

The Influence of the Problem-Based Learning (PBL) Model on Students' Critical Thinking Skills in Indonesian History Learning for Grade X Social Science Class at MAN 2 Tangerang

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Received 29 July 2023; Received in revised form 30 March 2024; Accepted 15 September 2025

Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh dari penggunaan model problem based learning terhadap kemampuan berpikir kritis siswa dalam pembelajaran sejarah indonesia kelas X IPS di MAN 2 Tangerang. Penelitian dilaksanakan pada 8 Maret 2023 - 12 April 2023. Metode penelitian yang digunakan adalah quasi eksperimen, dengan teknik pengambilan sampel yaitu non probability sampling, masing-masing sampel berjumlah 39 orang pada kelas kelas eksperimen dan kelas kontrol. Instrumen yang digunakan pada penelitian ini yaitu tes uraian sebanyak 9 soal. Hasil uji hipotesis menggunakan uji t dengan rumus pooled varian, diperoleh $t_{hitung} = 2,479 > t_{tabel} 1,991$ dengan $\alpha = 0,05$, sehingga H_a diterima dan H_o ditolak. Hal itu menunjukkan adanya pengaruh dari model problem based learning terhadap kemampuan berpikir kritis siswa pada mata pelajaran sejarah Indonesia.

Kata kunci: pembelajaran sejarah, *problem based learning*, kemampuan berpikir kritis.

Abstract

This study aims to determine the influence of the problem-based learning (PBL) model on students' critical thinking skills in Indonesian history learning for Grade X Social Science class at MAN 2 Tangerang. The research was conducted from March 8, 2023, to April 12, 2023. The method employed was a quasi-experiment, using a non-probability sampling technique, with 39 students in both the experimental and control classes. The instrument used in this study was an essay test consisting of 9 items. The hypothesis was tested using the t-test with the pooled variance formula, resulting in a calculated t-value of 2.479, which is greater than the critical t-table value of 1.991 at $\alpha = 0.05$. Therefore, H_a was accepted and H_o was rejected. This finding indicates that the problem-based learning model significantly influences students' critical thinking skills in Indonesian history learning.

Keywords: history learning, *problem-based learning*, critical thinking skills.

INTRODUCTION

Education plays a crucial role in shaping human behavior, ways of thinking, and moral values in accordance with prevailing norms. The development of each individual's potential can be achieved through education, particularly in the learning process. One such subject is Indonesian history, which is a compulsory course at the senior high school level. The purpose of history education is not only to

provide students with knowledge of historical facts but also to encourage them to think critically in understanding historical events. However, the teaching of history continues to face various challenges, which hinder the optimal achievement of learning objectives. One of the major challenges is that students tend to have limited critical thinking skills, as observed by the researcher

during the learning process in Grade X Social Science at MAN 2 Tangerang.

This problem can be analyzed as stemming from the insufficient role of teachers in creating classroom situations and conditions that encourage students to actively engage in learning. Consequently, students are unable to develop their knowledge and critical thinking abilities. According to the Regulation of the Minister of Education and Culture (Permendikbud) No. 81A of 2013, teachers are facilitators who must provide opportunities for students to actively participate in the learning process. In practice, however, many teachers still fail to provide such opportunities.

The low level of students' critical thinking skills in Indonesian history classes was further confirmed by teacher interviews. During lessons, about 95% of students did ask questions, but these questions were not the result of their own analysis; rather, they were directly taken from textbooks. Similarly, students' answers to assignments and exams reflected limited critical thinking. If this imbalance continues, it will lead to negative consequences, especially in history education, where critical thinking is an essential skill for analyzing subject matter.

Therefore, a solution to achieve the objectives of history education is for teachers to design learning systems and create classroom environments that foster

the development of students' critical thinking skills throughout the learning process. One such approach is the Problem-Based Learning (PBL) model. In PBL, students are not only expected to understand a given problem but also to work collaboratively in solving it. This process is expected to stimulate students to further develop their critical thinking abilities. The purpose of this study is to determine the influence of the problem-based learning model on students' critical thinking skills in Indonesian history learning for Grade X Social Science at MAN 2 Tangerang.

