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Enhancing Student Creativity through Project Based Learning in Indonesia's National Curriculum

Yoga Pratama[1](✉)
[1]Universitas Doktor Nugroho Magetan, Indonesia

✉Correspondence Author:
yogapratamarth23@gmail.com

Abstract
This study examines the impact of Project-Based Learning (PjBL) on student creativity within the National Curriculum at elementary schools. Using a quantitative experimental design, the study involved two groups: the experimental group applying PjBL and the control group following conventional learning methods. The sample consisted of 120 fifth-grade students divided into these two groups. Data were collected through a validated creativity test administered before and after the intervention. The results revealed that the experimental group showed a significant increase in creativity compared to the control group. The average creativity score for the experimental group rose from 62.5 to 85.3, whereas the control group only increased from 61.4 to 65.2. These results demonstrate that implementing PjBL in the National Curriculum effectively enhances student creativity, particularly in problem-solving, originality of ideas, and collaboration skills. Consequently, PjBL can serve as a valuable method for fostering 21st-century skills, which align with the core objectives of Indonesia's National Curriculum.

Keywords
creative; national curriculum; primary school; project based learning

INTRODUCTION

Student creativity is one of the important competencies in 21st century education (Iang et al., 2023). Creative thinking skills not only affect students' academic achievement, but also prepare them to face the challenges of an increasingly complex and dynamic world (Ilha Villanova & Pina e Cunha, 2021). Creativity includes the ability to generate new ideas, solve problems innovatively, and think critically and openly. In the context of education, the development of creativity is not only limited to the arts, but also students' abilities in various disciplines, such as mathematics, science, and language. Therefore,

education at the elementary level should be geared towards developing students' creativity, which is the basis for further and applicative thinking skills in the future (Long et al., 2022). One effective way to encourage creativity is to use a learning approach that focuses on students' active involvement in the learning process.

In the context of education in Indonesia, the National Curriculum that is currently implemented replaces the Independent Curriculum, with the aim of improving the quality of learning in elementary schools and strengthening the development of competencies in the 21st century (Sutanto, 2024). The National Curriculum emphasizes competency-based education, which includes not only academic knowledge, but also skills such as critical thinking, creative, collaborative, and communication. In this curriculum, there are efforts to integrate holistic character education, where students are not only equipped with theoretical knowledge, but also with relevant life skills (Nurmala et al., 2024). This curriculum encourages learning not only limited to cognitive aspects, but also the development of attitudes and skills that can be applied in daily life (Pulhehe, 2024). However, despite the emphasis on developing these competencies, the challenge faced is how to effectively translate this curriculum into classroom learning practices, one of which is in terms of developing students' creativity.

One of the most relevant learning approaches to support the National Curriculum's goals in developing creativity is Project Based Learning (PjBL) (Zulyusri et al., 2023). PjBL is a learning model that focuses on giving students real projects, where they are directly involved in the planning, implementation, and evaluation of projects (Zulyusri et al., 2023). This approach encourages students to think creatively and critically in solving real-world problems, as well as allowing them to relate the knowledge they learn to relevant and applicable contexts (Ferrero et al., 2021). In addition, PjBL also provides opportunities for students to develop collaboration, communication, and time management skills, which are integral parts of creativity. Therefore, PjBL not only provides a space for students to show their creativity, but also prepares them to face challenges that require out-of-the-box thinking and the ability to innovate.

Although there are a number of studies related to the use of the Project Based Learning (PjBL) method at the higher education level, experimental research that focuses on the implementation of PjBL at the elementary school level in Indonesia is still very limited (Ahsan et al., 2024; K. A. Aji, 2023). Student creativity in primary school is still

at a low level, with only 35% of students showing high creativity abilities based on standardized competency assessments (Pulhehe, 2024).. Based on these findings, research exploring the effectiveness of PjBL in increasing student creativity in elementary school is needed. Therefore, although the National Curriculum provides a clear direction to improve 21st century skills, the effective implementation of this curriculum requires a change in perspective and learning strategies, one of which is through the implementation of PjBL.

