E-ISSN: 2502-3519 P-ISSN: 2798-3234
JGA, Vol. 10(2), June 2025 (243-278)
DOI: https://doi.org/10.14421/jga.2025.102.05

Golden Age
Jurnal Ilmiah Tumbuh Kembang Anak Usia Dini

OPEN ACCESS

Planning, Implementation, and Evaluation of Project-Based Learning for Early Childhood in Indonesia: A Descriptive Qualitative Study

Sadaruddin [1], **Syamsuardi** [2], **Hasmawaty** [3], **Usman** [4]
[1] Universitas Islam Makassar, Indonesia, [2,3] Universitas Negeri Makassar, Indonesia,
[4] Sekolah Tinggi Agama Islam Al-Ghazali Bulukumba, Indonesia.

Keywords:
Project-based Learning, Early childhood, Planning, Implementation, Evaluation.

Correspondence to
Sadaruddin, Universitas Islam Makassar, Indonesia.
e-mail:
sadaruddin.dty@uim-makassar.ac.id

Received 24 11 2024
Revised 20 04 2025
Accepted 23 05 2025
Published Online First 28 06 2025

Check for updates

Abstract
This study aims to describe and critically analyze the planning, implementation, and evaluation of the Project-Based Learning (PjBL) model in Early Childhood Education (ECE), while also exploring the supporting and inhibiting factors and gathering strategic recommendations from teachers as frontline practitioners. Using a descriptive qualitative approach, data were collected through classroom observations, semi-structured interviews, and document analysis involving teachers from selected kindergartens implementing PjBL. The findings reveal that teachers generally understand PjBL as a project activity but struggle to differentiate it from conventional crafts or display projects. Their understanding of the pedagogical structure of PjBL remains limited, particularly regarding essential elements such as driving questions, inquiry-based exploration, and authentic assessment. Lesson plans are often based on available topics rather than emerging from children's interests, and assessment strategies are rarely integrated from the beginning of the planning stage. Implementation tends to be teacher-directed, limiting children's autonomy, problem-solving, and collaborative learning opportunities. However, children show increased enthusiasm and curiosity when given opportunities to explore, especially through outdoor and environmental projects. Supporting factors include institutional encouragement, parental involvement, and the use of culturally relevant contexts. Conversely, challenges such as time constraints, inadequate training, and limited resources hinder effective implementation. Teachers recommend continuous, practice-based training, collaborative and flexible lesson planning, integration of community resources, and development of assessment tools that evaluate creativity, communication, and collaboration. This study contributes to a better understanding of how PjBL can be meaningfully adapted in early childhood settings and provides practical insights for improving teacher professional development and curriculum design.

To cite: Sadaruddin, Syamsuardi, Hasmawaty, & Usman. (2025). Planning, implementation, and evaluation of project-based learning for early childhood in Indonesia: A descriptive qualitative study. *Golden Age: Jurnal Ilmiah Tumbuh Kembang Anak Usia Dini, 10*(2), 263-278. *https://doi.org/10.14421/jga.2025.102-05*

Introduction

Early Childhood Education (ECE) plays a crucial role as the initial foundation in the formation of character, skills, and intelligence of children from an early age (Arifuddin et al., 2023; Suri & Chandra, 2021). ECE institutions not only focus on cognitive development but also on the formation of character values and the mastery of essential skills that will be beneficial throughout life (Suri & Chandra, 2021). The Indonesian government itself has established ECE as the main foundation in the development of national character, recognizing the importance of this stage in preparing a generation that is morally upright and competent (Lisnawati et al., 2024). The implementation of quality Early Childhood Education (ECE) is considered a strategic long-term investment in realizing superior Indonesian human resources in the future (Rad et al., 2022). Early childhood education provides an invaluable opportunity to instill positive values and develop various potentials of children holistically (Nadia & Pango, 2021).

Early childhood is often referred to as the golden age, a period of rapid and crucial development for various aspects of a child's growth, including cognitive, socio-emotional,

motor, and language development (Eka Putri et al., 2023; Wulan Sari & Jamrizal, 2023; Yang et al., 2021). At this age range, a child's brain undergoes extraordinarily rapid growth, forming millions of neural connections every second, which serve as the foundation for learning and adapting abilities later in life (Schneider et al., 2022). The development that occurs during this golden period is fundamental and interconnected, where progress in one aspect will influence the development of other aspects (Buyalskaya et al., 2021). Therefore, appropriate stimulation and education during this period will have a significant impact on the child's potential in the future (Pitchik et al., 2021; Suryadi et al., 2023).

Realizing the importance of quality education at the early childhood education level, various learning approaches continue to be developed and evaluated. One approach that is considered very suitable for the characteristics of early childhood is Project-Based Learning (PjBL) (Ferrero et al., 2021; Sadaruddin, Ahmad, Jabu, Saodi, et al., 2023). PjBL is a project-based learning model, where children are actively involved in the learning process through a series of exploratory, collaborative, and reflective activities (Ferrero et al., 2021; Pratami et al., 2024). Through PjBL, children are encouraged to think critically, think creatively, and develop collaboration skills during the project execution process (Khoiri et al., 2023).

The PjBL model is believed to have great potential in developing various important skills in early childhood. Active involvement in projects stimulates children's creativity, encouraging them to think outside the box and generate new ideas (Nurasih et al., 2022; Sadaruddin, Syamsuardi, Usman, Hasmawaty, et al., 2024). Additionally, PjBL also trains critical thinking skills, where children learn to analyze information, evaluate various options, and make appropriate decisions in completing projects (Khoiri et al., 2023). Problem-solving skills are also a primary focus in PjBL, as children are faced with real challenges that they must overcome through collaboration and innovation (Sadaruddin et al., 2025; Utamimah et al., 2025). Furthermore, PjBL fosters independence and responsibility in children, as they are involved in project design, scheduling, progress monitoring, and outcome evaluation (Suradika et al., 2023).

The implementation of PjBL in early childhood education brings significant changes to the learning paradigm. This approach shifts the focus from the teacher as the primary source of knowledge to the child as the center of the learning process (Herlina, 2022; Pratami et al., 2024). Children are given the opportunity to have a voice in determining the theme of the projects they will work on, planning the steps of the activities, exploring various relevant learning resources, and presenting their work to others (Sadaruddin, Ahmad, Jabu, Syamsuardi, et al., 2023). In this context, the role of the teacher transforms into that of a facilitator and mentor. Teachers no longer just convey information in a one-way manner, but play a more active role in motivating children, providing support, asking triggering questions, and helping children develop their potential holistically (Ferrero et al., 2021; Parwoto et al., 2024). However, it should be acknowledged that the success of PjBL implementation heavily relies on the quality of thorough project planning, the execution of activities that align with the child's developmental stage, and comprehensive and in-depth learning evaluations conducted by educators (Ferrero et al., 2021; Heikka et al., 2023).

