



The implementation of problem-based learning model to enhance the critical thinking skills of third-grade students in the Pancasila and citizenship education subject

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ABSTRACT

This study aims to analyze the effectiveness of the Problem-Based Learning (PBL) model in improving students' critical thinking skills in the Pancasila and Citizenship Education subject, particularly on the topic of Indonesia's National Symbols at SDN 138 Palembang. The research employed a quasi-experimental approach using a Nonequivalent Control Group Design, involving two classes: an experimental class applying the PBL model and a control class implementing the Student-Centered Learning (SCL) model. The main research instrument consisted of a critical thinking skills test developed based on Ennis's indicators, supplemented with student activity observation sheets and lesson implementation checklists. Data were analyzed quantitatively using descriptive statistics by comparing the percentage of critical thinking achievement between the two groups. The findings revealed that the implementation of PBL consistently enhanced the critical thinking skills of third-grade students more significantly than the SCL approach. Students in the experimental class demonstrated higher levels of engagement, analytical ability, and reflection on national values. The PBL model was proven to be aligned with the Merdeka Curriculum, as it fosters contextual, collaborative, and learner-centered instruction that supports the development of the Pancasila Student Profile. These results affirm that PBL can serve as a strategic alternative in thematic learning, particularly to strengthen critical thinking abilities and civic character among elementary school students.



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INTRODUCTION

The 21st-century education paradigm requires students to possess critical thinking and problem-solving abilities as part of essential learning competencies. PBL model is one of the most relevant approaches to achieving these goals, as it emphasizes active student engagement in addressing real-world situations. Since its introduction by John Dewey, PBL has been recognized as a learning model that presents authentic problems as the starting point for inquiry and reflective learning (Arends, 2012). Through this mechanism, students are expected to develop independence, creativity, and scientific reasoning in the process of formulating rational and evidence-based solutions.

Although learning should ideally focus on developing critical thinking skills, practices in the field still tend to differ. Observations conducted during the *School Field Introduction Program* at SDN 138 Palembang indicated that the learning process—particularly in the Pancasila and Citizenship Education subject—remains dominated by conventional methods such as lectures and one-way assignments. This pattern results in students playing a passive role and being less engaged in the learning process. Consequently, many students struggle to understand topics such as *Indonesia's National Symbols* due to the limited use of innovative media and engaging instructional approaches.

Many researches have demonstrated that PBL is an effective teaching method for promoting students' critical thinking and problem solving. Darmawati and Mustadi (2023) showed that the implementation of PBL encourages students to explore, collaborate and critically evaluate real life problems. Similarly, Ismail et al. (2021) pointed out that PBL is a student-centred mode of learning and enables the learners to be actively involved in addressing realistic problems at the beginning stage of

learning. This is in line with a study of Fitria et al. (2024) who focused on the potentially positive effect of PBL in developing critical thinking. Notwithstanding that there has been strong evidence of PBL effectiveness, its implementation within Pancasila and Citizenship Education at different elementary schools levels for understanding Indonesia's National Symbols is rarely explored.

The divergence between traditional teaching and the standard for fostering critical thinking necessitates the implementation of the PBL in Pancasila and Citizenship Education at the primary school level. It is imperative to assess the effectiveness of PBL in augmenting the critical thinking abilities of third-grade pupils through the utilization of pertinent, real-world scenarios. The aim of this study is to evaluate the effectiveness of PBL in enhancing critical thinking abilities among primary school pupils, particularly with Indonesia's national symbols.

RESEARCH METHOD

Research Design

This study employed a quasi-experimental design in the form of a Nonequivalent Control Group Design. This design was chosen because the school's existing conditions did not allow for random assignment of participants, as class divisions had already been determined by the institution. Nevertheless, the quasi-experimental approach still enables the researcher to examine the causal relationship between the implementation of PBL model and the improvement of students' critical thinking skills in the Pancasila and Citizenship Education subject. The stages of the PBL model include: 1) Orienting students to the problem; 2) Organizing students for learning; 3) Conducting individual or group investigations; 4) Developing and presenting solutions or project outcomes, and 5) Analyzing and evaluating the problem-solving process. These stages are systematically designed to guide students through inquiry-based learning experiences that promote higher-order thinking and reflective reasoning.

