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Optimization of Problem Based Learning Model in Thematic Learning in Elementary Schools

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ABSTRACT

Implementing problem-based learning in elementary schools is challenging, as it requires a lack of teacher understanding and training and time and technology constraints. A dense curriculum also limits the effectiveness of PBL. Nevertheless, PBL can improve students' critical, collaborative, and analytical thinking skills. This study used a qualitative descriptive design to explore implementing the Problem-Based Learning model in thematic learning, focusing on its stages, challenges, and success factors. Data were collected through observation, interviews, and document analysis, with triangulation to ensure validity. Ethical standards such as obtaining informed consent and maintaining confidentiality were upheld. The results of this study indicate that implementing Problem-Based Learning in Islamic elementary schools, including elementary school, strengthens student competencies through active, collaborative, and problem-based learning. This method enhances students' social skills, teamwork, critical thinking, and independence while motivating them through interactive media. Educators are facilitators, assisting students in organizing information and developing creative solutions. Although challenges such as high costs and longer implementation times pose obstacles, adequate infrastructure support and positive student responses make PBL effective in equipping them with essential life skills for the future. This study's contribution is to illustrate that the application of the Problem-Based Learning model in Islamic elementary schools is effective in improving student competencies through active, collaborative, and problem-oriented learning activities. This study also shows that PBL can improve students' social skills, teamwork, critical thinking, and independence and motivate them with the use of interactive media.

INTRODUCTION

One of the main challenges in optimizing the Problem-based Learning (PBL) model in thematic learning at the elementary school level lies in the limited understanding teachers have regarding effective PBL implementation. Cardenas and Inga (2021), along with Yang et al. (2021), argue that many educators are still unfamiliar with the correct ways to apply PBL in the classroom. Similarly, Imbaquingo and Cárdenas (2023) emphasize that the success of the learning process is strongly influenced by how well teachers grasp the method. Yew and Goh (2016), as well as Alreshidi and Lally (2024), highlight that most teachers have not received sufficient training in PBL implementation, which affects the overall quality of teaching and learning. In line with this, Finkelstein et al. (2012), Markula and Aksela (2022), and Zhou (2023) point out that limited resources—such as time constraints, a lack of relevant teaching materials, and inadequate technological infrastructure—also hinder the optimal application of PBL. Trullàs et al. (2022) report that in 65% of cases, teachers struggle to integrate PBL within a tight curriculum schedule, which often results in learning objectives not being fully achieved. Commenting on these issues, Meng et al. (2023) and Acosta et al. (2024) believe that while PBL holds great potential to enhance students' critical thinking, collaboration, and analytical skills, its effective implementation is difficult without focused teacher training, curriculum alignment, and adequate resources. Therefore, a holistic strategy

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is essential to overcome these barriers and ensure that PBL can be implemented effectively to positively impact the quality of thematic learning in elementary schools.

Based on several previous studies discussing the application of Problem-Based Learning (PBL) in thematic learning in elementary schools, it is known that PBL has a significant impact. Almulla (2020) and Arantes do Amaral et al. (2023) revealed that thematic-integrative modules based on PBL effectively improve students' learning independence and academic achievement by linking learning materials to real-world problems. Research by Chen et al. (2020) and Gou et al. (2020) shows that PBL can improve critical thinking skills and student learning outcomes in subjects through active participation and group collaboration. Meanwhile, Markula and Aksela (2022) and Chueh and Kao (2024) highlight the role of PBL in encouraging students' problem-solving abilities and increasing their involvement through analysis of real problems integrated with learning. Triwoelandari et al. (2023) successfully developed PBL-based thematic teaching materials that have proven effective in strengthening student understanding and increasing group collaboration. In addition, Ghani et al. (2021) and Hussein (2021) showed that PBL can connect theory with actual practice, thereby increasing motivation and deepening students' learning process. The current study focuses on how PBL can improve students' overall competence and its impact on students' abilities in thematic learning.