METHODS

This study employed a quantitative research approach, using a quasi-experimental method. Quasi-experiments rely on the validity of the population and sample used, the presence of hypotheses, and the application of statistical analysis to test those hypotheses. The research design applied was the non-equivalent control group design, which consisted of two groups: an experimental group and a control group.

The experimental group, Class X IPS 1, was taught using the problem-based learning (PBL) model, while the control group, Class X IPS 3, was taught using the discovery learning model. Both groups were first given a pre-test, after which the experimental group received instruction through PBL and the control

group through discovery learning. At the end of the instructional period, both groups were administered a post-test to evaluate the impact of the respective teaching models.

The study was conducted at MAN 2 Tangerang during the even semester of the 2023/2024 academic year, specifically from March to April 2023. The sampling technique employed was non-probability sampling, which does not provide equal opportunity for all members of the population to be selected. From this, purposive sampling was applied to determine the sample. Data collection methods consisted of both test and non-test instruments. Descriptive statistics were used to summarize the data, while inferential statistics were employed to draw conclusions from the study.

RESULTS AND DISCUSSION

The pretest was administered to both the experimental and control classes using the same set of nine essay questions, which had been validated by subject-matter experts and history teachers to ensure content validity and reliability. The pretest took place on March 8, 2023, and served as a baseline measurement of students' critical thinking ability prior to any instructional treatment. Based on descriptive statistical analysis, the experimental class obtained an average score of 36.76, while the control class obtained an average of 36.79. These

nearly identical means indicate that both groups initially possessed a comparable level of critical thinking skills.

Prior to hypothesis testing, prerequisite analyses were conducted to confirm that the data met the assumptions required for parametric testing. The normality test showed that the experimental group had a χ^2 calculated value of 3.97 and the control group 6.34, both of which were lower than the χ^2 table value of 12.592 at $\alpha = 0.05$. This indicates that the data from both groups were normally distributed, thus meeting the normality assumption. The homogeneity test for pretest scores showed F calculated (1.92) < F table (3.97), with degrees of freedom 1,77 at $\alpha = 0.05$. This result confirms that the data variances were homogeneous, meaning that the spread of scores in both groups was statistically equal.

A two-tailed t-test with pooled variance was then applied to the pretest data. The result was t calculated (0.009) < t table (1.991) at $\alpha = 0.05$ and $df = 76$. Thus, H_0 was accepted, and H_a was rejected. It was concluded that the experimental and control classes had no significant difference in their critical thinking ability prior to treatment. This finding was important, as it established that both groups began the study on equal footing, thereby ensuring the validity of subsequent comparisons.

Following this stage, the experimental class received instruction through the problem-based learning (PBL) model across three meetings, while the control class was taught using discovery learning. The experimental class learning material was based on Basic Competence 3.8: *“Identifying the characteristics of society, governance, and culture during the Islamic kingdoms in Indonesia and presenting evidence that remains in present-day Indonesian society.”* The selection of this material was intentional, as historical topics such as cultural heritage and societal transformation provide rich opportunities for inquiry, analysis, and critical interpretation, making them particularly suitable for the application of PBL.

During the implementation phase, students in the experimental class followed the core steps of the PBL model: orientation to the problem, group organization, independent and collaborative investigation, presentation of findings, and class-wide discussion. This sequence of activities placed students at the center of the learning process, requiring them to take ownership of their learning while simultaneously building critical thinking and problem-solving abilities. Unlike traditional instruction, in which students may passively receive information, the PBL framework required students to engage deeply with historical issues, collect and analyze evidence,

construct arguments, and justify their conclusions.

After three sessions, a posttest was administered to both groups. The results revealed a marked improvement: the experimental class achieved a mean score of 78.85, while the control class achieved 70.46. This substantial difference illustrates that students exposed to PBL demonstrated higher gains in critical thinking than those taught through discovery learning.

The normality test for the posttest results indicated that the experimental group had a χ^2 calculated value of 8.22, and the control group had 12.14, both lower than the χ^2 table value of 12.592 at $\alpha = 0.05$. Therefore, both groups' posttest data were normally distributed. The homogeneity test results for the posttest showed F calculated (0.5567) < F table (3.97), with $df = 1.77$ at $\alpha = 0.05$, meaning that the posttest data had homogeneous variances.