This study involved two groups of participants—an experimental class and a control class—that possessed relatively comparable levels of academic ability. The experimental class received instruction using PBL model on the topic of Indonesia's National Symbols, while the control class was taught using SCL, which also emphasized student engagement but did not include the systematic problem-solving stages characteristic of PBL. Both groups were administered a pretest prior to the treatment to measure their initial critical thinking skills and a posttest after the treatment to assess the improvement in critical thinking that occurred as a result of the intervention.

Research Sample

The research sample comprised all students in Class III.B at SDN 138 Palembang, totaling 24 participants—14 male and 10 female students. This class was chosen as the sample because all of the students had similar academic skills and the Pancasila and Citizenship Education material was relevant to the research topic. We used a purposive sampling technique to choose this class because it met the specific requirements for the study, which were that students were actively participating in thematic learning activities that were in line with the curriculum. Every student was involved in every part of the research, both when they were learning and when they were being tested. Consequently, this sample is deemed representative of the target population for analyzing the implementation of the PBL model within the framework of Pancasila and Citizenship Education at the elementary school level.

Research Instruments and Data Collection

The research instrument is utilized to gather data pertinent to the study's objectives, which aim to assess students' critical thinking skills in the Pancasila and Citizenship Education subject about Indonesia's National Symbols. The primary instrument employed was a critical thinking skills assessment grounded in the critical thinking indicators proposed by Ennis (2018). These factors are: 1) Making things clear; 2) Teaching basic skills; 3) Making conclusions; 4) Giving more information; and 5) Planning and carrying out strategies and tactics. There were 20 well-thought-out multiple-choice questions on this test that were aimed to see how well students could think critically about and analyze social and moral issues relating to the ideas of Pancasila.

The instrument was validated and tested for reliability before being utilized in the main study to make sure it was correct and consistent. The Pearson Product Moment correlation was utilized for the validity assessment, while the Cronbach's Alpha coefficient was employed for the reliability evaluation. The instrument achieved a Cronbach's Alpha score of 0.830 in a pilot test involving 58

students not included in the research population. Guilford's (1950) classification says that this value is in the high dependability range (0.70–0.90). As a result, the tool was shown to be valid and trustworthy for measuring the critical thinking skills of third-grade students at SDN 138 Palembang.

In addition to the test, this study utilized student learning activity observation sheets and lesson implementation observation sheets as supplementary instruments. The student activity observation sheet kept track of how much students participated, worked together, and thought critically while they were learning. The lesson implementation sheet, on the other hand, looked at how successfully the instructor applied the PBL model based on the rules for teaching (Arends, 2012).. All of the instruments were made using approved blueprints that were checked by professionals in primary education and teachers who teach Pancasila and Citizenship Education. This made sure that they were in line with what the study wanted to find out.

There were two main parts to the data collection process: the pretest and the posttest. We gave the students in both groups a pretest to determine how well they could think critically at start. The posttest was administered subsequent to the treatment to evaluate the improvement of students in the experimental and control classes following the implementation of PBL and SCL, respectively. The test data were collected separately, then put together and analyzed using a quantitative way to find out how much better one group did than the other.

The researcher observed the supervising teacher's instructional actions in the classroom while collecting data. The observations were performed to ensure that the lesson execution was consistent with the lesson design and adhered to the ethical requirements of elementary education research. This study aims to provide a comprehensive evaluation of the effectiveness of Project-Based Learning (PBL) in enhancing the critical thinking skills of third-grade students at SDN 138 Palembang by combining quantitative data from test results with qualitative data from observations.