This study aims to comprehensively describe the implementation of the Problem-Based Learning (PBL) model in thematic learning in elementary schools. The main objective is understanding how PBL can help students identify, analyze, and solve real-world problems effectively, thereby improving students' critical thinking skills, creativity, and collaboration. In addition, this study also aims to explore the optimal implementation steps of PBL, the challenges faced during its implementation, and the supporting factors for its success. The benefits of this study are not only limited to contributing to educational innovation but also providing practical guidance for educators in adopting more relevant and creative learning strategies to the demands of 21st-century education. By integrating a problem-based approach in thematic learning, this study is likely to improve the effectiveness of the teaching and learning process, especially in building student competencies needed to face global challenges. In addition, the results of this study can be an important reference for policymakers and educational institutions in designing a curriculum oriented towards 21st-century skills-based learning, such as critical thinking, communication, collaboration, and creativity.

Initial observations indicate that teachers have implemented the Problem-Based Learning (PBL) model according to the recommended stages, starting from presenting relevant real problems to guiding students in formulating solutions. Although this initial implementation seems promising, further evaluation is needed to determine the overall effectiveness of the PBL model in elementary schools, especially in improving students' learning outcomes, critical thinking skills, and collaboration skills. The initial hypothesis of this study states that implementing the Problem-Based Learning model can significantly increase student engagement, deepen understanding of learning materials, and develop 21st-century skills, such as critical thinking, creativity, communication, and collaboration. In addition, this hypothesis also indicates that PBL can create an interactive and student-centered learning environment, which improves academic achievement and builds students' independence, problem-solving skills, and social skills.

RESEARCH METHOD

This study employs a qualitative descriptive research design, a method considered appropriate by Doyle et al. (2020) and Nassaji (2015) for exploring educational practices in depth. According to them, this approach allows researchers to examine phenomena within their natural settings, making it ideal for gaining meaningful insights into the application of the Problem-Based Learning (PBL) model in thematic learning. Babchuk (2017) and Agazu et al. (2022) also support the use of this design in education, asserting that it enables a comprehensive understanding of how educational strategies function in real classroom environments.

The main objective of this research is to investigate three crucial aspects: the implementation stages of PBL, the challenges faced during its application, and the key factors that support its successful integration. This research focus reflects the perspective of Wang (2021), who underscores the importance of thoroughly analyzing these elements in order to enhance the effectiveness of PBL in educational contexts. In this study, the researcher assumes the pivotal role of the primary instrument for data collection, interpretation, and analysis. Immersion in the study environment is central to this approach, enabling the researcher to collect nuanced, detailed data that reflect the complexities of the PBL model as implemented in practice. This process enhances the depth and comprehensiveness of the research findings, as highlighted by Busetto et al. (2020). By employing this methodological framework, the study aims to provide valuable insights into the practical application of PBL, addressing the existing gaps in understanding its effective implementation in thematic learning contexts.

The data in this study were gathered using a combination of classroom observations, teacher interviews, and document analysis, following a triangulated method to strengthen the reliability of the findings. El-Sabaa et al. (2017) and Oranga and Matere (2023) advocate for triangulation in educational research, noting that the use of multiple data sources and diverse collection techniques—such as interviews, observations, and documentation—enhances the depth and trustworthiness of the results. According to these experts, this method allows for a more thorough and accurate representation of the research context. In analyzing the data, the study followed a three-stage process as proposed by Suter (2012). He outlines that the analysis begins with data reduction, where non-essential information is eliminated; continues with data presentation, where the core findings are organized systematically; and concludes with interpretation, where final insights are drawn to address the research questions. This structured approach is essential for producing valid and meaningful conclusions.

Moreover, ethical principles were strictly upheld throughout the research process to maintain compliance with established ethical guidelines. Subedi et al. (2021) and Masoud and Basahal (2023) emphasize the importance of ethical integrity in educational research, highlighting key practices such as securing informed consent from all participants, safeguarding the confidentiality of personal data, and ensuring that participation was entirely voluntary. According to these scholars, such ethical precautions play a crucial role in enhancing the trustworthiness and credibility of research outcomes. By adhering to this ethical and methodological framework, the study not only generates reliable and valid findings but also offers meaningful insights into the practical implementation of the Problem-Based Learning (PBL) model in thematic instruction at the elementary school level.

