November 4, 2024, while in class 4B activities were carried out on October 31 and November 7, 2024.

Table 4.1 Statistical Description of Students' Initial Abilities

| Description of Statistics | Experimental Classes | Control Class |
|---------------------------|----------------------|---------------|
| Average                   | 61,44                | 44,26         |
| Std. Deviation            | 12.2763              | 13.3023       |
| Variance                  | 150.707              | 176.951       |
| Sum                       | 2765                 | 1815          |
| Greatest Value            | 100                  | 75            |
| Smallest Value            | 45                   | 15            |

Based on table 4.1 in the experimental class, the highest score is 100, the smallest score is 45, the total score is 2765, the variance value is 150,707, the standard deviation value is 12.2763, and the average value is 61.44. While in the control class, the highest value was 75, the smallest value was 15, the total value was 1815, the standard deviation was 13.3023, and the average value was 44.26. The average score of the experimental group was higher than the average of the control group.

After the pretest was carried out, the researcher conducted learning by providing treatment to the two classes. To recap the data, the researcher conducted a final test on each group after treatment. The posttest questions focus on Social and Cultural Diversity material and the form of posttest questions is the same as in the pretest. The following table shows the statistical results of the final test for each group.

Table 4.2 Statistical Description of Students' Final Ability

| Descriptive Statistics | Experimental Classes | Control Class |
|------------------------|----------------------|---------------|
| Average                | 78                   | 66,46         |
| Standard Deviation     | 14.3019              | 17.6509       |
| Variance               | 204.545              | 311.555       |
| Sum                    | 3450                 | 2725          |
| Greatest Value         | 100                  | 95            |
| Smallest Value         | 45                   | 25            |

According to the table above, the average score of the experimental class was 78, with a standard deviation of 14.3019, a variance of 204,545, a total number of scores of 3450, the highest score of 100, and the smallest score of 45. The average value of the control class is 66.46, with a standard deviation of 17.6509, a variance of 311.55, the sum of 2725, the highest value of 95, and the smallest value of 25.

To find out how much of a student's ability to solve problems during the study, a comparison of results before and after the test was needed between the experimental class using the PBL model and the control class using conventional methods. The next stage is to calculate the N-Gain score by dividing the posttest and pretest scores by the difference between the ideal and pretest scores. The results of the N-Gain gain are given further in the following table.

Table 4.3 N-Gain Test Results

| Class      | N  | Max  | Min  | Mean  | Std. Deviation |
|------------|----|------|------|-------|----------------|
| Experiment | 45 | 1.00 | -.14 | .4530 | .26441         |
| Control    | 41 | .92  | -.67 | .4387 | .29931         |

Based on the table above, the largest N-Gain value in the experimental class is 1.00, the smallest value is -0.14, and the average value is 0.4530. Meanwhile, in the control class, the largest N-Gain value was 0.92, the smallest value was -0.67, the mean value was 0.4387, and the standard deviation was 2.9931. The results showed that the N-Gain value in the experimental class was higher than the value of the control class. After being given treatment, it can be concluded that the critical thinking skills of the two classes are different from each other. The experimental class showed greater critical thinking results than the control class.

## CONCLUSION

This study aims to evaluate the influence of the Problem Based Learning model on students' critical thinking skills at *SDN Sepang, Serang City*. After conducting the pretest and posttest in the experimental group and the control group, the results obtained showed that there was a significant difference in critical thinking skills between the two groups.

From the statistical analysis, the average pretest score for the experimental class was 61.44, while the control class was only 44.26. After treatment, the average posttest score for the experimental class increased to 78, while the control class reached 66.46. This shows that experimental classes that use the Problem Based Learning model experience a greater improvement in critical thinking skills.

In the N-Gain analysis, the experimental class had an average Gain value of 0.4530, while the control class was only 0.4387. Although both groups showed higher results, with the largest N-Gain value reaching 1.00. These results indicate that the application of the Problem Based Learning model is more effective in improving students' critical thinking skills compared to conventional methods applied in the control class.

Overall, this study concludes that the Problem Based Learning model has a significant positive impact on students' critical thinking skills, and these results can be used as a basis for improving teaching methods in schools.

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