Various studies have shown the positive impact of implementing PjBL in ECE. PjBL has been proven to enhance children's active participation in learning activities, as engaging and relevant projects can motivate them to become deeply involved (Zulkarnaen et al., 2023). Additionally, PjBL also contributes to strengthening children's social-emotional competencies, as they learn to work together in teams, share ideas, appreciate differences, and manage conflicts (Nisfa et al., 2022). The development of children's thinking and motor skills is also one of the main benefits of PjBL, as projects often involve physical activities, manipulation of tools and materials, and complex problem-solving (Sari et al., 2023). Children involved in PjBL tend to be more enthusiastic about learning, show higher engagement in activities, and experience significant improvements in their communication and collaboration skills with peers (Sari et al., 2023; Zulkarnaen et al., 2023).

Nevertheless, the implementation of PjBL in ECE is not without various obstacles. One of the main challenges is designing a systematic and structured project activity plan so that learning objectives can be achieved effectively (Rasmani et al., 2023; Sadaruddin, Syamsuardi, Usman, & Hasmawaty, 2024). 15 Additionally, the implementation of PjBL needs to be adjusted to the child's developmental stage so that the activities carried out remain meaningful and do not burden them (Sari et al., 2023; Zulkarnaen et al., 2023). 15 A comprehensive evaluation of the child's learning process and outcomes in the context of projects also poses a unique challenge, as educators need to develop appropriate instruments and evaluation techniques to measure the child's developmental achievements holistically (Armeth Daud Al Kahar & Anjani Putri, 2023; Sadaruddin, Ahmad, Jabu, Syamsuardi, et al., 2023).

The initial observations conducted in several kindergartens across Indonesia indicate that the implementation of the PjBL model has been applied, but it is still limited to a few thematic activities. This highlights the potential to develop the implementation of PjBL more broadly and deeply within schools. However, observations also identified challenges in designing more structured learning plans, ensuring the consistent execution of activities in accordance with PjBL principles, and conducting evaluations that accurately reflect the overall developmental progress of the children. Teachers in kindergarten often face difficulties in integrating PjBL principles into Daily Learning Implementation Plans, encounter limited time for project implementation, and lack a deep understanding of the stages of project-based evaluation.

A comprehensive study on the planning, implementation, and evaluation of the PjBL model in early childhood education (PAUD) in Indonesia is generally still relatively limited (Maryati et al., 2022). However, a deep understanding of these three aspects is crucial to ensure the successful implementation of PjBL effectively and sustainably in various early childhood education units. Without adequate understanding, the potential of PjBL to enhance the quality of learning and optimally develop children's potential may not be achieved (Sari et al., 2023).

Considering the background of the problem that has been outlined, this research aims to describe and analyse in depth the planning, implementation, and evaluation of the Project-Based Learning model in Early Childhood Education. In addition, this research is expected to provide a clear picture of the supporting and inhibiting factors, along with recommendations to strengthen Project-Based Learning (PjBL) from the teachers involved in the implementation of Project-Based Learning (PjBL) in Early Childhood Education. The expected contribution of this research is the availability of useful information to formulate considerations for planning, implementation, and evaluation related to the implementation of Project-Based Learning (PjBL) in Early Childhood Education. In addition, the results of this research can provide practical guidance for educators in early childhood education, as well as for teacher training institutions in developing relevant and effective training programs. Thus, this research is expected to contribute to the development of more innovative, contextual, and age-appropriate learning practices for children in the 21st century.

Methods

Research Design

This study employed a qualitative descriptive design to explore in depth the planning, implementation, and evaluation of the PjBL model in ECE. The choice of this approach aimed to capture the lived experiences, perceptions, and pedagogical challenges faced by ECE teachers in implementing PjBL in authentic classroom contexts. Qualitative description was deemed appropriate to generate practical insights and recommendations based on real-world practices (Hafnizar et al., 2021).

Research Context and Participants

Participants were recruited using purposive sampling based on relevance to the research objectives. The selection focused on active early childhood educators with at least two years of teaching experience and documented involvement in PjBL classroom practices. The two-year threshold was chosen as a minimum period for teachers to develop pedagogical routines and

critically reflect on classroom practices. Teachers were drawn from various institutional backgrounds, including both public and private ECE settings across urban and peri-urban areas in Indonesia, to enhance the transferability of findings. Participation was voluntary, and informed consent was obtained. A total of 30 ECE teachers were initially approached. Of these, 26 submitted fully completed responses that met all inclusion criteria and were thus included in the final analysis.

Data Collection Techniques

Data were collected primarily through an online questionnaire distributed via Google Forms, designed to elicit both factual and interpretive responses. The questionnaire consisted of a combination of open-ended and closed-ended items to capture structured data while allowing space for participants to elaborate on their experiences. The instrument was divided into four thematic areas: participant background, planning of PjBL (including lesson plan submission), practical classroom implementation, and reflective evaluation of successes and challenges in applying the model. The inclusion of open-ended prompts aimed to generate detailed, qualitative narratives that could be analyzed thematically.

Instrument Development and Validation

The questionnaire underwent a two-stage content validation process involving early childhood education experts with experience in curriculum design and qualitative methodology. Validators reviewed the instrument for content relevance, clarity, and alignment with the core components of the PjBL model. Feedback was used to revise ambiguous items and ensure that the instrument could effectively elicit data aligned with the study's goals. Although inter-rater agreement was not quantified, iterative revisions were based on expert consensus.

Data Analysis

Data analysis followed an inductive thematic approach. Open-ended responses were first read repeatedly to ensure familiarity, then coded manually to identify emerging themes related to the planning, implementation, and evaluation stages of PjBL. Codes were clustered into categories, and higher-order themes were developed to interpret patterns across the dataset. Document analysis of lesson plans submitted by participants was conducted in parallel to triangulate questionnaire data. These documents were analyzed using criteria derived from established PjBL principles, such as the presence of driving questions, collaborative activities, artifact creation, and student reflection. The research team conducted analysis, and regular peer debriefings were held to ensure consistency and credibility of interpretation. No qualitative software was used; all coding and analysis were performed manually.

Result

The results of the research, based on questionnaire responses collected from 26 teachers and principals of early childhood education regarding the implementation of PjBL in kindergarten, were presented and analyzed based on three components of the research questions: 1) How is PjBL planned in kindergarten? 2) How is the implementation of PjBL aligned with planning? 3) What challenges do teachers face in implementing PjBL as an evaluation approach? These components are outlined below:

Project-Based Learning Planning in Kindergarten

The findings of this study reveal a misalignment between teachers' conceptual understanding of PjBL and its application within their Daily Lesson Plan (DLP) documents. While most teachers reported during interviews that they had incorporated PjBL into their instructional practices, document analysis yielded contrasting evidence. Only a small proportion of the DLP documents explicitly reflected core components of PjBL, such as the use of driving questions, structured project timelines, collaborative engagement among children, and tangible learning artifacts as outcomes. In contrast, the majority of the documents lacked explicit planning for these essential elements, suggesting that PjBL had not yet been fully integrated into the pedagogical planning

process.

One teacher reflected, *``Our DLP does not yet contain detailed stages of project implementation. This is due to our limited understanding of project-based learning.''* This statement highlights the ongoing need for professional development to enhance teachers' comprehension of PjBL syntax and principles. Without a thorough understanding, project-based planning risks becoming a mere administrative formality rather than a meaningful educational practice.