RESULTS AND DISCUSSION

Results

Implementation of Problem Based Learning Model in Madrasah Ibtidaiyah

In exploring research data related to the application of problem-based learning in elementary school, it is evident that the implementation of this educational strategy has profoundly impacted both teaching methodologies and student outcomes. The structured approach of PBL not only facilitates a deeper understanding of the curriculum but also enhances students' critical thinking and problem-solving abilities. This integration of PBL into the curriculum demonstrates a commitment to fostering an educational environment where students can apply theoretical knowledge to practical, real-world challenges.

Table 1. Results of Interviews on the Implementation of PBL

No	Informant	Description
1	WKS	We see the importance of bringing real context to learning so that students can be actively involved. Problem Based Learning provides them with the opportunity to face and solve problems that are relevant to everyday life.
2	GR	The PBL process in its implementation consists of five main stages. First, we orient students to the problems they will face. After that, we organize them to learn and find solutions in groups. The third stage is to guide them in investigations, where they gather information and develop their understanding.

3	GK II	The challenge is to ensure that the problems we present are challenging enough but still relevant to the students' experiences. We need to be creative in designing scenarios that encourage critical thinking and collaborative solutions.

In implementing Problem-Based Learning (PBL) at elementary school, the Vice Principal (WKS) emphasizes the importance of learning linked to real contexts to enhance active student engagement. At the same time, the Grade V Teacher (GR) outlines the structured process of PBL, consisting of five systematic stages, including problem orientation, group learning, and in-depth investigation. Although this structure reinforces the teachers' commitment to facilitating the practical application of knowledge, the Grade II Teacher (GK II) identifies challenges in designing problems that are sufficiently challenging yet still relevant to students' experiences, highlighting the need for creativity in teaching to encourage critical thinking and collaborative solutions. This approach reveals the efforts made to balance the complexity of tasks with students' adaptability, demonstrating the dynamics between pedagogical aspirations and operational realities in applying PBL. The success of this method depends on the extent to which teaching can adapt to changing learning needs and the socio-emotional environment of the students.

Syntax of Problem-Based Learning Model at Elementary School

The syntax of the Problem-Based Learning (PBL) model at Elementary School is meticulously crafted to enhance the educational experience. This model is strategically implemented through a series of well-defined stages that begin with the introduction of real-world problems that resonate with the students' everyday experiences. As students engage with these problems, they are encouraged to explore solutions collaboratively, fostering a dynamic and interactive learning environment. This approach not only stimulates critical thinking and problem-solving skills but also integrates the practical application of knowledge, making learning more relevant and impactful for the students.

Table 2. PBL Syntax at Elementary School

Stages	Educator Activities
Stage 1 - Orient students to the problem	The educator explains the learning objectives, explains the logistics needed, proposes phenomena or stories to raise problems, motivates students to get involved in problem solving.
Stage 2 - Organizing students to learn	Educators help students to define and organize learning tasks related to the problem.
Stage 3 - guiding the investigation	Educators encourage students to gather appropriate information, conduct experiments, and seek explanations and solutions.
Stage 4 - Develop and present the problem	Educators help students in planning and preparing work that is in accordance with the report, and help students to share tasks with other students.
Stage 5 - analyze and evaluate the problem	Educators help students to reflect or evaluate their investigations and the processes they used.

The Problem-Based Learning (PBL) approach at Elementary School is structured around five stages, each designed to progressively engage and empower students. Initially, educators lay the foundation by setting clear objectives and contextualizing the problem, which is crucial for stimulating student interest. As the process advances, students are guided to organize and take charge of their learning tasks, enhancing their autonomy. In the investigation phase, active engagement is promoted through information gathering and experimentation, key for developing analytical skills. The presentation stage allows students to apply and communicate their findings, fostering teamwork. Finally, the reflection stage encourages critical evaluation of their methods and outcomes, essential for continuous learning and improvement. This methodology not only enriches academic skills but also cultivates critical life skills like problem-solving and collaboration.

