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The Impact of Problem-Based Learning Model on Students' Historical Thinking Skills in History Education at Teuku Umar High School, Semarang

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ABSTRACT

Historical awareness helps people understand their identity as a nation and build a spirit of nationalism. In this case, the learning model used is the Problem-Based Learning model The objectives of this study are: 1) To analyze the historical thinking skills of class XI students taught using the Problem Based Learning model; 2) To analyze the historical thinking skills of class XI students taught without the Problem Based Learning model; 3) To analyze the differences in historical thinking skills between students taught using the Problem-Based Learning model and those not taught using the Problem-Based Learning model. The study used a quantitative approach with a quasi-experimental design in the form of a nonequivalent control group design. The research subjects consisted of two classes, namely the experimental class, which was taught using the Problem-Based Learning model, and the control class, which used the conventional model. The results of the study show a significant increase in historical thinking skills in the experimental class. Based on the t-test results, the tcount is 4.221, which is greater than the ttable value of 1.667. A tcount > ttable value indicates a significant difference between the average of the experimental class and the control class, so hypothesis H1 is accepted and H0 is rejected. The acceptance of H1 indicates that there is a difference in historical thinking skills between students taught using the Problem-Based Learning model and those not taught using the Problem-Based Learning model. The findings of this study indicate that the Problem-Based Learning model has a significant effect on the historical thinking skills of students at Teuku Umar High School in Semarang.

Keywords: Problem Based Learning, Historical Thinking Skills, History Learning.

INTRODUCTION

History can be understood as a rational reconstruction of the past that serves present needs. As Ku Ntowijoyo (2005, p. 8) explains, history is not a myth, namely a narrative of past events with vague chronology and irrational explanations, but a scholarly discipline that examines human actions within specific historical contexts and derives socially meaningful interpretations. In this regard, history education plays a vital role in shaping national identity, cultural awareness, and critical ways of thinking (Sagala, Heriadi, Ababiel, et al., 2022). Historical consciousness enables individuals to recognize their national identity, cultivate a sense of patriotism, and develop a deeper understanding of their collective existence

and selfhood (Amboro, 2020; Cakranegara, 2020; Handy, 2021). Therefore, history teaching should not merely transmit factual knowledge but also foster historical understanding, as this significantly influences how students interpret and engage with historical learning.The development of historical thinking requires students to be actively involved in formulating questions, examining multiple sources, and considering diverse perspectives (Thorp & Persson, 2020). Through this process, students are encouraged to reconstruct and narrate the past using their own reasoning and interpretations. In line with Indonesia's Kurikulum Merdeka (Freedom to Learn Curriculum), history instruction has shifted toward a more student-centered orientation. History learning plays an important role in shaping students' understanding of past events (Purnomo, Kurniawan, Romadi, et al., 2024). In the era of the *Kurikulum Merdeka*, history instruction has undergone significant changes, with the learning process placing students at the center of educational activities. However, in practice, particularly at Teuku Umar High School, history teaching still tends to rely heavily on teacher-centered approaches, such as lectures supported by textbooks and static PowerPoint presentations. Although instructional models can be effective when properly implemented (Wicaksono & Purnomo, 2021), passive learning often limits students' opportunities to think critically, resulting in superficial understanding confined to memorized facts (Sumargono, Basri, Istiqomah, et al., 2022). Consequently, many students experience difficulties in contextualizing historical events, analyzing causality, interpreting evidence, and constructing coherent, evidence-based historical narratives.

Marli (2020) outlines three key principles of effective history education, namely connecting historical content to students' everyday experiences, promoting deep understanding and historical awareness, and expanding the thematic scope of historical learning. These principles suggest that history becomes meaningful when students are able to relate past events to contemporary issues. One instructional approach that aligns with these principles is Problem-Based Learning (PBL), which places authentic, real-world problems at the center of the learning process. Through PBL, students are encouraged to think critically, collaborate with peers, gather and analyze evidence, and develop reasoned conclusions (Handayani & Koeswanti, 2021), all of which are closely related to the core components of historical thinking.

Previous studies have demonstrated the effectiveness of PBL in history and social studies education. Bariyah, Hidayatullah, and Jaenudin (2022) reported that PBL significantly improves students' critical thinking skills, while Tricahyono and Widiadi (2020) highlighted the effectiveness of student-centered, library-based history learning. Similarly, Ofianto and Ningsih (2021) found that PBL is more effective than expository methods in enhancing students' historical thinking abilities. Although PBL has been widely examined, this study is distinctive in its specific context, focusing on Grade XI students at Teuku Umar High School, where preliminary observations indicate limited learning resources and a strong dependence on conventional instructional media. Moreover, this research emphasizes not only general historical understanding but also temporal reasoning, including students' ability to comprehend historical time, arrange events chronologically, and reinterpret them based on acquired knowledge. Supported by interactive learning media, the implementation of PBL is expected to create a more engaging, meaningful, and effective history learning experience.

