

Project Creativity Time and Challenge Board in Informal Education: Opportunities and Impact on Child Development

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ABSTRACT

This study explores the implementation of Project Creativity Time and Challenge Boards at Bimba Bintang Junior and examines the opportunities and impacts on early childhood development. Using a qualitative descriptive approach, data were collected through observation, interviews, and documentation to understand how these learning strategies are applied in daily activities. The data analysis technique uses the Miles and Huberman model, which includes data reduction, data display, and conclusion. The findings indicate that Project Creativity Learning Time aligns with the principles of Project-Based Learning (PjBL), which encourages children to learn through meaningful, exploratory, and problem-solving-oriented project activities. Project Creativity Time enhances creativity, cognitive abilities, language development, motor skills, and social-emotional competencies through hands-on and collaborative projects, while the Challenge Board strengthens motivation, self-regulation, social-emotional, and learning attitudes through structured challenges and gamification elements. The novelty of this study lies in the integration of Project Creativity Time and the Challenge Board as a contextual pedagogical strategy tailored to the developmental characteristics of early childhood in informal educational institution. Pedagogically, these findings imply the strengthening of more flexible, participatory, and child-centered learning designs while also making a tangible contribution to the development of innovative and sustainable early childhood education practices.

Keywords: Challenge Board, Child Development, Project Creativity Time

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INTRODUCTION

Early childhood education is not just about mastering literacy and numeracy (reading, writing, arithmetic), but is an effort to develop various aspects of a child's growth, including creativity, cognitive skills, motor skills, social emotional development, and moral values. In the modern era, such skills are becoming increasingly important as preparation for a child's future life. Therefore, traditional learning models are becoming less adequate in responding to the holistic developmental needs of young children. In Indonesia, early education institutions or learning playgrounds that combine academic and character aspects with enjoyable methods hold an important place. This is considered important because early childhood is a sensitive period for instilling values and character (Arin & Akbar, 2023). Bimba Bintang Junior (BBJ) is one of the early childhood informal education institutions that implements the smart fun learning method, a system designed so that the process of learning to read, write, and count (*calistung*) and other basic skills runs effectively while still being enjoyable for children (Bimba Bintang Junior, 2025).

BBJ not only focuses on the cognitive aspect but also develops six areas of child development: language, motor skills, socio-emotional, cognitive, moral, and arts. Among its learning programs, there are two distinctive elements: Project Creativity Time and Challenge Board. Through Project Creativity Time, children are invited to engage in creative activities and experiments, giving them space to explore their imagination, practice independence, and produce original work. Meanwhile, through the Challenge Board, achievements and learning processes are monitored visually and rewarded, motivating children to be active and participate enthusiastically. This type of learning resembles a project-based learning model, or Project Based Learning (PjBL). Previous studies show that the implementation of PjBL significantly improves creativity and art skills among learners (Abdellah et al., 2022). In addition, models like PjBL promote critical thinking, collaboration, and communication, as well as 21st-century competencies and independence that are beneficial for child development (Tumbel, 2024). Other research states that the Challenge Board is an effective play tool for developing gross motor skills in young children (Barua & Bharali, 2023; Tristya, 2024). These findings indicate that the approach has been widely studied and proven effective in enhancing the creativity and meaningful abilities of children.

