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Enhancement of Critical Thinking Skills of Grade X Students at SMKN 2 Singosari in History Learning: The Process of Islam's Entry and Development in the Archipelago through Project-Based Learning



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ABSTRACT: This research aims to investigate the improvement of critical thinking skills among grade X students at SMKN 2 Singosari in history learning, particularly regarding the process of Islam's entry and development in the archipelago, through the implementation of project-based learning. The research method employed is classroom action research. Data were collected through tests to measure students' critical thinking skills and their learning outcomes. The analysis results indicate a significant improvement in students' critical thinking skills from pre-cycle to cycle I, and from cycle I to cycle II. At the indicator level, there is a consistent improvement in the ability to ask questions, skills in presenting arguments and ideas, skills in validating data relevant to the problem, and skills in formulating conclusions and solutions with proper reasoning. Furthermore, students' learning outcomes also show a significant improvement from pre-cycle to cycle I, and from cycle I to cycle II, both in terms of average learning outcomes and the level of learning completeness. These findings suggest that the implementation of project-based learning can positively contribute to the enhancement of critical thinking skills and learning outcomes of students in history learning.

KEYWORDS: critical thinking skills, project-based learning, improvement in learning outcomes

INTRODUCTION

Critical thinking skills are crucial aspects of education that not only produce intelligent learners but also foster creative and analytical thinkers. In the context of history learning, developing critical thinking skills becomes crucial, especially for grade X students at SMKN 2 Singosari Malang, the focus of this research, utilizing the Project-Based Learning (PBL) model. PBL offers a learning approach that emphasizes the application of knowledge in real projects, thereby enhancing students' critical thinking skills. Through this approach, this research aims to explore and analyze students' critical thinking skills in understanding the material on the Process of Islam's Entry and Development in the Archipelago. This effort aligns with the views of Muslikhah and Umar (2023), emphasizing the importance of a deep understanding of the history of Islam in the Nusantara region. This is particularly relevant as Islam in Indonesia is undergoing significant events and transformations. One notable development is the emergence of several Islamic schools, which exhibit differences in beliefs and religious practices among these sects. Additionally, there is a process of modernization within Islam in Indonesia, characterized by changes in thinking patterns, practices, and relationships. This modernization is influenced by various factors, including globalization, technological advancements, and social-political changes (Hidayat, Afif, & Dahlan, 2024). Therefore, a profound understanding of this material can result in better critical thinking.

In this context, this research refers to recent findings highlighting the urgent need to enhance students' critical thinking skills (Sundari, Subali, & Marwoto, 2020). All three indicate that a lack of critical thinking skills can hinder students' intellectual development. Thus, this research holds significant relevance in efforts to improve the quality of history education at SMKN 2 Singosari Malang, especially in the history of Islam's entry and development in the archipelago. Meanwhile, previous studies, as

reported by Ekawati, Dantes, and Marhaeni (2019); Riskayanti (2021); Karomatunnisa, Sholih, Hanifah, and Prihantini (2022); Fuldiaratman and Ekaputra (2023); as well as Nurjanah, Harini, and Muflikah (2023), show that project-based learning can result in improvements in cognitive skills and problem-solving. Therefore, this research seeks to explore the potential of PBL in enhancing students' critical thinking skills, particularly in the context of the history of Islam in Indonesia. By reviewing literature and previous research findings, it is hoped that this research can contribute to the development of more effective learning strategies at the secondary education level.

Through a deep understanding of the material, it is expected that students can actively engage in the learning process and produce project work that not only demonstrates conceptual understanding but also good critical thinking skills. Thus, this research is expected to make a real contribution to improving the quality of history education at SMKN 2 Singosari Malang through the implementation of the Project-Based Learning model.

To achieve this goal, this research will investigate the positive impact of the Project-Based Learning model on students' critical thinking skills. Through real projects, students are expected to develop analytical, evaluative, and synthesis skills, along with a deep understanding of the history of Islam's entry and development in the archipelago. Thus, this research not only evaluates students' conceptual abilities but also focuses on developing critical thinking skills as core competencies of the 21st century. The approach used is a qualitative and quantitative approach to gain a deep understanding of students' experiences in applying the Project-Based Learning model. By exploring various aspects of learning, it is hoped that this research can provide a comprehensive overview of how students' critical thinking skills can be enhanced through this innovative learning model.