This study aims to examine the impact of the use of Project-Based Learning (PjBL) in the National Curriculum on student creativity at the elementary school level. This study will explore whether the application of PjBL can significantly increase student creativity compared to conventional learning that prioritizes direct teaching and memorization. The results of this study are expected to provide empirical evidence on the effectiveness of PjBL in supporting the achievement of the objectives of the National Curriculum, as well as provide practical recommendations for teachers and policymakers in designing more innovative learning and supporting the development of 21st century students' skills.

THEORETICAL SUPPORT

The literature review in this study focuses on three main aspects relevant to the topic: student creativity, the application of the curriculum in elementary schools, and the application of Project-Based Learning (PjBL) in increasing creativity. Based on the existing literature, various studies have shown a close relationship between the development of creativity and the use of project-based learning methods, as well as the importance of curricula that support learning based on 21st century skills development.

Student Creativity in Education

Creativity is the ability to generate new and original ideas and the ability to solve problems in different ways (Long et al., 2022). In education, creativity is not only related to art, but also to critical thinking and problem-solving skills that can be applied in various disciplines. Torrance defines creativity as the ability to think and act in new, original, and efficient ways in addressing unstructured problems (Alabbasi et al., 2022). Creativity can be influenced by factors such as intrinsic motivation, freedom of thought, and opportunities to explore new ideas (Iang et al., 2023; Liang et al., 2021). In the context of education,

students' creativity can be seen from their ability to think critically, solve problems, and come up with innovative solutions to the challenges faced.

Elementary School Curriculum and Creativity Development

The elementary school curriculum plays an important role in shaping students' basic abilities, including creativity. Curricula at the elementary level, such as the 2013 Curriculum and the Independent Curriculum, seek to develop students' competencies that are not only limited to academic knowledge, but also critical thinking, problem-solving, and creativity skills (K. A. Aji, 2023; Sutanto, 2024). Education based on a holistic curriculum can help students connect theoretical knowledge with practical application in daily life (Nurmala et al., 2024). Curriculum that emphasizes a skills-based approach can encourage students to be more active in creating, thinking critically, and applying their knowledge more broadly.

Project Based Learning (PjBL) and Creativity Development

Project Based Learning (PjBL) is a learning approach that focuses on assigning tasks or projects that allow students to engage in complex problem-solving (Diana et al., 2021). PjBL has long been considered one of the effective methods to increase student creativity because it provides students with the opportunity to think creatively and innovatively in a real-world context (Zulyusri et al., 2023). In PjBL, students are given the freedom to plan, implement, and evaluate their own projects, which encourages them to think critically and collaborate with fellow students. PjBL also allows students to see the relevance of learning to their daily lives, which can increase their intrinsic motivation to innovate.

PjBL can enhance students' creativity by providing challenges that require original solutions and the application of knowledge in a real-world context (Wijnia et al., 2024). PjBL allows students to learn through practical experiences and provides space for them to explore new ideas. PjBL can improve students' creative thinking skills because they are invited to complete projects involving various disciplines and practical skills (Halim et al., 2023). Project-based learning encourages students to apply the knowledge they learn, as well as work in groups to solve complex problems. This leads to the development of collaboration, communication, and creativity skills.

METHOD

This study uses a quantitative approach with an experimental design to analyze the impact of the use of Project-Based Learning (PjBL) in the primary school curriculum on student creativity. This research was conducted in several elementary schools in Indonesia with the aim of obtaining valid and objective data on the influence of PjBL on student creativity. In detail, the methods used in this study can be explained in the following subsections.

Research Design

The research design used was a quasi-experiment with two groups, namely the experimental group that applied PjBL and the control group that used conventional learning methods. This design was chosen to look at the significant differences between the two groups in terms of increasing student creativity. The experimental group will follow project-based learning over a period of time, while the control group will continue learning with a traditional approach that prioritizes lectures and discussions.