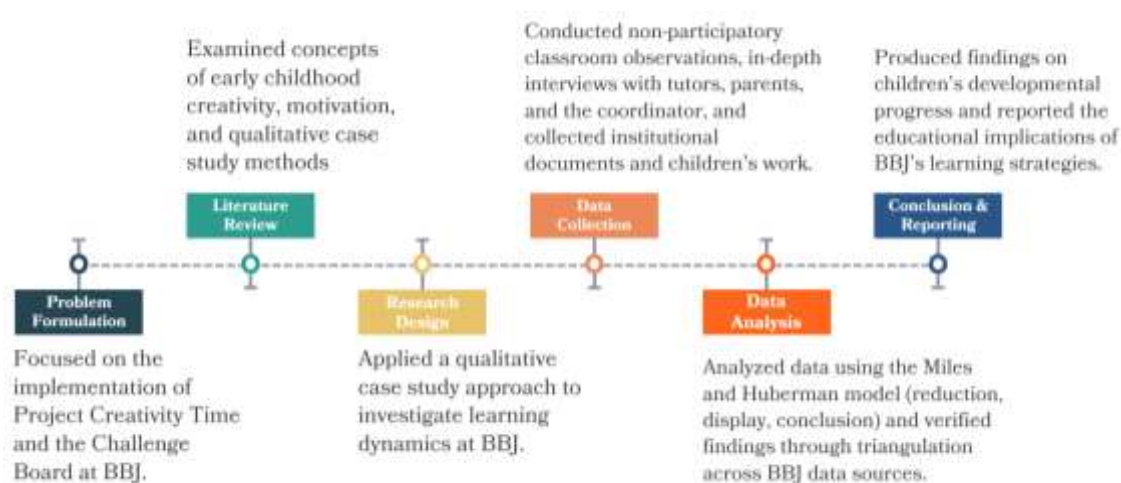
Despite extensive studies on PjBL, empirical evidence on structured creativity time combined with visual challenge-based reinforcement in early childhood contexts remains limited. Most PjBL studies focus more on project outcomes or cognitive achievements, while specific time arrangements for creativity and the use of visual challenge media as tools for motivation and learning regulation in early childhood have not been explored in depth. Unlike previous research, this study focuses on the learning process, children's interactions, and the role of educators in integrating Project Creativity Time and the Challenge Board continuously into daily activities. Thus, this study fills a gap

by providing a contextual understanding of how the combination of these two approaches can support children's development.

Against this introduction, this study aims to analyze the learning of Project Creativity Time and Challenge Board at BBJ by assessing the success, challenges, and impact on the overall development of children. Scientifically, this research contributes by enriching the theoretical understanding of creative learning in early childhood education in the context of Indonesia. In addition, this study also offers a methodological contribution through a qualitative case study approach that allows for an in-depth examination of learning processes and child interactions in the learning environment, which can be replicated or further developed in subsequent early childhood education research.

METHOD

This study uses a qualitative approach with a case study design (Ridlo, 2023). The qualitative approach was chosen to explore the processes, experiences, and meanings that emerge from the natural interactions between children, educators, and the learning environment. Meanwhile, the case study design is used to examine these phenomena intensively in the real context of BBJ, thus providing a more contextual and in-depth depiction of learning dynamics and facilitation strategies, as well as changes in children's behavior and abilities. The stages of the qualitative case study conducted at BBJ are illustrated in Flowchart:



Flowchart 1. The Stages of the Qualitative Case Study Research Conducted at BBJ Kediri

This study followed six stages, as presented in Flowchart 1: problem formulation, literature review, qualitative case study design, data collection through observation, interviews, and documentation at BBJ, data analysis using the Miles and Huberman model with triangulation, and final conclusion and reporting of the developmental outcomes and educational implications of the learning strategies applied at BBJ. The participants consisted of 10 children enrolled at BBJ, 4 tutors, 1 coordinator, and 3 parents whose children actively

participated in the learning activities. These participants were selected purposively based on their direct involvement in the planning, implementation, and observation of children's development during Project Creativity Time and Challenge Board activities. The study was conducted at Bimba Bintang Junior Kediri, located at Jl. KH. Wachid Hasyim, Gg. V, Mojoroto, Kediri, East Java.

Data were collected through observation, interviews, and documentation (Abdussamad, 2021). Non-participatory observations were conducted to examine the implementation of Project Creativity Time and the Challenge Board at BBJ, as well as children's behaviors and responses. These observations took place over three months, once a week for 30 minutes per session, providing a consistent view of learning dynamics and student engagement. In-depth interviews with parents, tutors, and the BBJ coordinator were carried out to explore planning, implementation, and perceived developmental impacts. Documentation, including activity photos, learning records, children's work, and institutional documents, was used to support and validate the collected data. Data analysis followed the Miles and Huberman interactive model (Miles, 2014). Interview data from parents, tutors, and the BBJ coordinator were transcribed, and classroom observations of Project Creativity Time and the Challenge Board were organized systematically. Relevant findings were reduced and presented in narrative and tabular form, integrating observational, interview, and institutional data. The conclusions were then validated through triangulation across children's behaviors, educators' perspectives, and supporting documents from BBJ.

