



Implementing the Problem-Based Learning Model to Enhance Critical Thinking Skills on the Theme of Environmental Diversity in Junior High School Students

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Abstract

This study aim to enhance critical thinking skills among Grade VII C students at State Junior High School Lumajang 2 during the 2023/2024 academic year through the implementation of the Problem-Based Learning (PBL) model. The subject was about environmental diversity, encompassing subtopics such as environmental comprehension, advocacy for preservation practices, sustainable development, and resource scarcity. The study was carried out in three cycles involving 32 students, with every cycle comprising two sessions. Data was gathered via questionnaires and processed with SPSS, assuring both validity and reliability. Descriptive statistics, frequency distribution, and validity and reliability tests were employed to analyze the data. The findings indicated advancements in students' critical thinking skills: Cycle I recorded scores of 68.75% in the first session and 81.25% in the second session. Cycle II recorded scores of 87,5% in the first session and 62.5% in the second session. Cycle III demonstrated improvements, with scores of 90.62% in the first session and 87.5% in the second session. The research determined that PBL effectively improved students' critical thinking skills.

Keywords: Critical Thinking Skills, Problem Based Learning, Environmental Diversity

INTRODUCTION

One of the most important factors that determines the quality and growth of a nation's human resources is education, which is a primary driver of a nation's progress (Indrawati & Kuncoro, 2021; Sodirjonov, 2020). The quality of education in Indonesia continues to be a major concern, and it is frequently viewed as being behind that of other Southeast Asian countries on the continent. The difficulty of encouraging children to develop their capacity for critical thinking continues to exist, despite the fact that the government has undertaken a number of significant initiatives, such as programs to train teachers, changes to curricula, the distribution of instructional materials, and improvements to infrastructure. While the emergence of innovative educational technologies, such as virtual laboratories, offers promising solutions to address some of these challenges (Nasution & Rizka,

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2024), more efforts are needed to integrate such tools into mainstream education. It is crucial for students to develop their critical thinking skills not just for academic performance but also for the purpose of helping them to successfully solve personal and societal concerns (Brookfield, 2012). Students will be better equipped to negotiate the difficulties of the 21st century if they are taught how to effectively cultivate this skill (Thornhill-Miller et al., 2023; Iwuanyanwu, 2020; Xu et al., 2023).

The Indonesian government, in response to these problems, created the 2013 Curriculum, which places an emphasis on active learning practices that enhance higher-order thinking abilities (HOTS). According to Anderson and Krathwohl (2001), HOTS is the development of analytical, evaluative, and creative thinking abilities. This is in alignment with the priority that are placed on education around the world. However, a significant number of Indonesian students have difficulty making the shift from rote memorization to more sophisticated cognitive activities, such as critical thinking and problem-solving. These difficulties are not limited to a particular educational level but rather encompass all levels of education, including primary, secondary, and higher education. Critical thinking skills are one of the 21st-century skills that students need for life and career success (Nasution et al., 2023).

At the junior high school (SMP) level, pupils go through a crucial stage of growth in terms of both their cognitive and social abilities. Social studies, also known as Ilmu Pengetahuan Sosial (IPS), is a subject that encompasses multiple disciplines and strives to provide students with the knowledge and skills necessary to comprehend and handle issues that are prevalent in society. Education in social studies incorporates cognitive, emotional, and psychomotor domains, all of which are necessary for the development of critical thinking and collaborative problem-solving (Appau et al., 2022; Sotto, 2021). Effective education in social studies requires the utilization of strategic teaching methods that actively include students in the learning process while simultaneously addressing issues that are relevant to the actual world.

In order to accomplish these goals, the pedagogical strategy known as problem-based learning (PBL) has emerged as a leading contender. By presenting students with authentic, complicated problems that demand collaborative solutions, problem-based learning (PBL), which has its origins in constructivist ideas, moves the attention away from learning that is centered on the instructor and toward learning that is centered on the students (Savery & Duffy, 1995). According to Hmelo-Silver (2004), program-based learning (PBL) encourages critical thinking, improves self-directed learning, and bridges the gap between theoretical knowledge and practical application through the use of structured problem-solving experiences. The usefulness of problem-based learning (PBL) in enhancing students' higher-order thinking skills, engagement, and academic outcomes has been proved time and again by research (Barrows, 1986; Loyens et al., 2021).

