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A SYSTEMATIC LITERATURE REVIEW ON PROJECT-BASED LEARNING IN PRIMARY EDUCATION

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ABSTRACT

This study aims to analyze the development, characteristics, impacts, and challenges of implementing Project Based Learning (PjBL) in primary education. The method used is a Systematic Literature Review (SLR) employing the PRISMA approach through an analysis of 25 articles from national and international journals spanning the years 2016–2026. The results of the study indicate that the use of PjBL has increased significantly and is widely applied across various subjects. PjBL has been proven to improve learning outcomes as well as 21st-century skills such as critical thinking, creativity, communication, and collaboration. However, its implementation still faces challenges such as time constraints, teacher readiness, and supporting resources. Therefore, optimal planning and support are necessary to ensure the effective implementation of PjBL.

Keywords: *Project-Based Learning, primary education, systematic literature review, 21st-century skills*

INTRODUCTION

Learning in the modern era requires methods that help students become more creative, think critically, communicate, and collaborate. The goal of learning is to foster active, independent individuals with a strong motivation to learn (Muthmainnah et al., 2023). Teachers do not merely serve as conveyors of information but also as facilitators who provide engaging learning experiences. Therefore, learning methods that actively engage students are needed, including through project design that also involves parents to build their involvement and support in their children's educational development(Sakila et al., 2023). Thus, effective learning in the modern era requires collaboration between teachers, students, and parents through an active and contextual approach.

Project-Based Learning (PjBL) is an appropriate method because it emphasizes student engagement in developing and applying ideas through real-world projects (Afriana, 2010). Students are involved in the entire learning process, from planning to presenting results, making learning more contextual and meaningful. Project-Based

Learning (PjBL) significantly enhances learning engagement in elementary schools through a series of engaging activities (Suranti & Wahyuningsih, 2024). Through this approach, students not only acquire theoretical knowledge but also develop critical thinking skills, creativity, and collaboration during the learning process.

Project-based education encourages students to acquire knowledge and skills through hands-on experience (Wahyu, 2016). Through the Project-Based Learning model, new knowledge can be imparted to students based on real-world experiences through project-based activities such as report writing, product creation, and other tasks (Komala et al, 2024). Through projects, students not only gain theoretical knowledge but also develop critical thinking, creativity, and collaboration skills. Because it enhances student participation, this model is widely implemented in elementary schools. Therefore, it can be concluded that PjBL is an effective learning model for creating active, meaningful learning experiences oriented toward the development of 21st-century skills.

As interest in PjBL has grown, various studies have been conducted to examine its implementation, impact, and development in elementary education. These studies indicate a growing trend in research related to PjBL, covering aspects ranging from learning outcomes and 21st-century skills to the integration of technology in learning. However, the results of these studies remain scattered and have not yet been comprehensively synthesized, necessitating a study capable of systematically summarizing and analyzing these findings.

RESEARCH METHODOLOGY

This study employs the Systematic Literature Review (SLR) method, which is a research approach designed to compile findings from previous studies with the aim of providing more comprehensive and balanced information (Rahmawati & Juandi, 2022) . This method was applied to search for, analyze, and summarize findings regarding Project-Based Learning in the context of elementary education over the past decade. With this approach, researchers can gain a structured view of the progress of previous research.

The study followed the PRISMA guidelines to ensure that the article search and selection process was conducted systematically. The data sources consisted of scientific

articles in the Scopus and SINTA databases using the keywords "Project-Based Learning," "basic education," "elementary school," and "primary education," with a publication range of 2016– 2026. Selected articles must discuss PjBL in primary education, be indexed in national or international journals, be available in full text, and contain empirical research results. The selection process involved several stages: identification, screening of titles and abstracts, content evaluation, and final determination, resulting in 25 articles for analysis. The data were then analyzed using a thematic approach based on research trends, study characteristics, implementation impacts, and challenges of PjBL in primary education.

RESULTS AND DISCUSSION

Table 1. Frequency distribution and research focus of PJBL (2016–2026)

Period	Year Range	Trend in Number of Articles	Main Research Focus
Early	2016–2018	Low & Stagnant	Learning Outcomes, Student Creativity
Mid	2019–2021	Gradual Improvement	Collaboration Skills, Problem Solving
Final	2022–2026	Significant Improvement	Science Literacy, 21st-Century Skills, Digital Media

Based on the results of *a Systematic Literature Review* (SLR) using the PRISMA approach, 25 articles from national and international journals were identified. These articles examined the application of Project-Based Learning (PjBL) in elementary education during the 2016– 2026 period. An analysis was conducted to identify development trends, research characteristics, implementation impacts, and challenges of PjBL in elementary schools. The results indicate a gradual increase in the number of studies, despite fluctuations. From 2016 to 2018, the trend remained low and stagnant. The 2019–2021 period marked the beginning of an increase. Meanwhile, the 2022–2026 period recorded a significant increase, reflecting growing attention to PjBL in 21st-century learning. The focus of the research has also evolved; initially, the studies emphasized student learning outcomes and creativity. Now, the focus has shifted to science literacy, 21st-century skills, and the integration of digital media.