Population and Sample

The population in this study is grade V students in elementary schools in urban and rural areas in Indonesia. School selection is done randomly to ensure variation in students' characteristics and their educational background. The sample of this study consisted of 120 students divided into two groups, namely the experimental group consisting of 60 students and the control group consisting of 60 students. Sample selection was carried out using the purposive sampling technique by considering the suitability of student characteristics and the readiness of the school in applying the PjBL method.

Research Instruments

The instrument used in this study is a creativity test that has been psychometrically validated. The creativity test used consists of several aspects that include problem-solving, originality of ideas, critical thinking skills, and collaborative skills. This instrument was developed based on the theory of creativity which includes cognitive and affective dimensions. In addition, observations and interviews with teachers were also used to

collect data on the implementation of PjBL in the classroom and student interaction during the project.

Research Procedure

The research was conducted in several stages. The first stage involved preparing by conducting training for teachers on the application of Project-Based Learning (PjBL) to ensure they had a solid understanding of its principles and could apply them effectively. Following the training, a pre-test of students' creativity was administered using the prepared test instruments. In the second stage, the experimental group engaged in a semester-long PjBL, which involved various projects designed to encourage creative thinking, teamwork, and independent problem-solving, with themes relevant to learning and real-life materials such as product creation, social research, and idea presentation. Meanwhile, the control group continued with conventional learning methods, including lectures and discussions. In the third stage, a post-test was administered to measure changes in students' creativity, using the same creativity test as the pre-test to evaluate their progress. Additionally, classroom observations were conducted to assess how well PjBL was applied and how students interacted during the learning process. The test and observation data were analyzed to determine whether there was a significant increase in creativity among the students in the experimental group compared to the control group.

Data Analysis

The data collected from the creativity test will be analyzed using both descriptive and inferential statistics. Descriptive analysis will be used to describe the characteristics of the data, such as the mean, standard deviation, and the distribution of creativity scores before and after the intervention. To determine if there is a significant difference between the experimental and control groups, an independent t-test will be applied. This test will help assess whether there is a significant difference in the increase of creativity between students who engage in PjBL and those who follow conventional learning methods. Additionally, qualitative analysis of the observation and interview data will be conducted to provide further insights into the implementation of PjBL and classroom dynamics.

RESULT

This study aims to investigate the effect of incorporating Project-Based Learning (PjBL) into the elementary school curriculum on student creativity. Analysis of data collected from the pre-test and post-test, along with observations made during the PjBL implementation, revealed significant improvements in the creativity of students who engaged in project-based learning compared to those who followed traditional learning methods.

Increased Student Creativity:

Analysis of data from pre-test and post-test values showed significant differences between the experimental group and the control group. Before the intervention, the average creativity score in the experimental group was 62.5 (SD = 7.1), while the control group had an average score of 61.4 (SD = 6.8). After one semester of Project-Based Learning (PjBL) implementation, the experimental group showed a significant improvement, with an average score of 85.3 (SD = 6.5), while the control group experienced only a slight improvement with an average score of 65.2 (SD = 7.3).

To measure the magnitude of this difference, Cohen's value d was calculated which yielded 3.35 for the experimental group, indicating a large effect size. Meanwhile, Cohen's d for the control group was 0.54, which indicates a moderate effect size. These results support the conclusion that PjBL had a significant impact on increasing creativity in the experimental group compared to the control group.

Statistical Analysis

An independent t-test was performed to test the differences between the experimental group and the control group. The results of the t-test (t = 8.53) were greater than the t-table value (t-table = 1.98) at a significance level of 0.05, suggesting that the difference between the two groups was statistically significant. This shows that PjBL significantly increases students' creativity compared to conventional learning methods.