Data Analysis

The aim of the data analysis in this study was to distinguish and assess the levels of students' critical thinking skills between the class taught using the PBL methodology and the class instructed through the SCL model in the Pancasila and Citizenship Education subject, particularly concerning Indonesia's National Symbols. The analytical methodology employed was descriptive quantitative and comparative, focusing on the comparison of the percentage of critical thinking achievement between the experimental and control groups.

We first looked at the data by checking the pretest and posttest scores for each student's critical thinking. Then, these numbers were turned into percentages of success using Formula 1.

$$\text{Achievement Percentage} = \frac{\text{Obtained Score}}{\text{Maximum Score}} \times 100\% \dots \dots \dots (1)$$

We looked at the percentage outcomes for each group to see how the learning models affected students' ability to think critically. We then calculated the average percentage of improvement for both the experimental and control courses to determine which group exhibited greater development. There were three levels of improvement: low (0–59%), moderate (60–79%), and high (80–100%). This classification helped us grasp the learning goals better and gave us a means to judge how well PBL and SCL worked to help students think critically about Pancasila and Citizenship Education.

Tables and bar charts were used to present the data so that it was simpler to observe how the two courses differed in terms of critical thinking skills. This descriptive study was conducted to evaluate the effectiveness of PBL by quantifying the percentage increase in students' critical thinking skills. Consequently, the study's results were based on the differences in achievement percentages between the experimental and control courses, without employing inferential statistical tests.

This approach aligns with the objectives of elementary education research, which emphasize on tangible improvements in classroom learning rather than formulating broad generalizations about the entire population (Sugiyono, 2023; Creswell, 2015). As a result, the descriptive percentage-based analysis is considered sufficiently representative to illustrate the effect of implementing PBL on enhancing students' critical thinking skills at SDN 138 Palembang.

RESULTS

During the PBL-based learning session on the topic Garuda Pancasila as the National Emblem, students were introduced to real-world problems through guiding questions such as, “How can the first principle of Pancasila be applied in daily life?” The session involved small group discussions, interactive use of media boards, and collaborative problem-solving tasks. Compared to SCL, which tended to be more one-directional, PBL led to a noticeable increase in student participation, problem-solving engagement, question formulation, and reasoning skills.

Data collected from students’ worksheet performance showed that under the SCL, 15 out of 24 students achieved scores above the minimum mastery criterion (MMC), while under the PBL model, 20 out of 24 students surpassed the MMC threshold. The percentage results of students’ critical thinking performance were obtained as follows:

Table 1 Comparison of Critical Thinking Results

<i>No</i>	<i>Learning Design</i>	<i>Critical Thinking Score</i>
1	SCL	66%
2	PBL	80%

Table 1 illustrates a comparison between the two instructional models. The observations indicate that when PBL was implemented, students achieved an average critical thinking score of 80%, compared to 66% under the conventional learning method. This result represents the critical thinking performance of third-grade students (Class III.B) during Pancasila and Citizenship Education lessons on the topic of Indonesia’s National Symbols.

When conventional, teacher-centered methods were applied—characterized by one-way communication, lectures, and limited student engagement—learning activities did not optimally foster students’ analytical or reflective thinking. However, after the introduction of the PBL model, there was a 14% increase in critical thinking scores. This improvement demonstrates that through PBL, students were actively involved in solving real-world problems, participating in discussions, asking questions, and expressing opinions collaboratively.

The table thus serves as an evidence-based indicator supporting the conclusion that the Problem-Based Learning approach aligns with the principles of the Merdeka Curriculum, which emphasizes active, reflective, and analytical participation of students in the learning process.

DISCUSSION

In elementary school learning, problems often arise due to the use of monotonous and unengaging instructional models that are not well aligned with students’ developmental abilities. This becomes a key factor contributing to the low level of students’ critical thinking skills during the learning process (Sukamto et al., 2022). To facilitate effective learning, teachers must employ appropriate instructional models; however, in practice, teachers often apply the same model to all basic skills, even though each skill requires a specific learning approach.