RESULTS AND DISCUSSION

RESULT

The implementation of Project Creativity Time and the Challenge Board at BBJ was examined through classroom observations, interviews with tutors, coordinators, and parents, as well as analysis of institutional learning documents. The findings are presented by integrating these data sources to provide a coherent account of learning practices, children's engagement, and supporting evaluation mechanisms. The implementation and learning outcomes observed from the Project Creativity Time and Challenge Board at BBJ are summarized in Table 1.

Table 1. Implementation and Learning Outcomes of Project Creativity Time and Challenge Board

Learning Component	Implementation Features	Observed Child Engagement	Tutor Roles	Supporting Evidence
Project Creativity Time	Routine activity (15 minutes before opening prayer); use of tutor-prepared modules and simple	Child-initiated material selection; hands-on project work; peer interaction (sharing, turn-taking, dialogue)	Facilitator: provides initial guidance, encouragement, and informal observation	Classroom observations, tutor interviews, children's project artifacts

Learning Component	Implementation Features	Observed Child Engagement	Tutor Roles	Supporting Evidence
Challenge Board	classroom materials Visual star-based progress tracking, updated periodically	Goal awareness; effort-reward association; participation with parental involvement	Recording achievements; awarding stars based on criteria and observed behaviors	Institutional reports; evaluation documents
Learning Processes	Flexible, project-based activities without fixed outcomes	Planning, creating, and completing individual or small-group projects; motor and verbal engagement	Monitoring engagement; adapting activities when attention decreases	Observation records; interview excerpts
Integrated Use	Parallel implementation within daily routine	Balance between exploration and structured reinforcement	Linking observational insights to evaluation records	Triangulation of observations, interviews, and documentation

Table 1 shows that Project Creativity Time provided a routine, child-initiated learning space where children explored materials, completed hands-on projects, and interacted with peers, with tutors acting mainly as facilitators. In contrast, the Challenge Board functioned as a visual system to track progress, strengthen goal awareness, and reinforce effort through structured rewards. Implemented in parallel, both strategies balanced exploration and structure in daily learning, as supported by triangulated evidence from observations, interviews, and documentation.

Observational data indicate that Project Creativity Time and the Challenge Board were implemented as distinct yet parallel components of the daily learning routine. Project Creativity Time was conducted regularly for approximately 15 minutes prior to the opening prayer, using tutor-prepared modules or simple materials available in the classroom environment (Bimba Bintang Junior Pusat ex Rainbow Kids, 2025b). During this activity, children were observed independently selecting materials and determining the form of their activities according to personal interests, either individually or in small groups. Hands-on tasks such as crafting, assembling objects, and experimenting with materials were carried out without predetermined outcome targets (L. M. Al Jihan, personal communication, 2025).

Children's engagement during Project Creativity Time was characterized by active participation in planning, creating, and completing simple projects. Peer

interaction was frequently observed, including sharing materials, taking turns, and engaging in brief task-related verbal exchanges (I. Faashichah, personal communication, 2025). Documented activities such as constructing cardboard houses, designing musical instruments from recycled bottles, creating collaborative classroom murals, and planting and caring for plants demonstrated the integration of motor, cognitive, and verbal engagement within the learning process (A. Lailatul Inayah, personal communication, 2025).

Observations further revealed that tutors adopted a facilitative role during Project Creativity Time. Tutors provided initial explanations, simple demonstrations, and verbal encouragement while allowing children autonomy in determining their approaches to task completion (Z. Nisa, personal communication, 2025). When children's attention decreased, brief ice-breaking activities were introduced before returning to the learning module. If time remained after module completion, supplementary activities such as singing, coloring, playing with Lego or puzzles, casual conversation, storytelling, and reading short surahs or *Ayat al-Kursi* were observed (Bimba Bintang Junior Pusat ex Rainbow Kids, 2025a).