The application of problem-based learning (PBL) is especially pertinent in the context of teaching the topic of "Environmental Diversity" in Grade VII IPS at SMP Negeri 2 Lumajang, which is a junior high school. Students are

given an introduction to the ideas of sustainability, conservation, and community engagement through the study of environmental diversity, which is an important topic. Students are encouraged to investigate topics of biodiversity, environmental difficulties, and sustainable practices within the context of their local community through the use of problem-based learning (PBL). The aims of education that place an emphasis on active involvement, critical inquiry, and collaborative learning are aligned with this method. The purpose of this study is to evaluate the use of the problem-based learning (PBL) model in the context of environmental variety in order to improve students' critical thinking skills. The study is directed by the knowledge and experience of Mrs. Siti Farida, an experienced educator at IPS who has been implementing problem-based learning (PBL) in order to encourage students to engage in active learning and problem-solving. Creating an engaging classroom environment in which students feel empowered to evaluate problems, provide solutions, and express their ideas is something that Mrs. Farida places a strong emphasis on. In order to guarantee that students have meaningful learning experiences, her teaching approaches highlight the need of integrating problem-based learning (PBL) with well-designed instructional materials and evaluation strategies.

In order to make a contribution to the larger conversation on the role that active learning models play in enhancing the quality of education, the purpose of this study is to investigate the outcomes of implementing problem-based learning (PBL) in this particular educational environment. In addition to this, it seeks to provide educators and policymakers with actionable insights that can be used to improve instructional practices. This will ensure that students are equipped with the critical thinking abilities that are necessary for active citizenship and learning that continues throughout their lives.

METHOD

During the 2023/2024 school year, this study utilized Classroom Action Research (CAR) to improve students' critical thinking abilities. The students were enrolled in Grade VII-C at SMP Negeri 2 Lumajang. CAR is a reflective and iterative process that involves planning, action, observation, and reflection within a series of cycles, according to Kemmis and McTaggart's (1988) conceptualization of the idea. In order to enhance students' capacity for critical thinking, this study utilized the Problem-Based Learning (PBL) approach, which places an emphasis on the resolution of problems that are relevant to the actual world (Savery, 2006). The study was carried out in three cycles, with each cycle consisting of two meetings with a duration of forty minutes each.

The planning phase was the first step in the study process. During this phase, lesson plans were produced to incorporate instructional goals, learning materials, and evaluation methodologies. The activities that took place in the classroom were supported by the preparation of multimedia tools such as PowerPoint presentations and projectors. According to Johnson and Christensen's research from 2020, a preliminary observation was carried out in order to determine the students' critical thinking skills at

the beginning of the cycle. This laid the framework for the implementation of individualized interventions thereafter. Students were given the opportunity to identify real-world environmental problems, analyze potential solutions, and report their results as part of the implementation of the PBL model during the action phase of the process. According to Kemmis and McTaggart (1988), it was through reflective discussions that the challenges that were faced throughout each cycle were addressed, which ultimately led to the development of teaching tactics for succeeding cycles. For the purpose of monitoring student participation, engagement, and improvement in critical thinking, the observation phase was carried out concurrently with the action phase. According to Creswell and Creswell (2018), the study report was supported by the utilization of data collection procedures that were deliberately employed in order to get information that was both significant and thorough. Observations, tests, interviews, questionnaires, documentation, and triangulation were some of the methodological approaches that were chosen to ensure that the time spent conducting research was utilized in an effective and efficient manner (Ary et al., 2018).

Observation data were gathered using observation sheets designed to capture the activities of teachers and students during the learning process (Fraenkel et al., 2019). Observations involved active participation by the researcher in the classroom to record real-time dynamics and interactions, complemented by question-and-answer sessions to delve deeper into the observed phenomena. Tests, primarily in the form of Student Worksheets (Lembar Kerja Peserta Didik, LKPD), were used to assess students' understanding of the material on environmental diversity (Bloom et al., 1956). These LKPDs, as structured tasks, facilitated active engagement in problem-solving, fostering critical thinking. Student performance was analyzed against the predetermined minimum competency criteria (KKM) of ≥ 75 , with this benchmark serving as the indicator of mastery.