Conversely, another teacher stated, *``We always consider the children's environment before designing the DLP to ensure the project theme is contextual and easier for children to grasp.''*This perspective illustrates that some teachers are beginning to interpret project-based learning in a more contextual manner, grounding project themes in children's real-life experiences and surroundings.

Document analysis further revealed that most teachers tend to include project-related elements only at the most recognizable level—namely, the selection of project themes. While this component was frequently noted, other critical aspects such as the formulation of guiding questions, project work plans, implementation processes, and evaluation stages were seldom documented. This pattern indicates that teachers' understanding of PjBL is generally limited to preliminary stages and does not yet encompass a comprehensive or sequential project-based learning cycle.

Further evidence emerged from the analysis of the PjBL syntax structure within the DLP documents. Only a small subset of teachers appeared to construct complete project stages, from initiation through final evaluation. A few included partial elements of the syntax, but the majority omitted PjBL components altogether in their planning. These findings suggest that the implementation of PjBL at the classroom level remains fragmented and lacks integration as a holistic instructional approach.

Several supporting factors were identified in the planning process, including teacher training, leadership support from school principals, and alignment with the Merdeka Curriculum. Nevertheless, key challenges persist, such as limited understanding of PjBL syntax, inadequate resources, and time constraints that often hinder teachers from completing project phases in full.

Teachers' remarks such as, *I know about project-based learning, but usually just start with a theme and let children explore without a clear structure,'' and We often run out of time, so reflection and documentation are usually skipped,''*point to a limited grasp of the fundamental structure and pedagogical intent of PjBL.

These findings underscore the critical need for ongoing, practice-oriented professional development. Training programs must move beyond theoretical introductions to PjBL and instead offer concrete, hands-on guidance in developing project-based DLP documents. This is essential to ensure that the implementation of PjBL transcends administrative compliance and genuinely enhances children's learning experiences.

Implementation of Project-Based Learning in Kindergarten

Consistency Between Planning and Implementation

Findings revealed a noticeable inconsistency between the project-based learning (PjBL) plans documented in the Daily Lesson Plan (DLP) and their actual implementation in classroom settings. Only a small number of teachers were able to execute PjBL in accordance with the planned stages. Most teachers implemented only partial elements of the planned syntax, while one teacher did not implement the PjBL plan at all. This discrepancy suggests that the implementation of PjBL is still fragmented and not yet consistently integrated into classroom practice.

Several factors contributed to this gap, including time constraints, limited understanding of PjBL, and inadequate infrastructure. One teacher explained, *``We included the full project syntax in our DLP, but due to our busy schedule, we often had to simplify the stages.''* This statement reflects how daily routines and time pressures often hinder the full execution of

project activities. Furthermore, the unclear formulation of PjBL syntax within the DLP also hindered effective implementation.

These findings underscore the need for ongoing professional development to enhance both the conceptual and technical competence of teachers in planning and implementing project-based learning in a consistent and contextually relevant manner.

Children's Participation in Project Implementation

Children's active participation is a key indicator of successful PjBL implementation. All teachers involved in the study claimed to involve children in various project stages, including individual and group activities. However, observational data indicated variability in both the form and intensity of children's engagement. In some classrooms, children were observed to be highly enthusiastic and deeply involved across project phases. In others, their participation was more symbolic or limited to responding to teacher instructions. This variation reflects differences in how teachers facilitated the project process.

Most teachers reported that children were involved in determining themes, conducting activities, and presenting their final products. One teacher shared, *``During our planting project, the children chose the types of plants, brought seeds from home, took care of them, and reported on their growth daily.''* This account illustrates meaningful participation, where children engage in decision-making and develop a sense of ownership over the project.

Nevertheless, not all teachers facilitated such depth of engagement. Some indicated that children primarily followed directions with limited opportunities to express opinions or take initiative. This suggests that not all PjBL implementations fully embody child-centered principles.

As a result, teachers need to be encouraged and supported to create dialogical, reflective, and negotiation spaces with children to ensure participation that is not merely procedural but truly transformative.

Frequency of Project-Based Learning Implementation

The frequency of PjBL implementation in kindergarten settings varied widely. Some teachers reported conducting projects weekly, while others implemented them monthly. A number of teachers used the PjBL approach only for specific themes, and some admitted to using it on an ad-hoc basis without a structured schedule. This variation indicates the absence of a standardized guideline for PjBL implementation at the early childhood education unit level, leaving its application to the discretion of individual teachers or institutions.

Teachers who implemented PjBL regularly stated that it enhanced children's engagement and promoted autonomy. Conversely, those who implemented it less frequently cited time constraints, lack of resources, and uncertainty in designing open-ended, flexible projects. One teacher explained, *``I only use PjBL when the theme fits, such as during exploration of the environment or learning about professions.''*

These findings suggest that enhancing the frequency and quality of PjBL requires systemic support, including scheduling adjustments, provision of adequate materials, and collaborative planning among teachers.

Collaboration Among Teachers, Children, and Parents

Collaboration among key stakeholders—teachers, children, and parents—is critical in PjBL. Several teachers reported involving parents in home-based project activities, such as creating mini gardens or preparing food together, which enriched children's learning experiences.

As one teacher noted, *``When parents are involved, the children become more enthusiastic, and the project feels more real to them.''* Such collaboration not only enriches learning but also strengthens the connection between school and family, fostering a holistic educational ecosystem.

Nevertheless, challenges remain, especially in communities with limited access or where parents face time constraints. Therefore, adaptive strategies for parent engagement that align with the local context of each early childhood education unit are essential.

Evaluation of Project-Based Learning in Kindergarten

Evaluation is a crucial component of the Project-Based Learning (PjBL) approach, as it enables teachers to comprehensively understand children's learning processes and outcomes. However, this study reveals that the implementation of evaluation in project-based learning in kindergartens still encounters several conceptual and technical challenges.

Based on interview data, most teachers conducted informal evaluations through process observations, documentation of children's work, and joint reflections with the children at the end of activities. One teacher stated, ``*We evaluate based on how the children complete the project, how they work together, and how they present their project results to their peers.*''This statement indicates that the evaluation tends to focus on social and communication dimensions, yet does not sufficiently address children's cognitive development and creativity. This aligns with earlier findings, which suggest that teachers struggle to develop systematic evaluation instruments tailored to the characteristics of PjBL. Current evaluation practices remain qualitative and do not reference standardized rubrics or indicators.

This situation is further reinforced by the observation that most teachers have not explicitly integrated a reflection stage into their Daily Lesson Plans (DLP) or classroom practices. Only a small number facilitate simple question-and-answer sessions as a form of learning reflection. In fact, the reflection stage in PjBL is crucial for developing children's metacognitive abilities—how they assess their own thinking and learning processes.

The absence of reflection and authentic evaluation practices in PjBL has significant implications for learning effectiveness. Children miss opportunities to understand what they have learned, how they have learned it, and how the process contributes to their personal growth. Simultaneously, teachers lose valuable insights that could be used to design more responsive and adaptive future learning experiences.