The Impact of Implementing Problem-Based Learning (PBL) Models on Students

Based on the results of interviews with teachers, madrasah principals, and students elementary school, implementing the Problem-Based Learning (PBL) model significantly positively impacts the learning process. The following are four main aspects identified from the interviews:

Table 3. Impact of Problem-Based Learning (PBL) on students

No	Impact on students	Description
1	Student Activity	Students at elementary school have become more active in implementing the Problem-based Learning model. They participate through questions and answers, group discussions, and joint assignments. The fifth-grade teacher said this model motivates students to be more courageous in asking questions and expressing opinions. At the same time, the Head of the Madrasah emphasized that activeness is also seen in group presentations, which increases students' enthusiasm and self-confidence.
2	Fun Learning	Learning in elementary schoolbecomes more interesting using media such as teaching aids, videos, and worksheets based on actual problems. Students feel like they are playing while learning, so they are more enthusiastic about attending classes. The Head of Madrasah also emphasized that this interactive atmosphere supports good relationships between students and teachers.
3	Students' Collaboration Skills	The Problem-Based Learning Model at elementary school trains students to work in groups, listen to opinions, share tasks, and find solutions together. Teachers and the Head of the Madrasah noted an increase in collaboration, seen from the results of group work that was neater and more structured, as well as students who respected their friends' opinions more and actively contributed.
4	Development of Independence	The Problem-Based Learning Model at elementary school trains students to learn independently by trying to complete tasks before asking for help. This approach increases students' confidence in making decisions. Madrasah facilities such as libraries and digital media also support their independent learning.

Based on the four main findings of implementing the Problem-Based Learning (PBL) model at elementary school, this model significantly positively impacts the learning process. However, intensive efforts and support are required to overcome existing challenges. PBL has succeeded in increasing student activity, making learning more enjoyable, strengthening cooperation skills, and encouraging the development of independence. Students are more actively involved in learning and more enthusiastic, creative, and independent when facing learning challenges. In addition, the interactive learning atmosphere strengthens the relationship between students and teachers, creating a conducive learning environment. However, this success requires full support from teachers and madrasah facilities. PBL requires good time management, effective use of learning media, and solid cooperation between all parties, including students, teachers, and the madrasah environment. Thus, although PBL shows excellent potential to improve the quality of education, the sustainability of its impact depends on the readiness and support of an integrated system at the institutional level.

Discussion

Improving Student Competence Through Problem-Based Learning

The implementation of the Problem-Based Learning (PBL) model in Islamic elementary schools emphasizes student empowerment and competency enhancement through innovative teaching methods. Desimone (2009) and Hidayatullah & Setiawan (2024) assert that PBL plays a vital role in strengthening student-centered learning and fostering essential skills. Observations and interviews with educators reveal that PBL encourages deeper cognitive engagement and supports the development of students' social and problem-solving abilities. Hmelo-Silver (2004) and Pan et al. (2022) argue that PBL cultivates advanced cognitive and social competencies by promoting active inquiry and encouraging students to apply their knowledge to real-life situations. Similarly, Walker and Leary (2009), as well as Secules (2023), emphasize that PBL significantly enhances collaborative learning and critical thinking, preparing students to solve problems more creatively and efficiently. Le et al. (2017) and Nicholus et al. (2024) further highlight that these skills are essential in equipping students for the demands of modern learning environments. In line with these views, Martinez (2022) believes that integrating PBL in Islamic elementary schools not only enriches the overall learning experience but also equips students with the tools they need to face both academic and real-world challenges more effectively.

In Problem-Based Learning (PBL), integrating video as an instructional tool is crucial for capturing students' attention and maintaining their engagement. Wakat et al. (2023), Alsmadi et al.

(2024), and Eusafzai & Suleman (2024) highlight the effectiveness of videos in sustaining student motivation. Lavrischeva & Ostrovski (2013) and Al-Hasani & Elgazzar (2015) note that videos make abstract concepts more accessible by providing visual clarity, encouraging active learning. Jonassen and Hung (2008) and Issa & Khataibeh (2021) stress that PBL fosters a student-centered environment where learners apply knowledge to real-world situations, turning them into active problem-solvers. Additionally, Lomotey (2019) and Perets et al. (2023) emphasize that the collaborative nature of PBL enhances social and leadership skills. Bell (2010) and Maros et al. (2021) conclude that PBL's ultimate goal is to prepare students for real-life challenges, equipping them with the critical thinking and problem-solving skills necessary for success beyond academics.