The findings of this study indicate that PBL successfully promotes the development of critical thinking skills in elementary school students. PBL is a new way to learn that is different from the old style of learning. PBL makes learning more interesting by shifting the focus from the teacher to the student. This way, students are actively learning. Giving students issues that have to do with comprehending national symbols teaches them to question, reason, and think about things. Students can explore challenges, develop solutions, and cooperate with others to improve their understanding in the PBL framework. This approach aligns with constructivist learning principles, which assert that learners actively generate knowledge through direct experience and social interaction.

Learning that focuses on solving real-world problems has been demonstrated to make many areas of students’ critical thinking skills better, like how they ask questions, reason logically, come to conclusions, judge arguments, and think about how they think (Fitriadi et al., 2025). The students weren’t merely encouraged to memorize what the Garuda Pancasila symbols meant in the context of Indonesia’s national insignia. They were also supposed to relate them to their everyday lives and give specific examples of how Pancasila values could be implemented in real life.

PBL makes Pancasila and Citizenship Education more interesting, useful, and significant. Students were able to talk to each other in a healthy way and get better at communicating through small-

group chats. Students learned to listen to what others had to say with respect, to present their arguments in a calm way, and to come up with solutions that everyone could agree on. These things assist kids develop traits like tolerance, responsibility, and curiosity, which are all crucial features of the Pancasila Student Profile that Indonesia's Merdeka Curriculum requires.

Collaborative learning also helps students learn how to think critically, work together, and communicate (3C), which are all vital skills for the future (Matongo & Goronga, 2024). The Garuda Pancasila symbol board was another crucial aspect of the learning process that helped it go successfully. The pupils understood the abstract symbols better when they were shown the national emblem instead of merely being told about them or reading about them.

This media reinforcement made students more motivated and concentrated, which made the classroom a more exciting and interesting environment to learn. Kids also moved around and saw things when they used interactive media. This is a terrific way for younger primary school students to learn. These findings are consistent with the research by Meriza et al. (2024) and Sarwanto et al. (2021), which indicated that PBL enhances students' problem-solving and reflective thinking abilities. The Garuda symbol board and other media tools are also good for visual learning, which makes civic ideas that are hard to explain easier to recall and understand.

The findings indicate that PBL has the potential to enhance the engagement and utility of Civics Education for young learners. Prior to the classroom action research undertaken during the School Field Introduction Program, the author, as a pre-service teacher, utilized a conventional teaching approach defined by lecturing, note-taking, and providing opportunities for independent study for students. But these old-fashioned approaches of teaching didn't truly get kids interested in learning. To get students more involved and make them participate more in Pancasila and Citizenship Education classes, a more diverse teaching style that relied largely on the PBL technique was put into place.

CONCLUSION

Based on the results and discussion, it can be concluded that the implementation of the PBL in Pancasila and Citizenship Education on the topic of Indonesia's National Symbols proved to be effective in enhancing the critical thinking skills of third-grade students at SDN 138 Palembang. Through structured problem-solving stages and collaborative learning activities, students demonstrated significant improvement in their ability to analyze, evaluate, and reflect on national values more deeply and meaningfully.

PBL not only strengthened students' conceptual understanding of Pancasila and Citizenship Education material but also fostered learning motivation, collaboration skills, and a sense of responsibility toward the learning process. The findings of this study indicate that PBL aligns with the principles of the Merdeka Curriculum, which emphasizes contextual, differentiated, and student-centered learning oriented toward the development of the Pancasila Student Profile.

Thus, the implementation of PBL model can serve as a strategic alternative for elementary school teachers to improve the quality of thematic learning, particularly in subjects oriented toward character formation and the understanding of civic values. It is recommended that teachers apply PBL more broadly and consistently by aligning the learning problems with students' real-life contexts so that critical, reflective, and participatory thinking skills can develop optimally.

Declaration on the Use of AI Statement

During the preparation of this work, the authors used AI tools to improve the readability and language of the manuscript. After using this tool, the authors carefully reviewed and edited the content as needed and take full responsibility for the content of the published article.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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