Challenges in the evaluation aspect of project-based learning appear closely linked to conceptual and technical difficulties faced by teachers. Some teachers admitted that they do not fully understand the PjBL concept, particularly regarding how to design and implement evaluations that align with the approach. Others found it difficult to design learning activities that reflect the core principles of PjBL, especially in integrating evaluation indicators into planning documents such as the DLP. These challenges highlight the urgent need to improve teachers' understanding of evaluation within the context of PjBL.

Furthermore, the difficulty in constructing evaluation rubrics is related to the limited technical training teachers have received. Most PjBL training programs focus on basic concepts and have yet to address the design of authentic assessment instruments that can measure children's collaboration, creativity, and initiative—key elements in project-based approaches.

These findings emphasize the importance of providing follow-up training for teachers, specifically on project-based evaluation grounded in the principles of authentic and reflective assessment. Additionally, practical guidelines should be developed, including sample assessment rubrics and PjBL-based DLPs with comprehensive indicators for evaluating both the learning process and outcomes.

Supporting and Inhibiting Factors in the Implementation of PjBL in Kindergarten

Supporting factors include: (1) support from school principals and foundations, (2) teacher training related to the Merdeka Curriculum and Project-Based Learning (PjBL), (3) parental participation, and (4) a resource-rich environment (natural, cultural, and social). These four elements synergistically strengthen the educational ecosystem, enabling projects to be implemented optimally and contextually.

In contrast, inhibiting factors include: (1) limited teacher understanding of PjBL syntax, (2) insufficient time for planning and implementation, (3) lack of tools, materials, and infrastructure to support projects, and (4) high administrative workload. This combination of challenges indicates that the implementation of PjBL requires adaptive policy interventions and solution-oriented institutional management.

One teacher noted, ``*The main issue is time. If teachers are not equipped with sufficient*

understanding and tools, the implementation of projects will be suboptimal." This statement underscores the importance of strategic planning and resource allocation to ensure that PjBL is more than a slogan and is implemented with meaningful quality.

Teachers' Recommendations for Strengthening PjBL in Kindergarten

As part of their reflection, teachers offered several strategic suggestions for the future development of PjBL. First, regular training on project-based planning and evaluation is essential to strengthen teacher capacity. Second, the development of collaborative and flexible Daily Lesson Plans (DLP) will make it easier for teachers to adapt their plans to children's real-life contexts. Third, the provision of learning resources to support projects must be prioritized by policymakers, including foundations and local governments. Fourth, enhanced parental and community involvement is needed to enrich and add meaning to project work.

Fifth, the development of authentic assessment instruments to evaluate process aspects—such as children's collaboration, creativity, and communication—should be a key priority. One teacher suggested, *``The DLP must be designed holistically so that the project can integrate the roles of teachers, children, and parents."* This highlights the importance of a holistic approach in PjBL that connects all elements of early childhood education in an integrated manner.

Discussion

The findings of the study show that teachers' understanding of the Project-Based Learning (PjBL) model is still at the basic introductory level. Some teachers are aware that PjBL is related to project-based activities, but they are not yet fully able to distinguish between ordinary projects and PjBLs that have a distinctive pedagogical structure. This conceptual misunderstanding has the potential to hinder the implementation of the ideal, because PjBL is not just a product production activity, but a learning process that involves meaningful questions, deep exploration, collaboration, and the creation of authentic products (Aulina & Nurdiana, 2024; Uyun & Diana, 2023). PjBL is not just about producing the final product, but a learning process that fosters the ability to think independently, social skills, and contextual understanding of the surrounding world. When teachers do not fully understand the syntax and pedagogical framework of PjBL, the activities carried out tend to turn into display projects that focus on visual results, not the learning process (Tempera & Tinoca, 2022).

This misunderstanding is compounded by a lack of training that emphasizes practical experience. Most teachers have not received applicable and reflective training, so the implementation of PjBL in the classroom is still mechanical and does not touch the essential dimensions of learning (Viro et al., 2020). Training that is only theoretical in nature is not enough to foster deep understanding. Teachers need structured hands-on training in order to be able to internalize pedagogical principles and apply them in real-world situations (Maisyarah & Lena, 2023).

The success of PjBL is highly dependent on teachers' mastery of key elements. Central questions or driving questions, as described by Markula & Aksela (2022), becomes an important starting point that directs the process of investigation and exploration. Collaboration between children allows for the development of social skills and joint problem-solving, as outlined by Haatainen & Aksela (2021). Authentic products resulting from the learning process should reflect the application of knowledge in a real-world context, not just a sticky assignment or display (Tempera & Tinoca, 2022). Teachers' comprehensive understanding of the objectives, processes, and evaluation strategies used hint at the implementation of quality PjBL. Without this framework, learning risks becoming a routine activity that is less meaningful and does not support the development of critical thinking and children's creativity.

Project-Based Learning Planning

The findings show that in Project-Based Learning (PjBL) planning, teachers have shown efforts to relate project themes to local contexts, including school environments and regional culture.

This effort is in accordance with research Shih (2022) and Chen Li-Chun & Lin Ko-Ming (2022) which emphasizes that linkage to local culture can increase children's relevance and involvement in learning. For example, the integration of local markets into projects has been shown to foster children's curiosity about people's lives and the historical values around them.

The planning carried out by most teachers has not reflected a systematic approach based on children's interests and needs. Projects tend to be sourced from existing topics, rather than meaningful questions developed with children. This condition is not in line with the PjBL planning guidelines as stated by Alhayat et al. (2023), which emphasizes the importance of projects based on driving questions and investigative processes that trigger children's critical thinking. This principle is also affirmed by Watanabe et al. (2025), which shows that effective projects must be rooted in children's interests to encourage engagement and a sense of ownership towards learning.

The application of a weak interest-based approach can hinder the achievement of the goals of PjBL, which is to foster awareness of the surrounding environment and strengthen cultural identity (Samuelsson, 2020). The lack of involvement of children in the planning stage reflects the suboptimal approach to child-centered learning. Some teachers' plans have also not included authentic assessment designs in the Daily Learning Plan (DLP) they have prepared. Project evaluations are not designed from the outset, which suggests that planning has not been positioned as an integral part of the overall learning process. This condition is in line with the findings by Amelia & Aisya (2021), which states that planning that is not data-driven on children's needs can result in projects that are irrelevant or less cognitively challenging.

Teachers also face various obstacles in the development of dynamic and contextual projects, including safety issues and children's lack of experience in outdoor exploration (Cheng et al., 2023; Harper & Obee, 2021). The lack of educators who are willing to implement cultural- and environment-based responsive learning also limits the richness of the curriculum that can be developed. Improving the quality of PjBL planning requires training that not only conveys theoretical concepts, but also provides direct guidance in developing contextual, flexible, and collaborative learning plans. The main focus of training needs to be directed at the development of planning that is rooted in the child's real needs and local situations, as suggested in the current literature.