The PBL approach in Islamic elementary schools emphasizes collaboration and organization in learning, significantly impacting the educational process. According to Finkelstein et al. (2013), forming study groups within PBL allows students to collectively tackle and solve problems, improving comprehension and reducing individual learning burdens. This collaboration fosters vital social skills such as communication and teamwork, which are essential for future professional environments. Gillies (2016) and Zhang et al. (2023) add that group work in PBL increases active student contributions, strengthens their sense of responsibility for collective outcomes, and motivates them to achieve optimal results. This process creates an inclusive learning environment where students learn to appreciate diverse perspectives and enhance their teamwork skills (Chueh & Kao, 2024). Thus, PBL advances academic abilities and nurtures essential social and interpersonal competencies for future success.

In the Problem-Based Learning (PBL) model, educators serve as crucial facilitators and mediators. Almulla (2020) highlights that teachers guide students in exploring knowledge and conducting experiments, enabling them to take ownership of their learning. Pobiner (2016), along with Ericsson et al. (2023) and Twahirwa & Ntivuguruzwa (2024), assert that educators support students in managing information by identifying credible sources, organizing ideas, and applying theoretical knowledge to real-world scenarios. Driskell et al. (2018) and Hidayatullah & Setiawan (2024) emphasize the importance of teachers maintaining organized and inclusive group dynamics to ensure full student engagement. This approach fosters essential skills such as critical thinking, collaboration, and adaptability, which are vital in team-based environments. The reflection and evaluation stages in PBL are key for deep learning and personal development. Sungur & Tekkaya (2006) and Xhaferi & Xhaferi (2017) show that reflecting on learning experiences enhances critical and analytical thinking. Continuous evaluation encourages growth and motivates students to improve (Hmelo-Silver, 2004; Chan & Lee, 2021). Gillies (2016) also highlights that group work in PBL nurtures vital social and life skills.

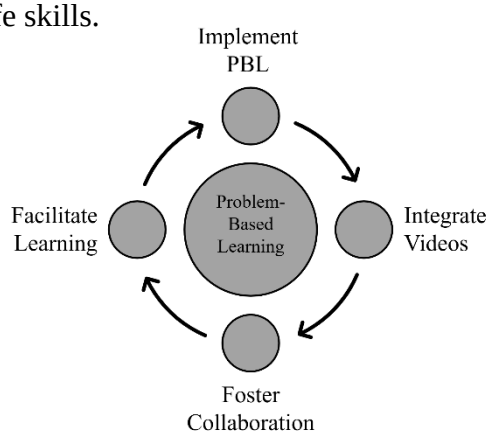

Figure 1. Enhancing Education through PBL

The adoption of Problem-Based Learning (PBL) in Islamic elementary schools marks a significant departure from traditional teaching methods, as it integrates theoretical learning with practical, real-life applications. According to Reynolds & Kearns (2016) and Liao & Ringler (2023), this instructional shift enables a more holistic learning experience that bridges classroom knowledge with everyday relevance. McDaniel & Ingram (2023) and Mafarja et al. (2023) argue that PBL

redefines the role of students by encouraging them to become active participants—acting as investigators and problem-solvers rather than passive recipients of information. Through this active engagement, students are not only able to grasp academic concepts more deeply but also develop key skills such as critical thinking and effective problem-solving. These competencies, as emphasized by these scholars, are essential not only for achieving academic success but also for preparing students to navigate the complexities of real-world situations with adaptability and confidence.

Dolmans et al. (2005) and Ittycheria et al. (2024) emphasize that Problem-Based Learning (PBL) significantly enhances student motivation and engagement by positioning learners at the center of the educational process. This learner-focused approach not only fosters active participation but also strengthens the development of essential teamwork abilities. Mikulski et al. (2023) and Tran & Herzig (2023) argue that through PBL, students gain vital collaborative skills such as clear communication and effective cooperation—skills that are increasingly necessary in both academic contexts and professional environments. Oldland (2023) further supports this view, noting that PBL equips students to express their ideas confidently, work cohesively within groups, and contribute productively to shared goals, ultimately preparing them for roles that demand strong interpersonal and collaborative capabilities.

Problem-Based Learning (PBL) effectively nurtures students' adaptability and flexibility by engaging them with real-world problems that require innovative and resilient thinking. Through this process, students develop the capacity to navigate diverse challenges and respond creatively to complex situations—an essential skill set in today's fast-evolving world (Doblinger, 2022; Ates & Aktamis, 2024). By integrating theoretical concepts with practical application, PBL provides a comprehensive educational experience that meets students' intellectual, social, and emotional needs. This approach not only supports academic achievement but also prepares students to thrive in life beyond the classroom. Ultimately, PBL fosters individuals who are not only well-informed but also capable of translating their knowledge into meaningful actions that contribute positively to society.