Interview data corroborated these observations, indicating that Project Creativity Time was intentionally designed as part of BBJ's institutional learning strategy and scheduled consistently within the daily routine (I. Faashichah, personal communication, 2025). Tutors emphasized that their primary focus was on observing children's interests, responses, and learning behaviors rather than directing final outcomes. These informal observations were subsequently used as references for providing individualized learning support (A. Ningsih, personal communication, 2025). In parallel, document analysis showed that the Challenge Board functioned as a visual tracking tool for children's learning achievements and participation. Children's accomplishments were represented by stars placed on the board, as recorded in the *Laporan Perkembangan Anak Didik Bimba Bintang Junior* (*Laporan Perkembangan Anak Didik Bimba Bintang Junior*, 2025). Observations supported by documentation indicated that children actively participated in placing stars on the board, often accompanied by their parents, and that updates were conducted periodically in accordance with recorded achievements (A. Mardiyah, personal communication, 2025).

Evaluation documents further revealed that star allocation followed predefined criteria outlined in the rules of the Challenge Board (*Aturan Main Challenge Board*, 2025), including full attendance within a given month, progression to a higher module level, and achievements outside the institution. Tutors were also authorized to award up to one additional star per month based on observed positive behaviors, such as helping peers, maintaining learning materials, and demonstrating cooperative attitudes. These records were maintained systematically as part of the institutional documentation system, indicating that the Challenge Board served both motivational and evaluative functions.

Parental interview data provided additional perspectives on learning participation beyond the institutional setting. Parents reported increased

willingness among children to engage in learning-related activities at home, as well as greater independence in completing assigned tasks (A. Wijaya, personal communication, 2025). Several parents also noted that children more frequently shared their learning experiences verbally, suggesting continuity between institutional learning practices and children's daily behavior outside BBJ (F. Purwaningtyas, personal communication, 2025). Taken together, the findings indicate that Project Creativity Time primarily supported exploratory, child-initiated learning processes through flexible project-based activities, while the Challenge Board provided a structured mechanism for recognizing effort, achievement, and learning-related behaviors. The parallel implementation of these strategies reflects a balance between open-ended exploration and structured reinforcement within BBJ's learning environment, forming an empirical basis for the discussion on holistic early childhood development.

DISCUSSION

The study finds that Project Creativity Time at BBJ applies a flexible, project-based approach that encourages children to explore materials, express ideas, and collaborate. Children were observed exploring various learning materials, expressing their ideas creatively, and collaborating with peers and tutors during activities. These processes were found to contribute significantly to children's cognitive development, creativity, motor skills, language abilities, and social-emotional growth. Furthermore, the study reveals that the Challenge Board effectively tracks children's progress through visual and gamified methods. Through this strategy, children demonstrated an increased ability to recognize learning goals, associate effort with rewards, and participate in social interactions within the classroom. The results show that the Challenge Board positively supports the development of motivation, self-regulation, social-emotional skills, and constructive learning attitudes.

The findings indicate that the combined use of Project Creativity Time and the Challenge Board provides a balanced learning model. This integration supports holistic early childhood development by strengthening both creative exploration and structured learning outcomes at BBJ. A summary of the learning strategies and the associated developmental domains observed at BBJ is presented in Table 2.

Table 2. Summary of Learning Strategies and Observed Developmental Domains

Learning Strategy	Main Characteristics	Observed Learning Processes	Developmental Areas Addressed
Project Creativity Time	Project-based, child-initiated, flexible activities	Exploration of materials, idea expression, collaboration, dialogue	Cognitive, creativity, motor skills, language, and social-emotional
Challenge Board	Visual, gamified progress tracking	Goal recognition, effort-reward	Motivation, self-regulation, social-

Learning Strategy	Main Characteristics	Observed Learning Processes	Developmental Areas Addressed
Integrated Use	Complementary and concurrent implementation	association, social interaction Balance between exploration and structure	emotional, and learning attitudes Holistic early childhood development

As presented in Table 2, learning practices at BBJ place emphasis on early literacy and numeracy while simultaneously addressing multiple developmental domains, including cognitive, creativity, motor skills, language, social-emotional motivation, self-regulation, social-emotional, and learning attitudes development. Activities are designed to align with children's developmental stages and are structured to provide constructive learning opportunities. Project Creativity Time and the Challenge Board serve distinct instructional functions; however, their concurrent implementation contributes to a cohesive learning environment that supports sustained child engagement. At BBJ, learning methodologies are implemented through an integrated and child oriented approach that combines academic activities with creative and motivational elements. This approach is operationalized through the Smart Fun Learning model, particularly via Project Creativity Time and the Challenge Board, which are embedded in daily learning routines (*Bimba Bintang Junior*, 2025). The structure of Project Creativity Time corresponds conceptually with the principles of Project-Based Learning (PjBL). Previous studies have documented that PjBL in early childhood settings facilitates creativity, problem-solving skills, and learner engagement through exploratory and contextualized activities (Aisyah et al., 2025; Sadaruddin et al., 2025). Field findings at BBJ reflect similar patterns, where project-based activities provide opportunities for children to express ideas, explore materials, and integrate cognitive, motor, and socio-emotional elements within a single learning experience.