Table 1. Comparison of Average Creativity Increase between Experiment and Control

Group	Pre-Test (Average)	Post-Test (Average)	Improvement (Average)	Post-Test Deviation Standard
Eksperimen	62,5	85,3	22,8	6,5
Control	61,4	65,2	3,8	7,3

Table 1 shows that experimental groups that applied PjBL experienced a greater increase in creativity, with an average increase of 22.8 points. In contrast, the control group that used conventional learning only experienced an increase of 3.8 points. The average post-test score in the experimental group (85.3) was much higher compared to the control group (65.2), which suggests that PjBL is more effective in encouraging students to think creatively and come up with original ideas. In addition, a lower standard deviation in the experimental group (6,5) showed that the effect of PjBL was more consistent, compared to a higher standard deviation in the control group (7,3).

Student Observation and Interaction

During project-based learning (PjBL), observations showed increased collaboration and discussion in the experimental group. Students work in groups to design, gather information, prototype, and present project results. They were more active in sharing ideas, solving problems together, and exploring creative solutions compared to the more passive control group. In addition, students in the experimental group showed improvements in public speaking and presentation skills, with more confidence and being able to convey original ideas clearly than the control group. This shows that PjBL improves thinking creativity and communication skills (Ferrero et al., 2021).

Parent and Teacher Engagement

In addition to the results of the test and direct observation, interviews with teachers and parents were also conducted. Teachers in the experimental group reported that students seemed more enthusiastic about participating in project-based learning. Although PjBL requires more time and preparation, teachers admit the results are very satisfying, especially in improving students' creativity and problem-solving skills. Parents also reported positive changes in their children, especially in terms of confidence, creativity, and the ability to work in a team. They say their children talk more often about projects and seem more creative in their daily activities, such as drawing, storytelling and solving problems at home.

Observation of the Control Group

The control group that followed conventional learning with lectures and discussions did not show a significant increase in creativity. Although there was a slight improvement in post-test test scores, the improvement was much lower compared to the experimental group that followed PjBL. Observations showed students were more passive, only listening to the teacher's explanations without much interaction or creative problem-solving.

DISCUSSION

The implementation of Project-Based Learning (PjBL) in the elementary school curriculum in Indonesia has shown a significant impact on the development of students' creativity. Based on the results of the study, the group of students who participated in project-based learning showed a greater increase in creativity compared to the group that participated in conventional learning. These results are in line with the vision of the National Curriculum which emphasizes the importance of developing 21st century competencies, which include creativity, collaboration, communication, and problem-solving (K. A. Aji, 2023; Pulhehe, 2024). The National Curriculum, as a curriculum that has just been implemented in Indonesia, seeks to encourage education that focuses not only on academic achievement, but also on developing life skills that are relevant to the challenges of the times (Sutanto, 2024).

The National Curriculum, which replaces the Independent Curriculum, is designed to provide more flexibility in the delivery of learning and place more emphasis on developing students' critical skills (K. A. Aji, 2023). This curriculum prioritizes a competency-based approach, which encourages students to master skills and knowledge that are relevant to the demands of the world of work and daily life (Restu et al., 2022). In this context, PjBL is a relevant strategy because it allows students to learn in a more contextual and applicative way (Diana et al., 2021). Through the application of PjBL, students can solve real-world problems that encourage them to think creatively and apply the knowledge gained in their daily lives. Thus, PjBL supports the achievement of the National Curriculum's goals in terms of 21st century skills development, which are urgently needed in the future.

In the implementation of PjBL, it is also necessary to adapt by taking into account local characteristics and cultural contexts in Indonesia (Nurmala et al., 2024). The National

Curriculum, which now leads to the integration of local wisdom and cultural contexts in learning, provides space for teachers to design projects that focus not only on academic knowledge, but also on relevant cultural values. This project-based approach can integrate local cultures, such as an introduction to various local arts, traditions, and wisdom, in a more contextual learning project (Lewis et al., 2011; Pike et al., 2021). Thus, PjBL can serve as a tool to not only increase creativity, but also introduce students to the richness of Indonesia's highly diverse culture.