The Impact of the Implementation of the Problem Based Learning Model

The implementation of the Problem-Based Learning (PBL) model in elementary schools has brought a transformative impact on student learning and development. Hmelo-Silver (2004) and Roche et al. (2016) assert that PBL fosters active involvement by engaging students in solving authentic, real-world problems, which significantly deepens their comprehension of academic content. This model shifts the learning experience from passive reception to active exploration, encouraging students to think critically and work collaboratively. According to Kozlowski & Ilgen (2006), the interactive and dynamic structure of PBL stimulates enthusiasm and engagement, as students are motivated to participate in group discussions, collaborative tasks, and inquiry-based activities. As a result, PBL not only enhances academic understanding but also cultivates essential life skills such as communication, teamwork, and problem-solving (Guo et al., 2020; Huerta et al., 2024).

A notable outcome of implementing the Problem-Based Learning (PBL) model is the significant enhancement of student engagement during the learning process. Hite et al. (2024) and Clancy et al. (2024) emphasize that PBL actively draws students into learning, resulting in more frequent and meaningful participation. Educators have observed that students not only ask thoughtful questions but also engage deeply in discussions and collaborate effectively in small groups, as noted by Baucal et al. (2023) and Alismail (2023). This increased level of involvement, according to Sutton & Knuth (2017), plays a key role in developing students' critical thinking abilities by encouraging them to question, analyze, and generate solutions. Grossman et al. (2019) further highlight that such engagement fosters curiosity and motivates students to explore learning materials more deeply, moving beyond surface-level understanding. Through this approach, PBL creates a more dynamic and intellectually stimulating classroom environment.

Furthermore, Problem-Based Learning (PBL) redefines the educational experience by making it more stimulating and enjoyable. Ates & Aktamis (2024) and Mou (2024) highlight that PBL's

interactive format—often involving creative learning media and hands-on problem-solving—helps to break the monotony of conventional instruction. Students have expressed that such engagement makes learning feel more relevant and exciting. Abichandani et al. (2023) and Radu et al. (2023) emphasize that by connecting academic content to real-life situations, PBL effectively captures students' interest and sustains their motivation throughout the learning process. Wahbeh et al. (2021) also affirm that this participatory and context-driven approach not only supports stronger academic outcomes but also nurtures a more positive and enthusiastic attitude toward learning overall.

The application of Problem-Based Learning (PBL) at the elementary level has played a vital role in improving students' collaborative abilities. Within the PBL framework, learners are encouraged to engage actively with their peers by exchanging ideas, dividing responsibilities, and working together to solve problems (Le et al., 2017; Wolk, 2022). This interaction fosters an environment of mutual respect and reinforces essential teamworking capabilities. Bell (2010) emphasizes that such a cooperative atmosphere not only builds unity among students but also nurtures critical teamwork skills that contribute to both academic achievement and future career readiness. In addition to enhancing collaboration, PBL also strengthens students' autonomy. The model encourages learners to take initiative in exploring solutions independently prior to seeking external assistance. Stefanou et al. (2013) and Boardman et al. (2024) argue that this aspect of PBL plays a significant role in building students' confidence, promoting self-directed learning, and sharpening their problem-solving and analytical thinking skills—qualities that are essential for navigating real-world situations effectively.

Despite its numerous benefits, the implementation of PBL also presents notable challenges. One of the primary obstacles, as noted by Ertmer and Simons (2006), is the high cost associated with providing diverse learning media and the extensive teacher training required to effectively implement PBL. These costs can be particularly burdensome for schools with limited resources, making it challenging to sustain such an approach. Moreover, PBL requires more time to execute compared to traditional teaching methods. As identified by Tong et al. (2022) and Timotheou et al. (2023), this necessitates careful management of time and resources to ensure that the approach remains effective without compromising the learning objectives or burdening educators and students. In conclusion, while PBL offers transformative benefits in enhancing collaboration, independence, and problem-solving abilities, its successful implementation depends on addressing the challenges related to resource allocation and time management (Loyens et al., 2008; Pan et al., 2022). With strategic planning and support, these obstacles can be mitigated, allowing schools to maximize the potential of PBL in shaping well-rounded, competent learners.