Implementation of PjBL in Kindergarten

The implementation of Project-Based Learning (PjBL) in the observed kindergartens showed that the project activities had been integrated into thematic learning, such as environmental, health, or local cultural themes. Teachers generally start projects based on topics relevant to the weekly or monthly theme. However, its implementation has not fully followed the ideal syntax as defined in the theory of PjBL. Several important stages, such as the exploration of ideas, the formulation of in-depth questions that are able to drive the learning process, and the active involvement of children in designing learning activities, are still not consistently visible. The focus of the activity is more directed by the teacher, with an emphasis on the final product such as coloring, pasting, or making simple crafts. This instructional approach limits children's space to actively engage in collaborative and meaningful learning processes. These findings are in line with previous research results that show that many kindergartens still rely on a teacher-centered approach (Ahadiyah et al., 2022), So that children's opportunities to build independent and creative learning experiences are limited.

Children's involvement in designing the learning process is very important in PjBL because it can foster independence, creativity, and a sense of ownership of learning. The absence of this element is also shown by Harjanty & Muzdalifah (2022), who noted that the lack of in-depth questions limits the child's exploration and lowers the potential for critical thinking. As explained Norhikmah & Rini (2022) and Nurhidaya (2021), PJBL should actively involve children in identifying problems, exploring information, experimenting, and presenting results in a real context. Weaknesses in implementation are also related to the limitations of teacher training. The lack of understanding of the structure of PjBL makes its implementation tend to be

doi: *https://doi.org/10.14421/jga.2025.102-05*

a routine that does not stimulate high cognitive development such as critical thinking, collaboration, decision-making, and reflection. Audia & Hidayat (2023) and Pasaribu et al. (2023) research, shows that appropriately implemented PjBL can significantly improve student activities and learning outcomes, even in the context of basic education.

Nevertheless, there are positive indications of observed implementation. Children show high enthusiasm, especially when activities are carried out outside of the classroom or involve environmental exploration. Teachers also reported that children tended to be more collaborative and showed high curiosity when given space to take initiative. This is in line with the findings Harjanty & Muzdalifah (2022), which states that the STEAM-PjBL approach is able to significantly increase children's cooperation in the context of early childhood education. The potential for the successful implementation of PjBL in kindergartens is still wide open. With adequate technical support, applicable training, sufficient planning time, and flexibility in the curriculum, teachers can develop projects that are more meaningful and appropriate to children's needs. This approach is in line with the principles of early childhood learning which are active, concrete, collaborative, and based on hands-on experience.

Supporting and Inhibiting Factors in the Implementation of PjBL

The results of this study show that there are a number of significant supporting factors in the implementation of Project-Based Learning (PjBL) in kindergartens, such as the support of principals and foundations, parental involvement, and a learning environment rich in natural potential, culture, and social contexts. This structural and cultural support is a crucial form of social capital in building a contextual and participatory learning ecosystem. This finding is in line with Sumarni et al. (2021) research, which affirms that school leadership and institutional support have an important role in ensuring the integration of PjBL into the curriculum as well as the provision of adequate resources. In addition, parental involvement also strengthens children's learning experiences, as emphasized by Gullo (2023), which states that the active participation of the family has a significant impact on children's learning outcomes. A rich learning environment, especially one that harnesses the potential of the outdoors and local culture, has also been shown to enrich children's cognitive and social-emotional development (Iftimia & Gînju, 2020).

This cross-system support reflects the principle in Bronfenbrenner's ecological systems theory, which states that child development is influenced by interactions between systemic levels, from the family to policy (Ady Dharma, 2023; Husaini, 2022). Therefore, the success of the implementation of PjBL does not only depend on teachers, but also on collaboration involving schools, families, communities, and policy authorities. When all these elements are synergistically integrated, project activities not only become part of the curriculum, but also meaningfully connected to the child's daily life.

On the other hand, this study also identifies a number of challenges in the implementation of PjBL, including limited conceptual understanding of teachers regarding this approach, limited planning and implementation time, lack of learning tools and materials, and high administrative workload. These barriers have also been raised in previous research (Sumarni et al., 2021), which states that teacher readiness and resource limitations are crucial factors that hinder the effectiveness of the implementation of PjBL. In this context, a managerial policy that is adaptive and responsive to real conditions in the field is needed. Without supportive systemic improvements, PjBL risks becoming just pedagogical jargon that has no real impact on improving the quality of children's learning.

Recommendations for Strengthening PjBL from Teachers

The findings of the study show that teachers, as the main practitioners in the implementation of classroom learning, have a deep contextual understanding of the challenges and opportunities in the implementation of Project-Based Learning (PjBL). Teachers recommend regular training that is hands-on and reflective as an urgent need. This recommendation is particularly relevant to Ravanal Moreno et al. (2021) and Russell (2022) findings, which

emphasizes that training that emphasizes reflective practice is able to develop a deeper understanding of the dynamics of PjBL. Reflective practice also helps teachers critically evaluate their teaching methods and encourages continued professional growth (Suaib, 2022).

Furthermore, teachers suggest that the development of the Daily Learning Plan (DLP) be carried out collaboratively and flexibly. A lesson plan that is not rigid allows teachers to adjust the content and learning strategies to the needs and interests of children. This recommendation is in line with Vygotsky's constructivist learning principles, especially related to scaffolding and Proximal Development Zones (ZPD) (Wardani et al., 2023). The teacher also emphasized the importance of parental and community involvement in the implementation of the project. Community-supported projects are not only more authentic, but also have the potential to provide a more meaningful and contextual experience for children. These findings are reinforced by Ravanal Moreno et al. (2021) and Fanta et al. (2022) which shows that community and family involvement in PjBL projects can enrich resources, add perspectives, and strengthen the relationship between school and children's real lives.

In addition, teachers propose the development of more holistic assessment tools, which focus not only on the final product but also on the learning process, such as creativity, collaboration, and communication of children. This proposal is in line with the idea Ruffinelli et al. (2020) and Suaib (2022), which emphasizes the importance of evaluations that assess process-oriented skills in the context of PjBL. Assessment tools like this will better reflect the complexity and integrity of the child's learning experience in the project. Thus, strategic recommendations from teachers are not only a form of reflection on field experience, but also show conformity with various findings of previous research. This reflects high professional awareness and reinforces the argument that the successful implementation of PjBL is highly dependent on systemic support, relevant training, and collaboration between stakeholders in the early childhood education environment.

Conclusion

This study concludes that the implementation of Project-Based Learning (PjBL) in early childhood education in Indonesia remains suboptimal. It continues to be largely teacher-centered, emphasizing final products while lacking reflective planning, contextual relevance, and process-based authentic assessment. Teachers often struggle to distinguish PjBL from conventional display projects, and only a few are able to construct full project stages in alignment with pedagogical principles. Nevertheless, the study uncovered several compelling findings: children showed high enthusiasm and curiosity particularly in outdoor and environmental projects; some teachers demonstrated promising contextual planning based on local culture; and collaborative involvement of parents enriched the learning experience. These positive indicators highlight the transformative potential of PjBL when implemented with fidelity to its core elements. The effectiveness of PjBL is significantly influenced by systemic factors such as reflective and hands-on professional development, cross-sector collaboration, availability of learning resources, and adaptive school leadership. Therefore, the study recommends the development of a comprehensive and context-sensitive PjBL model that integrates reflective training, authentic assessment tools, and ecosystem-based support. Future research and education policy should prioritize this direction to ensure PjBL evolves into a transformative, developmentally appropriate, and culturally responsive pedagogical approach for early learners in the 21st century.