Interviews were conducted to gain insights into the experiences and challenges faced by both students and teachers during the implementation of PBL. Structured interview guides were used to collect detailed feedback on the effectiveness of the teaching strategies, helping identify specific areas for improvement (Merriam & Tisdell, 2016). Questionnaires were distributed to students, featuring structured questions designed to evaluate their learning experiences and progress in developing critical thinking skills throughout the cycles. These tools provided quantitative data that complemented the qualitative insights gathered from other methods (Yin, 2018).

Documentation served as an essential supplementary technique for capturing written records, photos, and official documents (Johnson & Christensen, 2020). These materials provided concrete evidence of the learning process and outcomes, enriching the dataset and supporting the validity of findings. Additionally, triangulation was employed as a methodological strategy to ensure the reliability and accuracy of the data (Thomas, 2006). By cross-verifying findings from multiple sources and methods—such as observations, tests, interviews, questionnaires, and documentation—the study achieved a robust understanding of the research

outcomes.

The research instruments included observation sheets, Worksheets, interview guides, questionnaires, and documentation templates (Fraenkel et al., 2019). Each instrument was carefully designed and tailored to the specific objectives of the study, ensuring comprehensive data collection covering both cognitive and non-cognitive aspects of learning.

Data analysis involved both qualitative and quantitative approaches to summarize and interpret the collected information (Creswell & Creswell, 2018). Qualitative data from observations and interviews were analyzed through thematic analysis to uncover patterns and insights into the teaching-learning process. Quantitative data from tests and questionnaires were processed using descriptive statistics to evaluate trends and improvements. Comparisons were made across the three cycles to assess the effectiveness of the PBL model in fostering critical thinking skills (Prince, 2004).

The iterative approach of planning, acting, observing, and reflecting ensured continuous improvement in teaching practices and learning outcomes. This reflective process aligns with the core principles of CAR, fostering an adaptive and responsive learning environment that effectively supports the development of critical thinking skills among students (Kemmis & McTaggart, 1988).

RESULTS AND DISCUSSION

Results

The application of the Problem-Based Learning (PBL) approach in Classroom Action Research (CAR) across three cycles at SMP Negeri 2 Lumajang resulted in notable enhancements in students' critical thinking abilities. The cycles comprised planning, action, observation, and reflection phases, with pre-tests and post-tests administered to assess student progress.

Cycle I

Planning

The first cycle, consisting of two meetings, was conducted on October 9 and 10, 2023, with each meeting lasting 2×40 minutes. Prior to implementing the Problem-Based Learning (PBL) model, the researcher carefully planned the learning activities. The first step involved understanding the material on the theme of environmental diversity, with a focus on "Getting to Know the Environment" (Meeting 1) and "Getting to Know the Community" (Meeting 2). Lesson plans (Rencana Pelaksanaan Pembelajaran, RPP) and syllabi were developed based on the official Grade VII Social Studies textbook from the Ministry of Education and Culture. Steps for implementing PBL were outlined, and student activity sheets containing discussion questions were prepared to facilitate collaborative learning. Multimedia tools, such as PowerPoint slides, were also planned to enhance the learning experience in the second meeting.

Action

The implementation of Cycle I followed the prepared lesson plans. Both meetings began with greetings, attendance checks, and classroom conditioning. In the first meeting, students were introduced to the learning objectives, followed by observing images related to the environment displayed on the board. The teacher explained the material comprehensively and formed seven groups of 4–6 students each. Students were tasked with answering questions on activity sheets, discussing their responses in groups, and presenting their findings. During the presentations, other groups provided feedback and asked questions. The session concluded with a summary of the material and a brief evaluation.

In the second meeting, a similar approach was adopted, with the topic shifting to "Getting to Know the Community." Students observed a PowerPoint presentation, followed by group discussions, presentations, and an evaluation session. The emphasis was on linking the material to everyday life and encouraging active student participation through questions and discussions.