Consistent with prior research indicating that PjBL can enhance creativity and learning outcomes even in small-classroom contexts (Hastuti et al., 2023; Kwon & Lee, 2025). Project Creativity Time at BBJ allows children to experiment with ideas, tools, and simple techniques in art and skill-based activities (Suryandika et al., 2025). The projects observed were adapted to children's abilities and interests, reflecting contextualized applications of PjBL principles. Other studies have noted that the effectiveness of PjBL is influenced by contextual factors and instructional design, particularly in supporting aspects of creativity such as cognitive flexibility and willingness to experiment (Afriani et al., 2025; Julaha, 2025). Within BBJ, Project Creativity Time provides an open framework for exploration, while the Challenge Board functions as a complementary mechanism for documenting participation and progress. Together, these strategies create a learning context that balances flexibility with basic structure.

The role of teachers is closely associated with the implementation of these strategies. Previous literature emphasizes that PjBL requires pedagogical

preparedness, including the ability to plan projects, provide guidance, and adapt activities to children's developmental needs (Ambarwati et al., 2024; Widiarini et al., 2024). Findings at BBJ indicate that teachers primarily assume facilitative roles, supporting learning processes rather than directing outcomes. Regarding the Challenge Board, the findings indicate that it operates as a visual and interactive medium that supports children's engagement with learning activities. Studies suggest that challenge boards and similar visual media can assist children in understanding learning goals, receiving feedback, and maintaining focus (Keijser et al., 2025; Kuswanto et al., 2023). The use of gamification elements, such as incremental challenges and visual reinforcement, allows children to associate effort with achievement in a manner that does not emphasize excessive pressure.

Presenting learning materials in board game formats increases children's engagement and persistence in learning activities (Haq et al., 2025). Research on project-based and game-based learning shows that these approaches support higher creativity compared to conventional learning (Fatiya & Hayati, 2025). Recent studies also emphasize creativity and collaboration as key outcomes of PjBL (Yusri et al., 2024). At BBJ, these ideas are implemented through the Challenge Board, which turns learning content into simple game-based challenges that encourage active participation and creative exploration. Literature on educational games and gamification highlights the importance of aligning challenges with learning objectives and learner characteristics (Nautiyal et al., 2024; Sa'diyah et al., 2025). The board games and gamified activities increase participation, motivation, and collaborative problem-solving (Sitorus et al., 2025; Yonwilad et al., 2025). In line with this perspective, the Challenge Board at BBJ is not solely positioned as a motivational device but also as a medium that supports social interaction, including turn-taking, collaboration, and emotional regulation during learning activities.

The integration of Project Creativity Time and the Challenge Board is associated with observations of children's social-emotional engagement alongside cognitive participation. Previous studies have shown that PjBL can support communication and teamwork skills through collaborative activities (Setyowati et al., 2023). Field observations and parental reports at BBJ indicate that children increasingly participate in verbal expression and demonstrate willingness to engage in new activities. These findings are presented as contextual evidence rather than generalized claims. Children's learning experiences are further characterized by the use of natural materials and environment-based projects within Project Creativity Time. This practice aligns with studies indicating that the learning environment can function as a meaningful resource that enhances engagement and contextual relevance (Andriani & Rakimahwati, 2023; Permatasari et al., 2025). Such approaches were observed in BBJ through collaborative projects and the utilization of recycled materials.