As part of the National Curriculum, the implementation of PjBL can also be optimized by involving all stakeholders, including parents and the community, in the learning process (Diana et al., 2021; Fathonah et al., 2023). The development of students' creativity depends not only on the experience in the classroom, but also on the involvement of parents in supporting children's learning activities at home. Collaboration between schools, parents, and the community can create a learning ecosystem that better supports the development of students' creativity and skills (A. P. Aji & Wangid, 2022; Hakim, 2020). The National Curriculum, with its principles that encourage community involvement, is a good foundation for integrating PjBL with the real lives of students outside of school, creating more connected and meaningful learning.

Overall, although the implementation of PjBL in the National Curriculum in elementary schools in Indonesia faces various challenges (Ferrero et al., 2021; Wijnia et al., 2024), the results of this study show that PjBL can make a significant contribution to the development of students' creativity. Therefore, it is important for education policies and national curriculum implementation to better support the implementation of this project-based approach, by providing adequate training for teachers, improving educational infrastructure, and involving parents and communities in the learning process. Thus, the National Curriculum that emphasizes the development of 21st century skills, including creativity, can be optimally achieved, creating a more innovative generation and ready to face global challenges.

CONCLUSION

This study shows that the implementation of Project-Based Learning (PjBL) in the National Curriculum has a significant positive impact on increasing student creativity in elementary schools. PjBL successfully encourages students to think creatively, work

together, and apply knowledge in solving real-world problems. A greater increase in creativity was seen in the experimental group that used PjBL compared to the control group that followed conventional learning methods. These results support that PjBL can be an effective approach to developing 21st century skills, such as creativity and problem-solving, which are key objectives in the National Curriculum.

However, this study also found that the implementation of PjBL still faces challenges related to teacher readiness, time constraints, and resources. Therefore, further research is recommended to test solutions to these challenges, such as the development of professional training for teachers and the provision of infrastructure that better supports project-based learning. In addition, further research can examine the application of PjBL in different subjects or combine PjBL with digital technology to enrich the learning process and improve students' skills. This research makes an important contribution to creative learning theory by emphasizing the importance of approaches that facilitate creativity in learning, as well as to educational practice by providing more practical implementation recommendations for teachers and curriculum.

REFERENCES

Ahsan, S., Islam, M. K., & Khan, M. R. H. (2024). Scope of Global Citizenship Education in the National Curriculum Framework 2021 of Bangladesh: A critical Review. *Teacher's World: Journal of Education and Research*, *49*(1), 49–76. https://doi.org/10.3329/twjer.v49i1.70238

Aji, A. P., & Wangid, M. N. (2022). Kontribusi Pola Asuh Orang Tua pada Penanaman Karakter Cinta Tanah Air Anak Usia Dini. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, *6*(4), 2718–2724. https://doi.org/10.31004/obsesi.v6i4.1135

Aji, K. A. (2023). Literature Review: The Relationship between Merdeka Curriculum and Student Learning Achievement. *Jurnal Pendidikan Jasmani (JPJ)*, *4*(1), 17–30. https://doi.org/10.55081/jpj.v4i1.732

Alabbasi, A. M. A., Paek, S. H., Kim, D., & Cramond, B. (2022). What do educators need to know about the Torrance Tests of Creative Thinking: A comprehensive review. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.1000385

Diana, N., Yohannes, & Sukma, Y. (2021). The effectiveness of implementing project-based learning (PjBL) model in STEM education: A literature review. *Journal of*

Physics: Conference Series, *1882*(1), 012146. https://doi.org/10.1088/1742-6596/1882/1/012146

Fathonah, R. A., Handayani, T. O., & Indrapangastuti, D. (2023). The Role of Project Based Learning (PjBL) in Improving Elementary School Students. *Social, Humanities, and Educational Studies (SHES): Conference Series*, *6*(1), 350–357.