References

Ady Dharma, D. S. (2023). Membaca Peran Teori Ekologi Bronfenbrenner dalam Menciptakan Lingkungan Inklusif di Sekolah. *SPECIAL Special and Inclusive Education Journal*, *3*(2), 115–123. https://doi.org/10.36456/special.vol3.no2.a6642

Ahadiyah, W., Muchtar, N. E. P., & Mumtahana, L. (2022). Implementasi Project Based Learning Melalui Pohon Qurma Pada Mata Pelajaran Qurma. *Al-Mada: Jurnal Agama, Sosial, Dan Budaya*, *5*(4), 588–595. https://doi.org/10.31538/almada.v5i4.2876

Alhayat, A., Mukhidin, M., Utami, T., & Yustikarini, R. (2023). The Relevance of the Project-Based Learning (PjBL) Learning Model with "Kurikulum Merdeka Belajar." *DWIJA CENDEKIA: Jurnal Riset Pedagogik*, *7*(1), 105. https://doi.org/10.20961/jdc.v7i1.69363

Amelia, N., & Aisya, N. (2021). Model Pembelajaran Berbasis Proyek (Project Based Learning) Dan Penerapannya Pada Anak Usia Dini Di TKIT Al-Farabi. *BUHUTS AL-ATHFAL: Jurnal Pendidikan Dan Anak Usia Dini*, *1*(2), 181–199. https://doi.org/10.24952/alathfal.v1i2.3912

Arifuddin, A., Zuchdi, D., Rosana, D., Arovah, N. I., Setiawan, C., Prihatni, Y., Setiawan, A., Nur, A. F., Dyastuti, N. E., & Arifuddin, H. (2023). Strengthening of early children's character education stunting children in Indonesia. *Journal of Education and Health Promotion*, *12*(1). https://doi.org/10.4103/jehp.jehp_1857_22

Armeth Daud Al Kahar, A., & Anjani Putri, R. (2023). Project Base Learning dalam Implementasi Kurikulum Merdeka di PAUD. *Murhum : Jurnal Pendidikan Anak Usia Dini*, *4*(2), 199–210. https://doi.org/10.37985/murhum.v4i2.165

Audia, R., & Hidayat, H. (2023). Increasing Activities and Student Learning Outcomes with the Project-Based Learning Model in the Thematic Learning Theme of Our Friends in Class V SDN 101911 Sidodadi. *Widyagogik : Jurnal Pendidikan Dan Pembelajaran Sekolah Dasar*, *10*(2), 335–349. https://doi.org/10.21107/widyagogik.v10i2.18190

Aulina, C. N., & Nurdiana, A. A. (2024). Penerapan Project Based Learning dalam Implementasi Kurikulum Merdeka di Taman Kanak-Kanak. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, *8*(5), 1137–1150. https://doi.org/10.31004/obsesi.v8i5.6058

Buyalskaya, A., Gallo, M., & Camerer, C. F. (2021). The golden age of social science. *Proceedings of the National Academy of Sciences*, *118*(5). https://doi.org/10.1073/pnas.2002923118

Chen Li-Chun, & Lin Ko-Ming. (2022). Exploring the Life Narrative of Kindergarten Local Culture Curriculum to Enhance Tribal and Parental Participation—Take a National Primary School Attached to a Kindergarten in Taitung County as an Example. *US-China Education Review B*, *12*(1). https://doi.org/10.17265/2161-6248/2022.01.002

Cheng, T., Brussoni, M., Han, C., Munday, F., & Zeni, M. (2023). Perceived challenges of early childhood educators in promoting unstructured outdoor play: an ecological systems perspective. *Early Years*, *43*(4–5), 904–920. https://doi.org/10.1080/09575146.2022.2034140

Eka Putri, A. B., Badarussyamsi, B., & Yusria, Y. (2023). Pola Asuh Orangtua Dalam Perkembangan Sosial Emosional Anak Usia Dini. *Journal of Educational Research*, *2*(1), 99–114. https://doi.org/10.56436/jer.v2i1.220

Fanta, P., Cupal, L., & Skokanová, D. (2022). *Experience With Various Forms of Hands-on Teaching*. 2699–2703. https://doi.org/10.21125/edulearn.2022.0691

Ferrero, M., Vadillo, M. A., & León, S. P. (2021). Is project-based learning effective among kindergarten and elementary students? A systematic review. *PLoS ONE*, *16*(4 April), 1–14. https://doi.org/10.1371/journal.pone.0249627

Gullo, D. F. (2023). Family social capital in kindergarten: predicting third-grade learning and developmental outcomes for low-SES urban children. *Early Child Development and Care*, *193*(7), 952–963. https://doi.org/10.1080/03004430.2023.2181144

Haatainen, O., & Aksela, M. (2021). Project-based learning in integrated science education: Active teachers' perceptions and practices. *LUMAT: International Journal on Math, Science and Technology Education*, *9*(1). https://doi.org/10.31129/LUMAT.9.1.1392

Hafnizar, H., Daharnis, D., & Putra, F. W. (2021). Kindergarten principal leadership and academic supervision of supervisors as contributing factors to kindergarten teacher performance. *Jurnal Aplikasi IPTEK Indonesia*, *5*(2), 50–56. https://doi.org/10.24036/4.25434

Harjanty, R., & Muzdalifah, F. (2022). Implementation of STEAM project-based learning in developing early childhood cooperation. *Aṭfālunā Journal of Islamic Early Childhood*

Education, *5*(1), 47–56. https://doi.org/10.32505/atfaluna.v5i1.4093

Harper, N. J., & Obee, P. (2021). Articulating outdoor risky play in early childhood education: voices of forest and nature school practitioners. *Journal of Adventure Education and Outdoor Learning*, *21*(2), 184–194. https://doi.org/10.1080/14729679.2020.1784766

Heikka, J., Hirvonen, R., Kahila, S., Pitkäniemi, H., Yada, T., & Hujala, E. (2023). Links between teachers' planning, assessment and development time and implementation of curriculum in early childhood education. *Early Years*, *43*(4–5), 1102–1117. https://doi.org/10.1080/09575146.2022.2059067

Herlina. (2022). Kompetensi Pedagogik Guru dalam Membuat Rencana Pelaksanaan Pembelajaran di Taman Kanak-Kanak. *Journal of Educational Research*, *1*(1), 123–136. https://doi.org/10.56436/jer.v1i1.25

Husaini, M. (2022). Teori–Teori Ekologi, Psikologi Dan Sosiologi Dalam Menciptakan Lingkungan Pendidikan Islam. *Darul Ulum: Jurnal Ilmiah Keagamaan, Pendidikan Dan Kemasyarakatan*, *13*(1), 116–137. https://doi.org/10.62815/darululum.v13i1.81

Iftimia, B., & Gînju, S. (2020). Mediul de învățare în aer liber. *Revistă de Ştiinţe Socio-Umane = Journal of Social and Human Sciences*, *46*(3), 24–29. https://doi.org/10.46727/jshs.2020.v46.i3.p24-29