Observation

Observational data from the first meeting indicated that the teacher's activities scored 77.5%, meeting the expected standard but highlighting areas for improvement. Challenges included insufficient motivation for students to ask questions, limited use of IT-based media, and a lack of clarity in communicating learning objectives. Despite these issues, the students began to engage with the PBL model and participated in group discussions effectively.

In the second meeting, the teacher's activities scored 87.5%, showing a significant improvement in managing the learning process. The use of multimedia tools contributed to better student focus and engagement. However, coordination among students during presentations and efficient time management remained areas requiring attention.

Cycle I recorded scores of 68.75% in the first session, reflecting the average critical thinking skills of students. In the second session, the average increased to 81.25%, indicating an improvement in students' ability to analyze and solve problems during the learning process. Data on students' critical thinking skills in cycle I can be seen in more complete detail in Table 1.

Table 1. Students' critical thinking skills in cycle I.

No	Students	Meet 1		Meet 2	
		Scores	Category	Scores	Category
1	Student 1	60	Not Passed	85	Passed
2	Student 2	60	Not Passed	85	Passed
3	Student 3	80	Passed	90	Passed
4	Student 4	95	Passed	95	Passed
5	Student 5	80	Passed	90	Passed
6	Student 6	85	Passed	90	Passed
7	Student 7	75	Passed	85	Passed

8	Student 8	95	Passed	95	Passed
9	Student 9	85	Passed	75	Passed
10	Student 10	85	Passed	90	Passed
11	Student 11	85	Passed	75	Passed
12	Student 12	75	Passed	80	Passed
13	Student 13	95	Passed	95	Passed
14	Student 14	60	Not Passed	70	Not Passed
15	Student 15	75	Passed	80	Passed
16	Student 16	85	Passed	75	Passed
17	Student 17	75	Passed	80	Passed
18	Student 18	75	Passed	80	Passed
19	Student 19	85	Passed	90	Passed
20	Student 20	85	Passed	90	Passed
21	Student 21	80	Passed	90	Passed
22	Student 22	60	Not Passed	70	Not Passed
23	Student 23	75	Passed	70	Not Passed
24	Student 24	60	Not Passed	85	Passed
25	Student 25	80	Passed	90	Passed
26	Student 26	60	Not Passed	70	Not Passed
27	Student 27	95	Passed	95	Passed
28	Student 28	60	Not Passed	85	Passed
29	Student 29	85	Passed	75	Passed
30	Student 30	60	Not Passed	85	Passed
31	Student 31	60	Not Passed	70	Not Passed
32	Student 32	60	Not Passed	70	Not Passed
Mean (Percentage)	68.75%	Not Passed	81.25%	Passed	

Reflection

Based on observations and feedback, several improvements were planned for Cycle II: The teacher needed to encourage students to be more active in asking questions and participating in discussions, the integration of multimedia tools and real-world connections to the material were identified as priorities to enhance student focus, communicating the learning objectives more explicitly to students was emphasized to ensure they understood the competencies to be achieved and the learning process, the teacher aimed to guide students in managing time effectively during presentations and improve group coordination for smoother discussions.

Overall, Cycle I laid a foundation for the successful implementation of the PBL model while identifying key areas for refinement to enhance both teacher performance and student engagement.

Cycle II

Planning

The second cycle, conducted over two meetings on October 16 and 17, 2023, was designed to address the theme of environmental preservation, focusing on subtopics such as conserving air, water, and soil resources, and

understanding prehistorical human habits. The second meeting shifted focus to "Recognizing Indonesian Ancestors and Diaspora." The researcher prepared lesson plans (*Rencana Pelaksanaan Pembelajaran*, RPP) and a syllabus based on the Grade VII Social Studies textbook from the Ministry of Education and Culture. Activity sheets with discussion questions were created to facilitate group learning, and multimedia tools, including PowerPoint slides and visual aids, were prepared to enhance the learning experience.