Project-Based Learning (PjBL) is a learning approach that places students at the center of the learning process. This approach is implemented through challenging projects focused on solving real-world problems. In practice, students actively design, implement, and evaluate these projects. Through these activities, students' knowledge and skills develop holistically. (Nurhadiyati, 2021) define PjBL as a student-centered model that prepares students to face real-life situations through contextual problem-solving. (Ansya, 2023) describes it as active and contextual learning that emphasizes collaboration, creativity, and problem-solving through projects. Meanwhile, (Lahagu et al, 2026) describe it as an active, collaborative, and authentic model for enhancing students' conceptual understanding. Based on these definitions, PjBL can be summarized as a student-centered approach through real-world projects that are active, collaborative, and contextual, thereby developing skills and conceptual understanding in a meaningful way.

Overall, the trend of increasing research publications on Project-Based Learning (PjBL) in elementary education during the 2016–2026 period reflects a strengthened academic focus on student-centered learning approaches. According to (Perayani & Rasna, 2024), learning becomes more effective when teachers effectively utilize media in the PjBL process. Specifically during the 2022–2026 period, various studies increasingly emphasize the role of teachers as facilitators. (Rafik et al,2023) assert that teachers are no longer the center of information but rather guides who help students find solutions to learning problems. These findings indicate a paradigm shift from conventional models to approaches that encourage active student engagement. Furthermore, such approaches foster 21st-century skills, such as critical thinking, collaboration, creativity, and communication.

Furthermore, the dominance of publications in 2023 indicates that this period marked a phase of accelerated research on PjBL in classroom settings. This aligns with findings that project-based learning enables students to think critically when solving problems and generating solutions through meaningful activitie (Aini et al, 2022). Additionally, various studies also indicate that limited facilities and infrastructure, as well as insufficient teacher training, remain barriers to optimizing the implementation of PjBL in the classroom (Saputro & Rahayu, 2020). Subsequently, various studies began exploring more varied implementations, including the integration of digital technology,

science literacy, and the strengthening of teachers' pedagogical competencies in designing project-based learning. Although there were slight fluctuations following this peak, research interest continued to show relatively high consistency through 2026, indicating that PjBL has become one of the primary focuses in learning innovation at the elementary education level.

Looking ahead, research on PjBL needs to be further developed, particularly regarding its long-term effectiveness and its application in various educational contexts. Several studies indicate that PjBL not only improves academic outcomes but also develops students' critical thinking skills. Furthermore, future research could focus on developing technology-based PjBL models, measuring its impact on students' metacognitive skills, and analyzing its implementation in various school contexts, including resource-limited areas. PjBL also encourages students to collaborate in groups and produce projects or works as learning outcomes, thereby enhancing their collaboration and communication skills. This process provides space for students to discuss and develop creativity in completing project tasks (Ismanto & Vitriani, 2022). Thus, PjBL is not only understood as a learning approach but also as a strategy for sustainable educational transformation in the global era. The effective implementation of PjBL supports improved learning outcomes while strengthening critical thinking, creativity, communication, and collaboration skills as part of 21st-century skills.

CONCLUSION

Based on the results of a Systematic Literature Review (SLR) of 25 articles from 2016 to 2026, it can be concluded that the implementation of Project-Based Learning (PjBL) in elementary education shows a significant upward trend in terms of both the number of studies and the scope of research. PjBL has been proven to have a positive impact on improving student learning outcomes as well as the development of 21st-century skills, such as critical thinking, creativity, communication, and collaboration. Furthermore, the student-centered nature of PjBL makes the learning process more active, contextual, and meaningful, and encourages students to engage directly in problem-solving through project activities.

However, the implementation of PjBL in elementary schools still faces various challenges, including limited instructional time, teachers' readiness and competence in

designing projects, and insufficient supporting facilities and infrastructure. Therefore, thorough planning, ongoing teacher training, and adequate facility support are necessary to ensure the optimal implementation of PjBL. With such support, PjBL has the potential to become an effective and sustainable learning strategy for improving the quality of elementary education in the global era.

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