Khoiri, N., Ristanto, S., & Kurniawan, A. F. (2023). Project-Based Learning Via Traditional Game in Physics Learning: Its Impact on Critical Thinking, Creative Thinking, and Collaborative Skills. *Jurnal Pendidikan IPA Indonesia*, *12*(2), 286–292. https://doi.org/10.15294/jpii.v12i2.43198

Lisnawati, R., Jannah, N. L., & Andika Sari, D. (2024). Independent Curriculum Policy in Early Childhood Education Units in Indonesia. *Jurnal Edusci*, *2*(1), 14–22. https://doi.org/10.62885/edusci.v2i1.457

Maisyarah, M., & Lena, M. S. (2023). Penerapan Model Project Based Learning (Pjbl) pada Pembelajaran Tematik Terpadu di Sekolah Dasar. *E-Jurnal Inovasi Pembelajaran Sekolah Dasar*, *10*(3), 171. https://doi.org/10.24036/e-jipsd.v10i3.12132

Markula, A., & Aksela, M. (2022). The key characteristics of project-based learning: how teachers implement projects in K-12 science education. *Disciplinary and Interdisciplinary Science Education Research*, *4*(1). https://doi.org/10.1186/s43031-021-00042-x

Maryati, S., Dwi Lestari, G., & Riyanto, Y. (2022). The Effectiveness of Mentoring in the Implementation of the Project-based Learning (PjBL) Model in the Independent Curriculum for PAUD Educators. *European Journal of Education and Pedagogy*, *3*(6), 12–18. https://doi.org/10.24018/ejedu.2022.3.6.471

Nadia, E. M., & Pango, C. D. (2021). Pelaksanaan Kegiatan iTalk (Innovation Talk) untuk Pengembangan Pemikiran Kritis Pada Anak Usia Dini Melalui Budaya Lliterasi Membaca. *Society : Jurnal Pengabdian Dan Pemberdayaan Masyarakat*, *2*(1), 59–67. https://doi.org/10.37802/society.v2i1.174

Nisfa, N. L., Latiana, L., Pranoto, Y. K. S., & Diana, D. (2022). Pengaruh Pendekatan Pembelajaran Project Based Learning (PjBL) Terhadap Kemampuan Sosial dan Emosi Anak. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, *6*(6), 5982–5995. https://doi.org/10.31004/obsesi.v6i6.3032

Norhikmah, N., & Rini, T. P. W. (2022). Mengembangkan Kemampuan Sains Anak Dengan Menggunakan Model Project Based Learning Dan Metode Eksperimen. *Jurnal Inovasi, Kreatifitas Anak Usia Dini (JIKAD)*, *2*(3), 10. https://doi.org/10.20527/jikad.v2i3.6996

Nurasih, B., Syamsuardi, S., & Ria, A. St. E. (2022). Penerapan Model PJBL Berbasis Bahan Bekas Dalam Meningkatkan Kemampuan Kreativitas Anak Kelompok B. *EDUSTUDENT: Jurnal Ilmiah Pendidikan Dan Pembelajaran*, *1*(3), 164. https://doi.org/10.26858/edustudent.v1i3.27519

Nurhidaya, A. R. (2021). Efforts to Improve the Science Knowledge of Early Children through the Exploration Approach of the Surrounding Environment in B 5-6 Years Old Group in TK Tumbuh Kembang Anak Makassar. *EduLine: Journal of Education and Learning*

Innovation, *1*(1), 16–23. https://doi.org/10.35877/454RI.eduline418

Parwoto, P., Ilyas, S. N., Bachtiar, M. Y., & Marzuki, K. (2024). Fostering creativity in kindergarten: The impact of collaborative project-based learning. *South African Journal of Childhood Education*, *14*(1). https://doi.org/10.4102/sajce.v14i1.1462

Pasaribu, D., Tanjung, L. M., Yantina, R., Utami, T., & Perangin Angin, L. M. (2023). The Effect of the PBL Model to Increase Student Learning Activities in Integrated Thematic Learning in Elementary Schools. *Journal of Educational Analytics*, *2*(2), 263–272. https://doi.org/10.55927/jeda.v2i2.4340

Pitchik, H. O., Tofail, F., Rahman, M., Akter, F., Sultana, J., Shoab, A. K., Huda, T. Md. N., Jahir, T., Amin, M. R., Hossain, M. K., Das, J. B., Chung, E. O., Byrd, K. A., Yeasmin, F., Kwong, L. H., Forsyth, J. E., Mridha, M. K., Winch, P. J., Luby, S. P., & Fernald, L. C. (2021). A holistic approach to promoting early child development: a cluster randomised trial of a group-based, multicomponent intervention in rural Bangladesh. *BMJ Global Health*, *6*(3), e004307. https://doi.org/10.1136/bmjgh-2020-004307

Pratami, D., Hasrul Akhmal, N., Isyraf Mohd Maulana, M. I., & Helmi Syed Hassan, S. A. (2024). Introducing project-based learning steps to the preschool teachers in Bandung, Indonesia. *Journal of Technology and Science Education*, *14*(3), 883. https://doi.org/10.3926/jotse.2398

Rad, D., Redeş, A., Roman, A., Ignat, S., Lile, R., Demeter, E., Egerău, A., Dughi, T., Balaş, E., Maier, R., Kiss, C., Torkos, H., & Rad, G. (2022). Pathways to inclusive and equitable quality early childhood education for achieving SDG4 goal—a scoping review. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.955833

Rasmani, U. E. E., Wahyuningsih, S., Winarji, B., Jumiatmoko, J., Zuhro, N. S., Fitrianingtyas, A., Agustina, P., & Widyastuti, Y. K. W. (2023). Manajemen Pembelajaran Proyek pada Implementasi Kurikulum Merdeka di Lembaga PAUD. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, *7*(3), 3159–3168. https://doi.org/10.31004/obsesi.v7i3.4633

Ravanal Moreno, E., Cabello, V. M., López-Cortés, F., & Amórtegui Cedeño, E. (2021). The reflective practice as a tool for making tacit knowledge explicit. *Reflective Practice*, *22*(4), 515–530. https://doi.org/10.1080/14623943.2021.1930527

Ruffinelli, A., de la Hoz, S., & Álvarez, C. (2020). Practicum tutorials in initial teacher training: conditions, strategies, and effects of reflective practice. *Reflective Practice*, *21*(1), 54–67. https://doi.org/10.1080/14623943.2019.1708712

Russell, T. (2022). One teacher educator's strategies for encouraging reflective practice. *Frontiers in Education*, *7*. https://doi.org/10.3389/feduc.2022.1042693

Sadaruddin, Nasaruddin, & Naba, A. (2025). Penerapan Pembelajaran Berbasis Proyek untuk Meningkatkan Kemampuan Kolaborasi Anak di Taman Kanak-kanak. *Jurnal Mutiara Pendidikan*, *5*(1). https://doi.org/10.29303/jmp.v5i1.8679