Action

Meeting 1 (October 16, 2023): The lesson began with greetings, class attendance, and an introduction to the learning objectives. Students were engaged through a PowerPoint presentation related to environmental preservation. The teacher explained the material thoroughly before dividing students into seven groups of 4–6 members each. Each group worked on activity sheets, presenting their answers afterward. The session included group presentations, feedback from peers, and a concluding discussion led by the teacher.

Meeting 2 (October 17, 2023): The session followed a similar structure, with the topic focusing on Indonesian ancestors and diaspora. Visual aids were displayed on the board to prompt discussions. After a detailed explanation of the material, students collaborated in groups to answer activity sheets, presented their findings, and participated in peer evaluations. The lesson concluded with a class-wide discussion summarizing the material, setting the stage for future lessons.

Observation

Observations during the first meeting revealed a score of 76.25% for teacher activity, indicating areas for improvement. Challenges included insufficient motivation for students to actively ask questions, limited use of multimedia tools, and a lack of material summarization at the end of the session. Despite these issues, students showed increased engagement with the PBL model.

The second meeting saw an improvement, with teacher activity scoring 81.25%. The use of visual aids and group-based activities enhanced student focus and collaboration. However, classroom management remained an area needing attention, as some students were distracted or not fully engaged. Effective use of multimedia tools was recommended to further enhance learning outcomes.

Cycle II recorded scores of 87,5% in the first session, reflecting the average critical thinking skills of students. In the second session, the average decreased to 62.5%, indicating lower students' ability to analyze and solve problems during the learning process. Data on students' critical thinking skills in cycle II can be seen in more complete detail in Table 2.

Table 2. Students' critical thinking skills in cycle II.

No	Students	Meet 1		Meet 2	
		Scores	Category	Scores	Category

1	Student 1	75	Passed	30	Not Passed
2	Student 2	75	Passed	30	Not Passed
3	Student 3	90	Passed	85	Passed
4	Student 4	100	Passed	90	Passed
5	Student 5	90	Passed	85	Passed
6	Student 6	85	Passed	90	Passed
7	Student 7	75	Passed	30	Not Passed
8	Student 8	100	Passed	90	Passed
9	Student 9	72	Not Passed	75	Passed
10	Student 10	85	Passed	90	Passed
11	Student 11	72	Not Passed	75	Passed
12	Student 12	80	Passed	80	Passed
13	Student 13	100	Passed	90	Passed
14	Student 14	80	Passed	20	Not Passed
15	Student 15	80	Passed	80	Passed
16	Student 16	72	Not Passed	75	Passed
17	Student 17	80	Passed	80	Passed
18	Student 18	80	Passed	80	Passed
19	Student 19	85	Passed	90	Passed
20	Student 20	85	Passed	90	Passed
21	Student 21	90	Passed	85	Passed
22	Student 22	80	Passed	20	Not Passed
23	Student 23	80	Passed	20	Not Passed
24	Student 24	75	Passed	30	Not Passed
25	Student 25	90	Passed	85	Passed
26	Student 26	80	Passed	20	Not Passed
27	Student 27	100	Passed	90	Passed
28	Student 28	75	Passed	30	Not Passed
29	Student 29	72	Not Passed	75	Passed
30	Student 30	75	Passed	30	Not Passed
31	Student 31	80	Passed	20	Not Passed
32	Student 32	80	Passed	20	Not Passed
Mean (Percentage)		87.5%	Passed	62.5%	Not Passed

Reflection

Based on observations, several improvements were identified for the next cycle: teachers need to better manage the classroom to minimize distractions and ensure students remain focused, teachers should enhance the use of multimedia tools to support lesson delivery, greater emphasis should be placed on summarizing the material at the end of the session to reinforce key learning points, motivation strategies should be implemented to encourage more students to participate actively in discussions and ask questions.

Cycle II demonstrated progress in both teacher facilitation and student engagement, laying the foundation for further refinements in Cycle III to fully achieve the objectives of the PBL model.