LITERATURE REVIEW

History learning in schools plays a crucial role in developing students' understanding of past events, one of which is the process of Islam's entry and development in the Archipelago. Focusing on the critical thinking skills of grade X students at SMKN 2 Singosari Malang makes the Project-Based Learning (PjBL) model an interesting approach to consider. This is because critical thinking skills have been recognized as crucial intellectual skills in understanding and interpreting history (Brookfield, 2012:45). Higher-order thinking skills include skills such as critical thinking, creativity, analysis, problem-solving, and visualization (Ramos, Dolipas & Villamor, 2013 as cited in Rahardhian, 2022:91). Beers (2011) as cited in Rahardhian (2022:91), states that to connect concepts with material, students need to use analysis, logical thinking skills, creativity, and critical thinking to understand and solve problems. From this perspective, critical thinking skills include one's ability to analyze ideas systematically to solve problems.

Critical thinking is a form of reasonable and reflective thinking focused on making decisions about what to believe or do (Ennis, 2011). Critical thinking skills involve the ability to access, analyze, and synthesize learnable, trainable, and masterable information (Redecker, et al., 2011). According to Lai (2011), critical thinking includes skills such as analyzing arguments, making inferences using inductive or deductive reasoning, evaluating, and making decisions or solving problems. In line with this, Bailin (2002) describes critical thinking as a form of thinking with certain qualities, essentially characterizing good thinking that meets established sufficiency and accuracy criteria or standards (Zakiah & Lestari, 2019:3).

From a philosophical perspective, the critical thinking framework highlights aspects such as the nature, attitude, and quality of critical thinking. The discussion also focuses on the critical thinking attitude. The components of critical thinking can be seen in Figure 1 below.



related to

Critical thinking is the ability to contemplate thoughts and solve problems. This ability can be developed by combining several habits, including curiosity, humility, scepticisms, rationality or logic, creativity, and empathy (Rahardhian, 2022:92-3).

It can be said that critical thinking skills are an intellectual process because one intentionally evaluates the quality of their thinking. In critical thinking, one uses reflective, independent, clear, and rational thinking. Critical thinking skills involve the ability to interpret and evaluate observations, information, and arguments. The model of critical thinking encompasses aspects

any object, substance, or issue, allowing thinkers to enhance the quality of their thinking by skilfully addressing the inherent structures in thinking and applying their intellectual standards. According to Paul and Elder (2006:27), critical thinking skills include

analysis, evaluation, and rational decision-making. Furthermore, Paul and Elder (2013) state that individuals with good critical thinking skills reach levels of proficiency as shown in Table 1 (Rios, et al., 2015:8), as follows.

Table 1. Level of Critical Thinking Skills

Level	Criteria
1	Raise important questions and problems, expressing them with clarity and precision
2	Collect and evaluate information that is relevant to the situation
3	Interpret information effectively
4	Come to well-reasoned conclusions and solutions
5	Contrast the solution against relevant criteria and standards
6	Think open-mindedly
7	Recognize and assess their assumptions, implications and practical consequences
8	Communicate effectively with others in figuring out solutions to complex problems

The eight levels by Paul & Elder have been condensed into five levels of critical thinking skills for the purpose of this research, as shown in the following Table 2.

Table 2. Level of Critical Thinking Skills

Level	Criteria
1	Stating important questions about the issue
2	Gathering and evaluating relevant facts
3	Communicating effectively and efficiently in problem-solving
4	Thinking with an open-minded attitude
5	Formulating conclusions and solutions with appropriate logic

On the other hand, history learning often tends to focus on memorizing facts without providing space for students to develop critical thinking skills. Project-Based Learning as an alternative learning model offers an approach that emphasizes collaborative projects and the application of knowledge in real-life contexts (Thomas, 2000:12). Project-Based Learning can provide deep and meaningful learning experiences, allowing students to actively engage in understanding historical material. Ennis' research (1989:14) highlights that critical thinking ability has a positive correlation with academic achievement. In the context of history learning, students who are able to think critically tend to have a deeper understanding of the material. When understanding the history of the Archipelago, M.C. Ricklefs' research (1991:78) provides insight into the process of Islam's entry into this region. This process involves complex cultural interactions and has had a significant impact on social and cultural development in the Archipelago.

According to the Buck Institute for Education, a leading institution in project-based learning, ProjectBased Learning can be defined as a teaching method where students develop knowledge and skills by engaging in a long-term project aimed at investigating and responding to complex questions, problems, or challenges. Students involved in these projects conduct research, exploration, testing, or even creation related to artworks, questions, phenomena, controversies, or real-world events. Although each project has its own characteristics, they all have one thing in common: providing intense learning experiences. Like other collaborative learning approaches, project-based learning helps build deep conceptual understanding and prepares students to meet the demands of life, citizenship, and the workforce (Rios, et al., 2015:26). The Buck Institute for Education also identifies several essential elements inherent in project-based learning (Rios, et al., 2015:26-7), as follows.