Recent research suggests that the integration of gamification elements into PjBL can enhance learner engagement when designed in alignment with instructional objectives (Fuchs, 2023; Merliana et al., 2025). Experimental studies

further indicate that well-integrated gamification may support children's emotional and cognitive development (Coelho et al., 2025). In the BBJ context, the Challenge Board is implemented as a supportive mechanism for project-based activities rather than as an isolated reward system. From a linguistic and cognitive perspective, PjBL has been associated with the development of expressive language through interaction, dialogue, and reflective activities (Lesyani et al., 2024; Qomariyah et al., 2024). Observations at BBJ indicate that during Project Creativity Time, children engage in conversations, storytelling, and simple presentations, which form part of their everyday learning interactions. Overall, the integration of Project Creativity Time and the Challenge Board represents a contextual learning practice that combines project-based learning with gamification elements in early childhood education. Unlike previous studies that have tended to examine these strategies separately, this study highlights their simultaneous application within routine learning activities. The findings provide contextual insights into the implementation of an engaging and creative learning model aligned with early childhood developmental characteristics.

CONCLUSION

Based on the research findings, it can be concluded that the implementation of Smart Fun Learning through Project Creativity Time and the Challenge Board at BBJ effectively supports children's holistic development in a fun, positive, and pressure-free learning environment. Project Creativity Time enhances creativity, cognitive abilities, language development, motor skills, and social-emotional competencies through hands-on and collaborative projects, while the Challenge Board strengthens motivation, self-regulation, social-emotional, and learning attitudes through structured challenges and gamification elements. The novelty of this study lies in the integrated application of project-based learning and gamification specifically within an early childhood education context, combining creative projects and visual challenge systems into a unified learning model that has rarely been examined simultaneously. The findings imply that this integrated approach can serve as a practical and innovative reference for early childhood educators and institutions in designing developmentally appropriate learning strategies that promote creativity, motivation, and school readiness in a balanced and sustainable manner.

REFERENCES

- Abdellah, I., Elfeky, A., Alharbi, S., Sultan, E., & Ahmed, A. (2022). *The Effect Of Project-Based Learning In Enhancing Creativity And Skills Of Arts Among Kindergarten Student Teachers*. 6, 2182–2191.
- Abdussamad, Z. (2021). *Metode Penelitian Kualitatif*. CV. Syakir Media Press.
- Afriani, N. A., Syamsuardi, Intisari, Amri, N. A., & Hasbur, H. S. (2025). The Effect of the Project-Based Learning Model on Creativity Achievements in Early Childhood. *Jurnal Pendidikan Anak Usia Dini Undiksha*, 13(1), 39–47. <https://doi.org/10.23887/paud.v13i1.87325>

- Aisyah, E. N., Utamimah, S., & 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>
- Al Jihan, L. M. (2025). *Interview* [Personal communication].
- Ambarwati, S., Yulianti, D., Perdana, R., Sutiarto, S., & Nurwahidin, M. (2024). Development of Learner Worksheets Based on PjBL Model to Increase Creativity on Material Changes in the Form of Objects. *IJORER: International Journal of Recent Educational Research*, 5(5), 1148–1162. <https://doi.org/10.46245/ijorer.v5i5.677>
- Andriani, D., & Rakimahwati, R. (2023). Pengembangan Kreativitas Anak Usia Dini Menggunakan Media Berbasis Alam. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 7(2), 1910–1922. <https://doi.org/10.31004/obsesi.v7i2.4243>
- Arin, A. M., & Akbar, S. (2023). Character Education in Shaping a Disciplined and Noble Generation: A Study of Children Aged 4-6 Years at RA Perwanida Brawijaya. *Golden Age: Jurnal Ilmiah Tumbuh Kembang Anak Usia Dini*, 8(2), 59–68. <https://doi.org/10.14421/jga.2023.82-01>
- Aturan Main Challenge Board. (2025). https://drive.google.com/file/u/2/d/1brgssZHLxkw9X-9K8sAcM8Gamo8Pz8a1/view?usp=sharing&usp=embed_facebook
- Barua, A. M., & Bharali, S. S. (2023). Gamification and its challenges in e-learning: A case study of computer science learners in KKHSOU. *Asian Association of Open Universities Journal*, 18(3), 233–245. <https://doi.org/10.1108/AAOUJ-01-2023-0001>
- Bimba Bintang Junior. (2025). Bimba Bintang Junior. <https://bintangjunior.id/>
- Bimba Bintang Junior Pusat ex Rainbow Kids. (2025a). [Mitra] – Ice Breaking Tutorial. YouTube. http://www.youtube.com/playlist?list=PLsHwWZK_rlgYCGyyB80lKanbIV6YZroqf
- Bimba Bintang Junior Pusat ex Rainbow Kids (Director). (2025b, November 26). *Project Desember Creativity Time Dan Challenge Board Bimba Bintang Junior* [Video recording]. <https://www.youtube.com/watch?v=0OnHOZ9arn0>
- Coelho, F., Rando, B., Aparício, D., Pontífice-Sousa, P., Gonçalves, D., & Abreu, A. M. (2025). The impact of educational gamification on cognition, emotions, and motivation: A randomized controlled trial. *Journal of Computers in Education*. <https://doi.org/10.1007/s40692-025-00366-x>
- Faashichah, I. (2025). *Interview* [Personal communication].
- Fatiya, & Hayati, N. (2025). The Effectiveness of Project-Based Learning on Early Childhood Problem-Solving Skills: An Experimental Study. *International Journal of Education and Teaching Zone*, 4(2), 208–222. <https://doi.org/10.57092/ijetz.v4i2.397>
- Fuchs, K. (2023). Challenges with Gamification in Higher Education: A Narrative Review with Implications for Educators and Policymakers. *International*