LITERATURE REVIEW

A growing body of research has examined the role of Problem-Based Learning (PBL) in supporting history education. Brahmowisang (2020), for instance, demonstrated that PBL positively influences both the teaching and learning process as well as students' critical thinking skills. This is particularly important

in history education, where learning extends beyond memorizing facts to analyzing causes, consequences, and interconnections among historical events. Similar findings were reported by Purwanto, Soedarmo, and Suryana (2021), who found that PBL enhances not only students' conceptual understanding but also character development. As a student-centered instructional model, PBL encourages learners to investigate authentic problems individually or collaboratively, thereby linking theoretical knowledge with real-world contexts.

Historical thinking, which includes source analysis, contextualization, evidence-based narrative construction, and reflective learning from past experiences, is a central objective of history education. Students are encouraged to develop their own questions, conduct investigations, and discover answers independently (Ba'in, Kurniawan, Hannan, et al., 2023). PBL closely aligns with this objective, as it enables students to actively construct knowledge and develop problem-solving skills (Pratiwi & Setyaningtyas, 2020). Within the framework of Indonesia's Kurikulum Merdeka, which emphasizes learner autonomy and deep conceptual understanding, PBL is particularly relevant for history instruction. Through this approach, students are encouraged to interpret and reconstruct historical events from multiple perspectives, including social, political, and cultural dimensions, thereby fostering more nuanced historical consciousness. Accordingly, this study seeks to provide empirical evidence regarding the effectiveness of PBL in developing historical thinking skills among senior high school students, contributing to both pedagogical practice and curriculum implementation in history education.

MATERIALS & METHODS

This study employed a quantitative approach using a quasi-experimental design, specifically the nonequivalent control group design. The research involved two classes at Teuku Umar High School, Semarang, during the odd semester of the 2025/2026 academic year. The experimental group consisted of Class XI-1 with 35 students, while the control group consisted of Class XI-2 with 36 students. Sampling was conducted using random sampling techniques. The independent variable was the implementation of the Problem-Based Learning (PBL) model, whereas the dependent variable was students' historical thinking ability. Control variables included the teacher, time allocation, and curricular context.

Data were collected through pretests and posttests consisting of ten descriptive questions related to the history of the Indonesian national movement, complemented by documentation of the learning process. The research instrument was examined for content validity and demonstrated high reliability ($\alpha = 1.06$). Item analysis indicated that three items had adequate discriminatory power, while seven items were categorized as low. In terms of difficulty level, three items were of moderate difficulty and seven were considered easy. Data analysis procedures included prerequisite tests of normality and homogeneity, both of which were satisfied. Hypothesis testing was conducted using a t-test to examine the significance of treatment effects, and an N-Gain test was employed to measure improvements in students' historical thinking skills. In the control group, instruction was delivered using Microsoft PowerPoint-based learning, whereas the experimental group received instruction fully based on the Problem-Based Learning model.

RESULT

Pretest-Posttest Data Analysis

The results of the pretest and posttest analyses for both the experimental and control groups are presented in Table 1.

Table 1

Class	Average Value	
	Pretest	***Posttest***
Control	38,611	72,083
Experiment	44,00	89,714

In the control group, the mean pretest score of 38.611 increased to 72.083 in the posttest, representing a gain of 33.472 points. This improvement indicates that the conventional instructional approach applied in the control group was able to enhance students' learning outcomes to a certain extent. Although the Problem-Based Learning model was not implemented, the instructional process still resulted in a statistically meaningful increase in students' performance.

In contrast, the experimental group demonstrated a greater improvement. The mean pretest score increased from 44.00 to 89.714 in the posttest, resulting in a gain of 45.714 points. The larger increase observed in the experimental group suggests that the implementation of the Problem-Based Learning model had a positive and more substantial effect on students' learning outcomes compared to conventional instruction.

These differences indicate that the use of the Problem-Based Learning model has had a positive effect. Although both classes experienced a significant increase in scores, the final achievements of students in the experimental class reached a higher level of understanding than those in the control class. However, statistical tests such as the T-test and N-Gain test need to be conducted to determine the significance of the differences between the control class and the experimental class.

T-Test Analysis Results

The alternative hypothesis (H1) was accepted when t count ≥ t table, indicating a significant effect of the Problem-Based Learning model on students historical thinking skills. The results of the analysis are presented in Table 2.