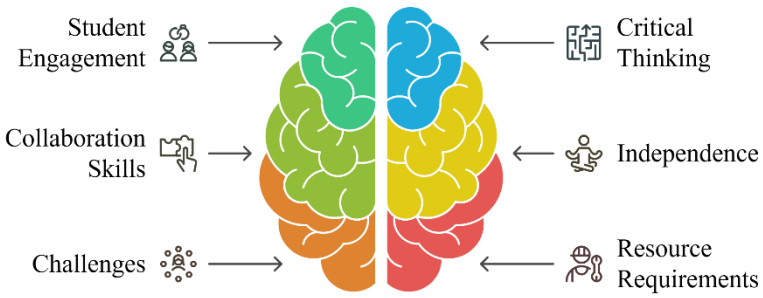

Figure 2. The Multifaceted Impact of PBL

Despite the challenges associated with implementing Problem-Based Learning (PBL), the positive responses from students highlight its potential as an effective and relevant learning method. According to Strobel and van Barneveld (2009), PBL creates a contextual learning environment that enables students to actively engage and express creativity. This approach motivates students to take a more participatory role in their education, fostering innovation and critical thinking as they solve real-world problems. As noted by Igbokwe (2023) and Kamalov et al. (2023), the availability of adequate school infrastructure is crucial in ensuring the success of PBL. Facilities such as learning

materials, technology, and suitable classroom environments significantly enhance the effectiveness of PBL. At elementary school, the presence of supportive infrastructure has played a key role in facilitating the implementation of this learning model (Radu et al., 2023; Supriatna et al., 2024). It allows teachers to provide meaningful, interactive, and problem-solving-oriented lessons, thereby enriching the overall learning experience.

PBL provides a unique opportunity to improve student engagement and learning outcomes. By placing students in situations where they must analyze, collaborate, and innovate, PBL not only enhances academic achievement but also equips students with essential life skills. These include teamwork, problem-solving, and critical thinking—skills that are highly valued in today's rapidly evolving world (Yu, 2024; Chueh & Kao, 2024). However, the successful implementation of PBL requires careful planning and investment. Teachers must receive adequate training to effectively deliver PBL lessons, and schools must allocate sufficient resources to support this method. This includes creating an environment conducive to active and collaborative learning and ensuring that teachers have the tools and knowledge necessary to guide students through the process.

In conclusion, while PBL presents challenges such as resource demands and the need for teacher preparation, its benefits far outweigh its difficulties. By fostering active participation, creativity, and essential life skills, PBL prepares students not only for academic success but also for the demands of the modern world. With proper planning, investment, and infrastructure, PBL can be a transformative approach to learning in madrasahs and beyond.

CONCLUSION

Implementing Problem-Based Learning (PBL) in Islamic elementary schools (Madrasah Ibtidaiyah) effectively enriches learning and develops essential student skills such as problem-solving and teamwork. PBL enhances student engagement and graduate quality by requiring the practical application of knowledge. However, challenges such as high infrastructure costs, intensive teacher training needs, and efficient time management demand careful strategies. With adequate infrastructure support and positive student responses, PBL can overcome these obstacles. Through proper investment and careful planning, PBL improves learning outcomes and equips students with the skills needed for future success, both academically and in everyday life.

The implementation of Problem-Based Learning (PBL) in Islamic elementary schools has both theoretical and practical implications. Theoretically, PBL supports constructivist theory by demonstrating that active student engagement in solving real-world problems enhances learning and critical thinking skills. Practically, PBL requires adequate infrastructure and teacher training to ensure effective implementation. Collaboration among teachers, students, and institutions is key to creating a learning environment that fosters critical and adaptive skills, making PBL a relevant strategy to improve learning quality and prepare students to face modern challenges.

Future research on Problem-Based Learning (PBL) could explore its impact across various educational levels, strategies for time management, the effectiveness of learning media, and its adaptation to inclusive education. Comparative studies with other methods and long-term research on the impact of PBL on students' life skills are also critical. Such studies can provide solutions to optimize PBL implementation in various educational contexts.

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