Cycle III

Planning

Cycle III, conducted on October 23 and 24, 2023, addressed advanced topics related to sustainable development and resource scarcity. The material covered the characteristics and goals of sustainable development, human needs, causes of scarcity, economic impacts of resource scarcity, and solutions to address these issues. The researcher prepared lesson plans (Rencana Pelaksanaan Pembelajaran, RPP) and a syllabus in alignment with the Grade VII Social Studies textbook from the Ministry of Education and Culture. Activity sheets containing questions and materials for group discussions were developed. Additional emphasis was placed on leveraging visual aids and other teaching media to enhance engagement and learning outcomes.

Action

Meeting 1 (October 23, 2023): The session began with greetings, attendance checks, and an introduction to the learning objectives. The teacher used visual aids to explain the topic of sustainable development and its goals, along with the scarcity of resources and human needs. Students were divided into seven groups, each tasked with answering questions on activity sheets and presenting their findings to the class. Other groups participated actively by asking questions and providing feedback. The session concluded with a collaborative summary of the material and setting expectations for the next session.

Meeting 2 (October 24, 2023): The second meeting focused on the factors causing scarcity, economic impacts, and preventive measures. The lesson began with a structured introduction and visual aids to stimulate discussions. Students worked in groups, answered activity sheet questions, and presented their results. Group presentations included peer interactions, with questions and discussions enriching the learning process. The teacher summarized the key points, guided a collective reflection, and concluded with a preview of the next topic.

Observation

Observational data from the first meeting showed a teacher activity score of 78.75%. The teacher's performance met expectations but highlighted areas for improvement, such as incorporating more IT-based teaching aids to maintain student focus. The second meeting showed further improvement, with the teacher activity score increasing to 82.5%. The use of visual aids and structured group activities contributed to better engagement and understanding. However, there remained a need for maximizing the use of multimedia tools to enhance learning experiences.

Cycle III recorded scores of 90.62% in the first session, reflecting the average critical thinking skills of students. In the second session, the average slightly decreased to 87.5%, indicating slightly lower students' ability to analyze and solve problems during the learning process. Data on students' critical thinking skills in cycle III can be seen in more complete detail in Table 3.

Table 3. Students' critical thinking skills in cycle III.

No	Students	Meet 1		Meet 2	
		Scores	Category	Scores	Category
1	Student 1	95	Passed	75	Passed
2	Student 2	95	Passed	75	Passed
3	Student 3	75	Passed	75	Passed
4	Student 4	95	Passed	95	Passed
5	Student 5	65	Not Passed	75	Passed
6	Student 6	85	Passed	95	Passed
7	Student 7	95	Passed	75	Passed
8	Student 8	95	Passed	95	Passed
9	Student 9	90	Passed	95	Passed
10	Student 10	85	Passed	95	Passed
11	Student 11	90	Passed	95	Passed
12	Student 12	75	Passed	65	Not Passed
13	Student 13	95	Passed	95	Passed
14	Student 14	75	Passed	90	Passed
15	Student 15	75	Passed	65	Not Passed
16	Student 16	90	Passed	95	Passed
17	Student 17	75	Passed	65	Not Passed
18	Student 18	75	Passed	65	Not Passed
19	Student 19	85	Passed	95	Passed
20	Student 20	85	Passed	95	Passed
21	Student 21	65	Not Passed	75	Passed
22	Student 22	90	Passed	90	Passed
23	Student 23	90	Passed	90	Passed
24	Student 24	95	Passed	75	Passed
25	Student 25	65	Not Passed	75	Passed
26	Student 26	90	Passed	90	Passed
27	Student 27	95	Passed	95	Passed
28	Student 28	95	Passed	75	Passed
29	Student 29	90	Passed	95	Passed
30	Student 30	95	Passed	75	Passed
31	Student 31	90	Passed	90	Passed
32	Student 32	90	Passed	90	Passed
Mean (Percentage)		90.62%	Passed	87.5%	Passed

Reflection

Based on observations, the following areas were identified for improvement in future cycles or implementations: Teachers should increase the use of teaching media, particularly it-based tools, to make lessons more interactive and engaging, greater emphasis should be placed on ensuring all students actively participate in group discussions and presentations, summarizing key points at the end of each session should continue to reinforce learning.