Table 2

	Experiment	**Control**
Total	1600	1205
Average	45,714	33,472
Variant	128,151	169,742
T_{count}	4,221	
t_{table}	1,667	

The results of statistical analysis in Table 2 show that the average historical thinking ability of the experimental class was 45.714, while the control class obtained an average of 33.472. The difference in the average of 12.242 points shows that students taught using the Problem-Based Learning model had higher historical thinking abilities than students in the control class. In the hypothesis test, the tcount was 4.221, while the t-table was 1.667. T-count ≥ t-table indicates that there is a significant difference in scores between the experimental class and the control class, so the alternative hypothesis (H1) is accepted, while the null hypothesis (H0) is rejected.

N-Gain Test Analysis Results

In this study, the N-Gain test results were categorized as acceptable when the gain score g >0.3. The results of the N-Gain analysis are presented in Table 3.

Tabel 3

Kelas	**Data (Average)**		**N-Gain**	**Criteria**
	Pretest	**Posttest**		
Control	38.611	72.083	0.528	Sedang
Experiment	44	89.714	0.810	Tinggi

Table 3 shows the results of the N-Gain test analysis of the pretest and posttest scores in the control class, which obtained g = 0.528. Thus, the N-Gain value in the control class is more than 0.3 or g > 0.3 but g < 0.7, indicating that the results fall into the medium category. In the experimental class, the N-Gain value obtained was g = 0.810. Therefore, the N-Gain value in the experimental class is more than 0.3 or g > 0.3 but g < 0.7, indicating that the experimental class falls into the high category.

DISCUSSION

The learning process in both the experimental and control classes was conducted in accordance with the prepared teaching modules and took place over four meetings. The experimental class implemented the Problem-Based Learning model, whereas the control class employed a conventional learning model using the lecture method. In the experimental class, learning activities were predominantly carried out through group discussions facilitated by Student Worksheets (LKPD). Each group subsequently presented the outcomes of their discussions through class presentations. The discussion results demonstrated that students were able to address learning problems through collaborative discussion among peers. The learning process in the experimental class was interactive, characterized by group discussions and question-and-answer sessions during presentations. This learning environment provided students with opportunities to share the results of their investigations and exchange ideas with their peers. Historical thinking ability is the ability possessed by historians in reasoning about various events in the past (Syahputra, Purwanta, & Djono, 2024). The historical thinking ability measured in this study includes 3 indicators, namely (1) Chronological Thinking, namely the ability to understand historical time and be able to identify the chronological sequence in historical events; (2) Historical Comprehension, namely the ability to read and understand historical stories and be able to re-explain these events based on the knowledge they have; and (3) Historical analysis and interpretation, namely the ability to compare and evaluate historical explanations.

Nugraha, Sinolungan, Nur, et al., (2023) define Problem Based Learning as a learning model that uses problems as a starting point for learning, where students are invited to learn through problem solving, and the teacher acts as a facilitator in the process. The Problem Based Learning model emphasizes the dominance of student activity in learning, encouraging students to think critically and construct their own knowledge (Rohimah, Setiawati, Afwan, et al., 2025). In history learning, these activities train students to examine past events rationally and contextually.

The findings of this study indicate that the learning process in the experimental class implementing the Problem-Based Learning model was highly interactive. Students demonstrated active participation in group discussions, expressed their ideas, and responded to their peers' perspectives. The application of the Problem-Based Learning model encouraged increased student engagement and the development of thinking skills as the learning process progressed (Djonomiarjo, 2019). This condition is consistent with Vygotsky's constructivist theory, which posits that knowledge is formed through social interaction among learners and constructed based on individual experiences. Constructivist theory emphasizes learning as a gradual process of building students' abilities and understanding (Panuluh, Setyowati, Amilin, et al., 2023). Through problem-solving activities, students engaged in meaningful learning experiences that supported the development of their cognitive skills.

The development of higher-order thinking skills requires dialogic learning that encourages students to explore, reflect on, and understand their own learning experiences (Purnomo & Mulianingsih, 2021). This perspective aligns closely with the implementation of the Problem-Based Learning model. By situating students in authentic problem-solving contexts, the Problem-Based Learning model enables learners to acquire direct and meaningful learning experiences through active engagement in the problem-solving process.

CONCLUSION

Based on the T-test results, the t-count value of 4.221 is greater than the t-table value of 1.667. T-count > t-table indicates a significant difference in the average between

the experimental class and the control class, so hypothesis H1 is accepted and H0 is rejected. H1 is accepted, indicating that there is a difference in the historical thinking skills of students taught using the Problem-Based Learning model and those not taught using the Problem-Based Learning model at Teuku Umar High School in Semarang, as shown by the higher historical thinking skills of students in the experimental class compared to those in the control class.

Declaration by Authors

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