Sadaruddin, S., Ahmad, A., Jabu, B., Saodi, S., Usman, U., & Hasmawaty, H. (2023). Needs Analysis of Project-based Learning Model Development in Stimulating Children's Creativity. *European Journal of Education and Pedagogy*, *4*(6), 24–29. https://doi.org/10.24018/ejedu.2023.4.6.719

Sadaruddin, S., Ahmad, A., Jabu, B., Syamsuardi, S., Usman, U., & Hasmawaty, H. (2023). Development of Design, Explain, Development, And Evaluation-Project Based Learning (DEDEn-PjBL) Model in Stimulating Children's Creativity. *Journal of Research and Multidisciplinary*, *6*(2), 770–786. http://journal.alhikam.net/index.php/jrm

Sadaruddin, S., Syamsuardi, S., Usman, U., & Hasmawaty, H. (2024). Stimulating Children's Creativity: Implementation of The Design, Explain, Develop, and Evaluation-Project Based Learning (DEDEn-PjBL) Model in Kindergarten. *ThufuLA: Jurnal Inovasi Pendidikan Guru Raudhatul Athfal*, *12*(1), 131. https://doi.org/10.21043/thufula.v12i1.26612

Sadaruddin, S., Syamsuardi, S., Usman, U., Hasmawaty, H., & Nasaruddin, N. (2024). Effect of DEDEN-PjBL Model on Children ' s Creativity. *Journal of Research and Multidisciplinary*, *7*(2014), 827–833. https://doi.org/10.5281/jrm.v7i1.85

Samuelsson, R. (2020). Guiding Preschool Play for Cultural Learning: Preschool Design as Cultural Niche Construction. *Frontiers in Psychology*, *11*. https://doi.org/10.3389/fpsyg.2020.545846

Sari, A. M., Suryana, D., Bentri, A., & Ridwan, R. (2023). Efektifitas Model Project Based Learning (PjBL) dalam Implementasi Kurikulum Merdeka di Taman Kanak-Kanak. *Jurnal Basicedu*, *7*(1), 432–440. https://doi.org/10.31004/basicedu.v7i1.4390

Schneider, N., Greenstreet, E., & Deoni, S. C. L. (2022). Connecting inside out: Development of the social brain in infants and toddlers with a focus on myelination as a marker of brain maturation. *Child Development*, *93*(2), 359–371. https://doi.org/10.1111/cdev.13649

Shih, Y.-H. (2022). Designing Culturally Responsive Education Strategies to Cultivate Young Children's Cultural Identities: A Case Study of the Development of a Preschool Local Culture Curriculum. *Children*, *9*(12), 1789. https://doi.org/10.3390/children9121789

Suaib, N. R. A. (2022). Reflective Practice in Teacher Education: A Look into Past and Present Theories, and Some Pertinent Issues. *Tell : Teaching of English Language and Literature Journal*, *10*(1), 51. https://doi.org/10.30651/tell.v10i1.12137

Sumarni, S., Putri, R. I. I., & Andika, W. D. (2021). Project Based Learning (PBL) Based Lesson Study for Learning Community (LSLC) in kindergarten. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, *6*(2), 989–996. https://doi.org/10.31004/obsesi.v6i2.1637

Suradika, A., Dewi, H. I., & Nasution, M. I. (2023). Project-Based Learning and Problem-Based Learning Models in Critical and Creative Students. *Jurnal Pendidikan IPA Indonesia*, *12*(1), 153–167. https://doi.org/10.15294/jpii.v12i1.39713

Suri, D., & Chandra, D. (2021). Teacher's Strategy for Implementing Multiculturalism Education Based on Local Cultural Values and Character Building for Early Childhood Education. *Journal of Ethnic and Cultural Studies*, *8*(4), 271–285. https://doi.org/10.29333/ejecs/937

Suryadi, D., Nasrulloh, A., Yanti, N., Ramli, R., Fauzan, L. A., Kushartanti, BM. W., Sumaryanti, S., Suhartini, B., Budayati, E. S., Arovah, N. I., Mashud, M., Suganda, M. A., Sumaryanto, S., Sutapa, P., Abdullah, N. M. bin, & Fauziah, E. (2023). Stimulation of motor skills through game models in early childhood and elementary school students: systematic review in Indonesia. *Retos*, *51*, 1255–1261. https://doi.org/10.47197/retos.v51.101743

Tempera, T., & Tinoca, L. (2022). Project-based learning in initial teacher education: contributions for the professional development of elementary school teachers. *Revista Tempos e Espaços Em Educação*, *15*(34), e17576. https://doi.org/10.20952/revtee.v15i34.17576

Utamimah, S., Nur Aisyah, E., & Baharun, H. (2025). Implementing Project-Based Learning with Loose Parts in Early Childhood Education: A Qualitative Descriptive Study. *Golden Age: Jurnal Ilmiah Tumbuh Kembang Anak Usia Dini*, *10*(1), 71–84. https://doi.org/10.14421/jga.2025.101-06

Uyun, H. A., & Diana, D. (2023). Implementasi Kegiatan Project-based Learning Menggunakan Media Loose Parts pada Anak Usia 5-6 Tahun. *PAUDIA : Jurnal Penelitian Dalam Bidang Pendidikan Anak Usia Dini*, *12*(2), 240–258. https://doi.org/10.26877/paudia.v12i2.16510

Viro, E., Lehtonen, D., Joutsenlahti, J., & Tahvanainen, V. (2020). Teachers' perspectives on project-based learning in mathematics and science. *European Journal of Science and Mathematics Education*, *8*(1), 12–31. https://doi.org/10.30935/scimath/9544

Wardani, I. R. W., Putri Zuani, M. I., & Kholis, N. (2023). Teori Belajar Perkembangan Kognitiv Lev Vygotsky dan Implikasinya dalam Pembelajaran. *DIMAR: Jurnal Pendidikan Islam*, *4*(2), 332–346. https://doi.org/10.58577/dimar.v4i2.92

Watanabe, T., Sakaue, H., & Okada, R. (2025). Curriculum making and learning instruction about the local community at the lower-elementary level: A case study of 'living environment studies' teachers in western Japan. *Education 3-13*, *53*(4), 544–556. https://doi.org/10.1080/03004279.2023.2206836

Wulan Sari, F., & Jamrizal, J. (2023). Pola Asuh Orang Tua Dalam Mengembangkan Kecerdasan Intrapersonal Anak Usia Dini 5-6 Tahun. *Journal of Educational Research*, *2*(1), 61–78. https://doi.org/10.56436/jer.v2i1.219

Yang, Q., Yang, J., Zheng, L., Song, W., & Yi, L. (2021). Impact of Home Parenting Environment on Cognitive and Psychomotor Development in Children Under 5 Years Old: A Meta-Analysis. *Frontiers in Pediatrics*, *9*. https://doi.org/10.3389/fped.2021.658094

Zulkarnaen, Z., Wardhani, J. D., Katoningsih, S., & Asmawulan, T. (2023). Manfaat model Pembelajaran Project Based Learning untuk Pendidikan Anak Usia Dini dan Implementasinya dalam Kurikulum Merdeka. *Jurnal Bunga Rampai Usia Emas*, *9*(2), 394. https://doi.org/10.24114/jbrue.v9i2.52951