- 1. *Significant Content*: The project focuses on delivering essential knowledge and skills to students, sourced from standards and key concepts in the academic field.
- 2. 21st Century Skills: Students develop skills relevant to the current world's needs, such as problemsolving, critical thinking, collaboration, communication, and innovation, which are taught and evaluated.
- 3. *In-Depth Investigation*: Students engage in a rigorous and detailed process to inquire, use resources, and seek answers to existing questions.
- 4. Driving Questions: The project is directed by open-ended questions explored by students or reflecting tasks they undertake.

- 5. *Need to Know*: Students recognize the importance of acquiring knowledge, understanding concepts, and applying skills to answer driving questions and produce project products, starting from an initial event that sparks interest and curiosity.
- 6. Freedom to Choose: Students are given the freedom to make several choices regarding the products they will create, how they work, and their use of time, guided by teachers and in accordance with their age and experience levels in project-based learning.
- 7. *Revision and Reflection*: The project includes a process for students to use feedback to consider improvements and changes that can enhance the quality of their products, as well as to reflect on what they have learned and how they have learned.
- 8. Public Audience: Students present their work results to a wider audience, beyond their classroom environment and teachers. It can be said that Project-Based Learning is a learning model that places students at its center, as students actively participate in conducting in-depth investigations into a topic. Student participation in this model depends on their individual roles. The question is, how can project-based learning implementation be carried out in the classroom? The approach to implementing project-based learning in the classroom is very similar to the Socratic Seminar model because students have an active role and are mostly responsible for their learning process. In the book "Teachers as Classroom Coaches" by Andi Stix & Frank Hrbek, nine steps are identified for implementing project-based learning.
- 1. Educators as guides prepare the situation by providing concrete examples of the projects that students will undertake.
- 2. Students take on the role of project designers, possibly by forming forums for exhibitions or competitions.
- 3. Students actively engage in discussing and gathering background information needed to design their projects.
- 4. Educators and students together determine the criteria for evaluating the projects.
- 5. Students collect the materials needed for the project.
- 6. Students independently create their projects.
- 7. Students prepare themselves to present their projects.
- 8. Students present their projects.
- 9. Students reflect on the learning process and evaluate their projects based on the criteria established in Step 4 (Rios, et al., 2015:28).

Based on the project-based learning steps formulated by Andi Stix & Frank Hrbek, the syntax of the project-based learning model (PjBL) is presented as shown in Table 3.

Table 3. Syntax of Project-Based Learning (PjBL) Model

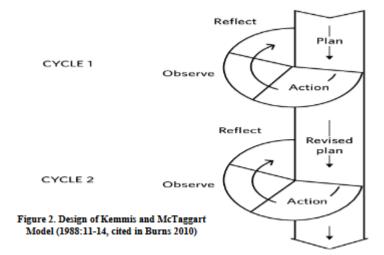
Fase	Indicator	Activity
I	Start with the big question	Educators initiate the learning process by using guiding questions that spark students' interest and encourage them to engage in specific activities. The selected material should ideally be relevant to real-life situations and commence with thorough exploration to deepen understanding.
II	Design a plan for the project	Educators and students collaborate in planning the project, aiming for students to feel a strong sense of ownership over the project. Planning includes establishing rules, selecting activities that support answers to core questions by integrating various relevant subjects, and providing information about the tools and materials needed to complete the project.
III	Create a schedule	Educators work with students to schedule the activities required to complete the project, setting clear deadlines for its completion. Students are expected to use the available time effectively. Although educators grant students the freedom to explore new things, they still monitor and provide reminders if students' activities deviate from the project's goals. As the project requires a significant amount of time, students are asked to work in groups outside of school hours to complete it. During school hours, students only need to present their project results in front of the class.

IV	Monitor the students and the progress of the project	Educators have the responsibility to monitor students' activities as they work on the project. Monitoring is done through guidance and support at each stage. Thus, educators act as guides for students' activities, providing guidance on group collaboration. Each student is given the freedom to choose their role without neglecting the overall group interests.
V	Assess the outcome	Assessment is used to help educators assess standard achievement, evaluate individual progress of each student, provide feedback on students' understanding, and design next learning strategies. Product assessment is conducted when each group takes turns presenting their work results to the other groups.
VI	Evaluate the experience	At the end of the learning process, educators and students reflect on the activities and results of the project. Reflection is done individually and in groups, and students are asked to share their feelings and experiences during the project implementation.