Overall, Cycle III demonstrated significant progress in implementing the Problem-Based Learning (PBL) model, with students showing marked improvements in critical thinking, engagement, and collaborative skills. The results affirm that the PBL approach effectively enhances learning outcomes in Social Studies.

Discussion

The findings of this study highlight the effectiveness of Problem-Based Learning (PBL) in fostering critical thinking skills among junior high school students. The iterative approach of Classroom Action Research (CAR), as employed in this research, allowed for the continuous refinement of teaching strategies, which is essential for overcoming classroom challenges and enhancing learning outcomes.

The results are consistent with previous research that demonstrates the positive impact of PBL on critical thinking and problem-solving abilities (Prince, 2004; Savery, 2006). By integrating real-world problems into the learning process, students were encouraged to engage deeply with the material, promoting analytical thinking and collaborative problem-solving.

Throughout the three cycles, the study noted an increase in student engagement and critical thinking skills. The CAR methodology proved instrumental in identifying and addressing issues such as initial hesitation among students and the limited use of digital tools in earlier cycles. These refinements align with findings by Creswell and Creswell (2018), who emphasize the significance of iterative improvements in educational interventions.

The role of teacher facilitation in PBL cannot be overstated. Observational data revealed that structured group activities and active teacher involvement significantly enhanced students' autonomy and analytical skills. This observation is supported by Savery (2006), who highlights the importance of facilitation in enabling student-led learning. The group-based nature of PBL was particularly effective in promoting collaborative learning, a critical component in developing higher-order thinking skills (Chang-Tik, 2023; Chang et al., 2022; Kochis et al., 2021; Du et al., 2020). Johnson and Christensen (2020) suggest that collaborative environments foster communication and critical engagement, both of which were evident in this study's outcomes.

Despite its successes, the study identified challenges such as uneven participation among students during group discussions and the need for more consistent use of multimedia tools to engage learners. Addressing these issues could further enhance the effectiveness of PBL. This aligns with Thomas (2006), who emphasizes the importance of adaptive teaching strategies in overcoming classroom challenges.

A unique aspect of this study was its focus on integrating environmental diversity themes into the PBL framework. This approach not only enhanced critical thinking but also raised awareness of sustainable practices among students. Such integration is increasingly vital in modern education as it combines cognitive skill development with ethical and environmental awareness.

CONCLUSIONS AND SUGGESTIONS

The implementation of the Problem-Based Learning (PBL) model in the Social Studies (IPS) subject on the theme of environmental diversity in Grade VII-C at SMP Negeri 2 Lumajang during the 2023/2024 academic year has been proven to enhance students' critical thinking skills. This improvement was evident throughout the three cycles of the study. The research, involving 32 students, showed positive results in developing critical thinking abilities through the use of the PBL model.

In Cycle I, the first and second meetings showed scores of 68.75% and 81.25%, respectively. In Cycle II, the first meeting saw an increase to 87.5%, but the second meeting showed a decline to 62.5%. In Cycle III, both the first and second meetings exhibited improvements, achieving scores of 90.625% and 87.5%, respectively, with the performance categorized as very good. These results confirm that the PBL model is effective in fostering students' critical thinking skills in a classroom setting.

It is recommended that schools pay closer attention to the learning process by ensuring that the necessary tools and facilities are available to support smooth and effective teaching. Providing adequate resources will help facilitate the successful implementation of innovative teaching methods, such as Problem-Based Learning (PBL), and contribute to a more dynamic learning environment. For educators, it is important to embrace creativity in their teaching approach. Teachers should fully utilize their roles as facilitators and motivators, offering training on PBL and designing engaging and interactive learning environments that encourage student participation. By doing so, teachers can help students develop their critical thinking skills and make learning more enjoyable and effective. Students themselves are encouraged to continue honing their problem-solving and critical thinking abilities, becoming more actively involved in lessons, particularly in subjects like Social Studies. Active engagement in class will foster deeper learning and better academic outcomes. Finally, for future research, it is hoped that this study will inspire further exploration into the application of the PBL model. Researchers can build upon this study by developing new ideas and improving the media used in teaching to create even more effective and stimulating learning experiences.

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