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), e0249627. https://doi.org/10.1371/journal.pone.0249627

Hakim, M. S. H. I. (2020). Implementasi Kolaborasi Orang Tua dan Guru Dalam Pelaksanaan Pembelajaran Daring pada PAUD. *JIEES : Journal of Islamic Education at Elementary School*, *1*(1), 26–33. https://doi.org/10.47400/jiees.v1i1.8

Halim, N., Boys, M., Fahmi, F., Nozaki, K., & Wuttipong, M. (2023). Implementation of Project-Based Learning in Indonesian EFL Class Between 2017 to 2022. *Journal Neosantara Hybrid Learning*, *1*(2), 94–109. https://doi.org/10.55849/jnhl.v1i2.94

Iang, Wing, C. K., & Hoe, T. W. (2023). The cultivation of children's musical creative practical competency: A literature review. *Thinking Skills and Creativity*, *48*, 101309. https://doi.org/10.1016/j.tsc.2023.101309

Ilha Villanova, A. L., & Pina e Cunha, M. (2021). Everyday Creativity: A Systematic Literature Review. *The Journal of Creative Behavior*, *55*(3), 673–695. https://doi.org/10.1002/jocb.481

Lewis, S. V., Robinson, E. H., & Hays, B. G. (2011). Implementing an Authentic Character Education Curriculum. *Childhood Education*, *87*(4), 227–231. https://doi.org/10.1080/00094056.2011.10523183

Liang, M., Li, Y., Weber, T., & Hussmann, H. (2021). Tangible Interaction for Children's Creative Learning: A Review. *Creativity and Cognition*, 1–14. https://doi.org/10.1145/3450741.3465262

Long, H., Kerr, B. A., Emler, T. E., & Birdnow, M. (2022). A Critical Review of Assessments of Creativity in Education. *Review of Research in Education*, *46*(1), 288–323. https://doi.org/10.3102/0091732X221084326

Nurmala, E., Sabaruddin, Sultan, Hartati, D. V., & Siregar, M. S. (2024). Implementing Merdeka Curriculum by Strengthening Character Education (Literature Review). *SABIQ : Jurnal Sosial Dan Bidang Pendidikan*, *1*(1), 27–36.

https://doi.org/10.62554/6re80f87

Pike, M. A., Hart, P., Paul, S.-A. S., Lickona, T., & Clarke, P. (2021). Character development through the curriculum: teaching and assessing the understanding and practice of virtue. *Journal of Curriculum Studies*, *53*(4), 449–466. https://doi.org/10.1080/00220272.2020.1755996

Pulhehe, N. (2024). Indigenous knowledge in Indonesia curriculum development: Literature review of Indonesia's education policy. *Inovasi Kurikulum*, *21*(1), 97–108. https://doi.org/10.17509/jik.v21i1.61910

Restu, R., Sriadhi, S., Gultom, S., & Ampera, D. (2022). Implementation Of The Merdeka Belajar-Kampus Merdeka Curriculum Based On The RI 4.0 Platform At Universitas Negeri Medan. *Journal of Positive School Psychology*, 10161–10176.

Sutanto, S. (2024). Transformasi Pendidikan di Sekolah Dasar: Peran Guru dalam Mengimplementasikan Kurikulum Merdeka di Indonesia. *Jurnal Guru Sekolah Dasar*, *1*(1), 69–76. https://doi.org/10.70277/jgsd.v1i1.0009

Wijnia, L., Noordzij, G., Arends, L. R., Rikers, R. M. J. P., & Loyens, S. M. M. (2024). The Effects of Problem-Based, Project-Based, and Case-Based Learning on Students' Motivation: a Meta-Analysis. *Educational Psychology Review*, *36*(1), 29. https://doi.org/10.1007/s10648-024-09864-3

Zulyusri, Z., Elfira, I., Lufri, L., & Santosa, T. A. (2023). Literature Study: Utilization of the PjBL Model in Science Education to Improve Creativity and Critical Thinking Skills. *Jurnal Penelitian Pendidikan IPA*, *9*(1), 133–143. https://doi.org/10.29303/jppipa.v9i1.2555