A two-tailed t -test with pooled variance was conducted on the posttest scores, yielding t calculated (2.479). Since this value was greater than t table (1.991) at $\alpha = 0.05$ with $df = 76$, H_a was accepted, and H_0 was rejected. These findings indicate that the problem-based learning model significantly improved students' critical thinking ability in comparison with the discovery learning model. In other words, the statistical evidence confirmed that PBL had a measurable and positive

impact on students' cognitive performance.

The findings of this study demonstrate that the implementation of the problem-based learning (PBL) model positively influences students' critical thinking ability in Indonesian history learning. While the pretest results revealed no significant differences between the experimental and control classes, the posttest results showed a clear improvement in the experimental class compared to the control class. This indicates that the use of PBL was a decisive factor in enhancing students' higher-order thinking skills, specifically in the domain of historical inquiry.

During the teaching process, several important observations were made. In the experimental class, the learning stages encouraged students to actively engage with the material through group collaboration, problem identification, and independent investigation. Students were required not only to understand historical content but also to analyze, evaluate, and present evidence-based solutions. These activities align with Ennis' (1985) conception of critical thinking as a process involving logical reasoning and problem-solving. Moreover, they mirror Bloom's taxonomy of cognitive processes, particularly at the analysis, evaluation, and creation levels.

Moreover, the implementation of PBL created a more meaningful and

contextual learning environment. Students applied prior knowledge while seeking new information relevant to solving the given problems, which allowed them to bridge historical concepts with contemporary issues. This approach fostered internal motivation and strengthened interpersonal communication, as also suggested by Widiasworo (2017). The process of group presentations and peer questioning further trained students to articulate arguments, defend perspectives, and critically evaluate opposing viewpoints. These are essential components of critical thinking development and align with the principles of constructivist pedagogy, where knowledge is actively constructed rather than passively received.

Nevertheless, challenges were encountered, particularly with time management during group investigations. Some groups required more time than initially allocated to complete their tasks, due to varying levels of student readiness and group dynamics. This obstacle was addressed by adjusting the schedule and allowing additional time to complete the investigations, ensuring that subsequent learning stages were not disrupted. This finding highlights the importance of flexible classroom management in the successful implementation of PBL. It also underscores the teacher's role as a facilitator who balances guidance with autonomy, ensuring that learning

objectives are met without undermining student agency.

The superiority of PBL over discovery learning in this study can be explained by the fact that discovery learning tends to emphasize individual efforts in exploring and understanding concepts, whereas PBL explicitly integrates collaborative problem-solving, critical inquiry, and real-world applications. While discovery learning is valuable for encouraging exploration, it lacks the structured social and cognitive interactions that PBL provides. The collaborative and problem-centered nature of PBL offered students greater opportunities to practice higher-order thinking, test their ideas in group settings, and receive immediate feedback from both peers and teachers.

These results are consistent with prior studies (Janah et al., 2007; Nasution et al., 2012; Rahmawati et al., 2014) that have also found PBL to enhance critical thinking and problem-solving skills across different subject areas. Thus, the present study further reinforces the effectiveness of PBL as a pedagogical approach in history education, particularly in cultivating students' critical thinking ability. The convergence of findings across multiple contexts strengthens the generalizability of the conclusion that PBL is a powerful tool for improving student outcomes in secondary education.

In conclusion, the discussion underscores that PBL not only improved students' critical thinking skills but also increased their motivation to learn, their sense of responsibility in group work, and their active participation in class activities. These outcomes demonstrate that integrating PBL into history instruction is a promising approach to achieving the educational goal of fostering critical, analytical, and independent learners. Furthermore, the study suggests that PBL has the potential to prepare students with the intellectual skills necessary to navigate complex social, cultural, and historical issues in the modern world, thereby making it a relevant and future-oriented instructional model.

CONCLUSION

The conclusion of this study is that the use of the problem-based learning (PBL) model has a significant effect on students' critical thinking skills in Indonesian history subjects. This finding is based on the results of the post-test hypothesis testing using the pooled variance formula, which showed that H_a was accepted with a t -value of 2.479 compared to a t -table value of 1.991. Thus, it can be concluded that students' critical thinking skills taught using the problem-based learning (PBL) model are higher than those taught using the discovery learning model.

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