- Journal of Changes in Education*, 1.
<https://doi.org/10.47852/bonviewIJCE32021604>
- Haq, A. L. A., Purnanto, A. W., & Fitriyatinur, Q. (2025). Knowledge transformation through board games for fostering perseverance character at TPQ Baitul Khoir Jetakan. *Community Empowerment*, 10(5), 1143–1152. <https://doi.org/10.31603/ce.12579>
- Hastuti, Ambiyar, Jalinus, N., Syahril, & Syah, N. (2023). *Project-Based Learning to Enhance Creativity and Learning Outcomes*. 67–73. https://doi.org/10.2991/978-2-38476-050-3_8
- Julaeha, S. (2025). The Effectiveness Of Project-Based Learning In Enhancing Creativity In Phase B Students At SDN Pekayon 11 Pagi. *Journal of Higher Education and Academic Advancement*, 2(9), 421–431. <https://doi.org/10.61796/ejheaa.v2i9.1383>
- Keijser, X., Toonen, H., Mayer, I., & van Tatenhove, J. P. M. (2025). Gaming Across Boundaries: The MSP challenge as boundary object for learning in maritime spatial planning communities. *Ocean & Coastal Management*, 264, 107590. <https://doi.org/10.1016/j.ocecoaman.2025.107590>
- Kuswanto, C. W., Hadiati, E., & Marningsih, R. (2023). Challenge Board: Sebuah Permainan untuk Mengembangkan Motorik Kasar Anak Usia Dini. *Pratama Widya: Jurnal Pendidikan Anak Usia Dini*, 8(2), 210–217. <https://doi.org/10.25078/pw.v8i2.3040>
- Kwon, H., & Lee, Y. (2025). A meta-analysis of STEM project-based learning on creativity. *STEM Education*, 5(2), 275–290. <https://doi.org/10.3934/steme.2025014>
- Lailatul Inayah, A. (2025). *Interview* [Personal communication].
- Laporan Perkembangan Anak Didik Bimba Bintang Junior*. (2025).
- Lesyani, Z., Budiarti, E., & Priyanti, N. (2024). Implementation of Project-Based Learning Model in Stimulating Language Development of Early Childhood. *Journal of Childhood Development*, 4(2), 405–418. <https://doi.org/10.25217/jcd.v4i2.4692>
- Mardliyah, A. (2025). *Interview* [Personal communication].
- Merliana, N. P. E., Widyanantara, I. M. O., Wirastuti, N. M. A. E. D., Saputra, K. O., & Setyohadi, D. B. (2025). Gamification Project-Based E-learning in Character Education: A Study in Senior High School. *JOIV: International Journal on Informatics Visualization*, 9(5), 2240–2250. <https://doi.org/10.62527/joiv.9.5.4033>
- Miles, M. B. (2014). *Analisis data kualitatif: Buku sumber tentang metode-metode baru*. Universitas Indonesia Library; UI-Press. <https://lib.ui.ac.id>
- Nautiyal, V. V., Silverio, S. A., & Salvador, E. E. P. (2024). Let's get on-board: A practical framework for designing and implementing educational board games in K-12 classrooms. *Frontiers in Education*, 9. <https://doi.org/10.3389/feduc.2024.1420515>
- Ningsih, A. (2025). *Interview* [Personal communication].
- Nisa, Z. (2025). *Interview* [Personal communication].