Thus, it is hoped that this research can explore how much Project-Based Learning can enhance the critical thinking skills of the 10th-grade students of SMKN 2 Singosari in understanding the history material "The Process of the Entry and Development of Islam in the Archipelago". By summarizing these various perspectives, it is hoped to encourage a deeper understanding of the interplay between history learning, critical thinking skills, and student learning outcomes.

METHOD

This research employs the classroom action research (CAR) approach, adopting the model proposed by Kemmis and McTaggart (1988). This model takes a spiral form and is characterized by its continuous nature. If the results obtained have not reached the set target, the next step is to proceed to the next cycle and McTaggart CAR model is illustrated as seen in Figure 2 below.



This cycle includes planning, implementation, observation, and reflection steps. The design of the Kemmis

The steps taken are: (1) Planning: The planning process involves the preparation of learning tools, including lesson plans (RPP), teaching materials, media, student worksheets (LKPD), as well as observation and evaluation sheet instruments; (2) Implementation: Learning implementation is based on the prepared learning tools and optimized using various media. During the observation phase, assessment of student performance is carried out based on collected data, including learning recordings; (3)

Observation: Observation activities are conducted

during the learning process to collect learning outcome data, paying attention to the test scores of evaluation questions; and (4) Reflection: Reflection involves assessing learning outcomes and comparing them with initial data. The researcher evaluates relevant constraints and designs improvement plans or solutions. Achievements or accomplishments attained will be integrated into the subsequent planning. This stage includes conclusions that reflect the entire action research process.

The learning process is implemented through the project-based learning method. Research data are obtained through observations, interviews, and tests. The evaluation of critical thinking skills is done by observing the initial conditions before applying Project-Based Learning, as well as the results of cycle I and cycle II after implementing Project-Based Learning.

This research was conducted at SMKN 2 Singosari Malang in the academic year 2023/2024, with 20 tenth-grade students as subjects in the History subject with the material "The Process of the Introduction and Development of Islam in the Archipelago". The types of data collected include student observations, interviews with class teachers to obtain initial data related to classroom

conditions and research variables, as well as the results of student evaluation tests. The observation technique is carried out during the learning process using observation instruments prepared by the researcher. The critical thinking skills parameters used as reference in the observation include: (a) the ability to formulate questions, (b) the ability to present arguments and explain reasons, (c) searching for evidence for problems, (d) the ability to draw conclusions and solutions with proper reasoning.

Data collection techniques involve observations, interviews, and tests. Test data are obtained through evaluation questions consisting of 5 essay questions. Evaluation questions are used to assess learning outcomes after implementing the project-based learning method. The research instrument has been validated by experts, namely class teachers, and has been refined based on the feedback provided. The success indicator of this research is the improvement of student learning outcomes after participating in learning with the Project-Based Learning model, if the students' performance reaches results above the Minimum

Completeness Criteria (KKM) \geq 80, which is expected to be achieved by 80% of all students.

Data analysis techniques include quantitative and qualitative analysis. Data are processed and analyzed using Ms Excel by calculating the average scores of each, and then these results are described to obtain a more comprehensive picture.

RESULTS AND DISCUSSION

The activities began with the pre-cycle stage aimed at assessing the initial condition of the research object before implementing the project-based learning model in Class X of SMKN 2 Singosari. The pre-cycle involved interviews with class teachers and observations of the learning process as a basis for collecting initial data on students' abilities. The results of the pre-cycle indicated that the critical thinking skills of students were still lacking, consistent with their learning outcomes in the History subject on the topic of "The Process of the Introduction and Development of Islam in the Archipelago". Subsequently, the researcher prepared various learning tools, including RPP, Teaching Materials, LKPD, Learning Media, and Evaluation Instruments to be used in cycle I and cycle II.

Based on the analysis of the percentage of students' critical thinking skills in learning History on the topic of "The Process of the Introduction and Development of Islam in the Archipelago", using the projectbased learning model, and comparing the percentages in the pre-cycle, cycle I, and cycle II, as shown in Table 3. From Table 1, it can be seen that students' critical thinking skills improved from the pre-cycle to cycle I and cycle II. In the "ability to ask questions" indicator, based on the pre-cycle test results, a score of 49% was obtained, increasing to 61% in cycle I, and reaching 82% in cycle II. In the "ability to present arguments/ideas" indicator, based on the pre-cycle test, a score of 50% was obtained, increasing to 63% in cycle I, and increasing to 89% in cycle II. At the level of the "ability to validate data relevant to the problem" indicator, based on the pre-cycle test results, a score of 47% was obtained, increasing to 73% in cycle I, and increasing to 87% in cycle II. Then, in the "ability to formulate conclusions and solutions with proper reasoning" indicator, based on the pre-cycle test results, a score of 47% was obtained, increasing to 75% in cycle I, and increasing to 87% in cycle II.