- Permatasari, G., Putri, E., Lailatul, A., Andriani, D., & Yuniar, D. P. (2025). The Implementation of Nature-Based Learning to Foster Creativity and Independence in Early Childhood. *Nak-Kanak: Journal of Child Research*, 2(2), 71–80. <https://doi.org/10.21107/njcr.v2i2.148>
- Purwaningtyas, F. (2025). *Interview* [Personal communication].
- Qomariyah, S. S., Hidayatullah, H., & Krisnahadi, T. (2024). Project Based Learning Toward Students' Creativity In Speaking Performance. *Journal Transformation of Mandalika*, e-ISSN: 2745-5882, p-ISSN: 2962-2956, 5(11), 409–415. <https://doi.org/10.36312/jtm.v5i11.2414>
- Ridlo, U. (2023). *Metode Penelitian Studi Kasus: Teori dan Praktik*. Publica Indonesia Utama.
- 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>
- Sa'diyah, D. A. F., Jazuly, A., & Ashadi, F. (2025). Enhancing Gross Motor Skills of Early Childhood through the Giant Snake and Ladder Game. *Teaching, Learning, and Development*, 3(2), 182–187. <https://doi.org/10.62672/telad.v3i2.86>
- Setyowati, S., Rakhmawati, N. I. S., Fitri, R., Saroinsong, W. P., & Simatupang, N. D. (2023). Project-Based Learning in Improving Early Childhood Children's Ability to Know Social and Geographical Environments. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 7(3), 3461–3467. <https://doi.org/10.31004/obsesi.v7i3.4653>
- Sitorus, R. W., Siregar, K. P., & Sari, R. I. (2025). The Role of Play Based Learning in Early Childhood Development. *Educia Journal*, 3(1), 1–14. <https://doi.org/10.71435/610424>
- Suryandika, A. E., Jamil, A. M., & Wijayanto, W. (2025). Penerapan Model Pembelajaran PJB L Untuk Keefektivitas Belajar Pada Mata Pelajaran SBDP. *Jurnal Gentala Pendidikan Dasar*, 10(1), 131–141.
- Tristya, I. (2024). Tinjauan Literature Media Pembelajaran Dalam Meningkatkan Perkembangan Motorik Kasar Anak Usia Dini. *DZURRIYAT: Jurnal Pendidikan Islam Anak Usia Dini*, 2(2), 73–88. <https://doi.org/10.61104/dz.v2i2.316>
- Tumbel, M. E. (2024). Application of Project-Based Learning to Improve the 4C Abilities (Critical Thinking, Creativity, Collaboration, and Communication) of Children Aged 5-6 Years. *International Journal of Information Technology and Education*, 3(2), 8–14. <https://doi.org/10.62711/ijite.v3i2.173>
- Widiarini, P., Sudiatmika, A. A. I. A. R., Suma, K., & Suardana, I. N. (2024). Meta-Analysis: Effectiveness Of Project-Based Learning On Student Creativity. *Jurnal Pendidikan Fisika Undiksha*, 14(2), 498–506. <https://doi.org/10.23887/jjpf.v14i2.84812>
- Wijaya, A. (2025). *Interview* [Personal communication].

- Yonwilad, W., Nongharnpituk, P., Khansila, P., & Pongwiritthon, K. (2025). Enhancing Teamwork Skills and Mathematical Conceptual Connections through Board Game Development in a Cooperative Learning Environment. *Educational Process: International Journal*. <https://www.edupij.com/index/arsiv/78/733/enhancing-teamwork-skills-and-mathematical-conceptual-connections-through-board-game-development-in-a-cooperative-learning-environment>
- Yusri, R., Yusof, A. M., & Sharina, A. (2024). A systematic literature review of project-based learning: Research trends, methods, elements, and frameworks. *International Journal of Evaluation and Research in Education (IJERE)*, 13(5), 3345–3359. <https://doi.org/10.11591/ijere.v13i5.27875>



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