Table 3. Results of Critical Thinking Skills of Students in Class X of SMKN 2 Singosari in Pre-Cycle, Cycle I & Cycle II

Indicator of CTS	Pre-Cycle	Cycle I	Cycle II
Skills in posing questions	49%	61%	82%
Skills in presenting arguments of ideas/concepts	50%	63%	89%
Skills in validating data relevant to the issue	47%	73%	87%
Skills in formulating conclusions and solutions with	47%	75%	87%
appropriate reasoning			

Meanwhile, the learning outcomes of the tenth-grade students at SMKN 2 Singosari Malang, as shown in Table 4, indicate that the average learning outcomes in the pre-cycle were 59, in cycle I were 76, and in cycle II were 88, with learning completeness scores of 0 in the pre-cycle, 4 in cycle I, and 20 in cycle II, resulting in percentages of 0% in the pre-cycle, 20% in cycle I, and 100% in cycle II.

Table 4. Learning Outcomes of Tenth-Grade Students at SMKN 2 Singosari in Pre-Cycle, Cycle I & Cycle II

Learning Outcomes	Pre-Cycle	Cycle I	Cycle II
Rerata	59	76	88

Ketuntasan	0	4	20
Prosentase	0%	20%	100%

The research findings indicate a significant improvement in students' critical thinking skills in History learning by implementing the project-based learning model, especially in the context of the entry and development of Islam in the Indonesian archipelago. From the percentage analysis results of the three learning cycles, it can be observed that there is a consistent improvement in all observed critical thinking skills indicators. This is in line with previous research findings by Rani (2021); Hidayati, Yusnidar & Susanti (2024), which emphasize the effectiveness of the project-based learning model in enhancing students' critical thinking skills in History, including the entry and development of Islam in the Indonesian archipelago.

Other relevant studies to these findings show a similar pattern of improvement in students' critical thinking skills. For example, research results by Nugroho, Pelu & Wahyuni (2018); Kuddu (2021), as well as Mahdalena, Ahmadin & Sulmi (2023), involving the project-based learning model and emphasizing the application of critical reasoning in History learning, also found a significant improvement in students' critical thinking skills. However, it should be noted that these studies may have variations in learning designs and different student populations.

Meanwhile, the learning outcomes of tenth-grade students at SMKN 2 Singosari Malang also demonstrate a significant improvement in the average learning outcomes and the level of learning completeness in the two learning cycles. Although not directly related to measuring critical thinking skills, this improvement in learning outcomes can be considered a positive indicator of the effectiveness of the applied learning model. This finding is consistent with previous research highlighting the relationship between interactive learning models and improved student learning outcomes.

However, despite the significant improvement in learning outcomes, it should be noted that there are differences in the focus of measurement between these studies and studies evaluating critical thinking skills. Therefore, to gain a more comprehensive understanding of the effectiveness of the applied learning model, future research could integrate learning outcome measurements with more detailed measurements of critical thinking skills.

Overall, the research findings provide valuable contributions to understanding the effectiveness of the project-based learning model in enhancing students' critical thinking skills in History learning. Nevertheless, further in-depth and extensive research is needed to strengthen these findings and identify factors that may influence learning outcomes more comprehensively.

CLOSING REMARKS

Based on the research findings, it can be concluded that the implementation of the project-based learning model in the topic of the Entry and Development of Islam in the Indonesian Archipelago has a significant impact on improving students' critical thinking skills.

This improvement can be seen from the percentage analysis of the indicators such as "ability to ask questions", "skills in presenting arguments and ideas", "skills in validating data relevant to the issues", and "skills in formulating conclusions and solutions with appropriate reasoning". From the pre-cycle to cycle I, there was a considerable increase in each indicator, which further increased in cycle II.

Specifically, this improvement is reflected in significant numbers. For example, in the "ability to ask questions" indicator, there was an increase from 49% in the pre-cycle to 82% in cycle II. Similar improvements were observed in other indicators, indicating that the project-based learning model is effective in enhancing students' critical thinking skills in the context of History learning.

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