

The Effectiveness of Project-Based Learning in Increasing Student Creativity in Public Elementary Schools

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ABSTRACT

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This study aims to analyze the effectiveness of Project-Based Learning (PjBL) in increasing student creativity at SDN 1 Selong, East Lombok Regency. Creativity is one of the main competencies of the 21st century that needs to be developed since primary education because it plays an important role in shaping critical thinking skills, problem solving, innovation, and adaptation to social and technological changes. However, the learning process in elementary schools is still often dominated by conventional teacher-centered approaches, so it does not provide space for students to explore ideas, collaborate, and produce creative works. This study uses a qualitative approach with a case study design. Data was collected through observations, in-depth interviews, and documentation of teachers, students, and schools. Data analysis was carried out using an interactive model which included data reduction, data presentation, and conclusion drawn. The results of the study show that the implementation of project-based learning is able to increase student creativity through active involvement in the process of planning, implementing, and completing learning projects. Students show improved ability to generate new ideas, solve problems independently, work together in groups, and create products that are appropriate to the learning context. These findings indicate that project-based learning is an effective approach in developing the creativity of elementary school students. This research provides implications for the development of more innovative, participatory, and oriented learning strategies for strengthening 21st century competencies in the primary education environment.

Keywords: Project-Based Learning, Student Creativity, Elementary School

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INTRODUCTION

The development of society in the 21st century is characterized by technological transformation, information digitization, the development of artificial intelligence, and social changes that are taking place so fast that they require the education system to produce human

resources that are creative, innovative, adaptive, collaborative, and able to solve various complex problems (Henriksen et al., 2021; OECD, 2023; Chiu, 2024). In this context, creativity is one of the main competencies that must be developed since primary education because it plays a role in forming divergent thinking skills, generating new ideas, creating innovations, and finding solutions to various life challenges (Beghetto & Kaufman, 2021; Lucas & Spencer, 2021; Burnard et al., 2022). UNESCO (2022) and OECD (2023) place creativity as an important part of 21st century competencies that must be integrated into curricula and learning practices in schools. Various studies show that creativity has a close relationship with the ability to think critically, communicate, collaborate, and problem-solve which is the foundation of students' future success (Voogt & Roblin, 2022; Care et al., 2023). However, the learning process in elementary school is still often oriented towards achieving cognitive aspects and mastery of academic materials, so students' opportunities to develop creativity are often limited (Anazifa & Djukri, 2022; Purnomo et al., 2023). The dominance of lecture methods, the use of reproductive assignments, and the lack of exploratory activities cause students to be less involved in the creative thinking process and independent problem-solving (Sari et al., 2024; Widodo et al., 2023). Similar findings can also be seen in the learning conditions at SDN 1 Selong, East Lombok Regency, where some students show good academic ability but still experience difficulties in developing original ideas, expressing opinions critically, and producing works that reflect creativity. This condition shows the need for learning innovations that are able to provide space for students to learn actively, collaboratively, contextually, and centered on real learning experiences.

One of the approaches that is considered to be able to answer these needs is Project-Based Learning (PjBL). This learning model places students at the center of learning activities through the completion of projects related to real problems so as to encourage them to think creatively, collaborate, communicate, investigate, and produce meaningful products (Kokotsaki et al., 2021; Condliffe et al., 2022; Guo et al., 2020). Various studies show that PjBL has a positive influence on increasing creativity, critical thinking skills, collaboration skills, science literacy, and problem-solving abilities of students (Chen & Yang, 2021; Almulla, 2022; Haatainen & Aksela, 2021; Surya et al., 2023). In its implementation, project-based learning provides opportunities for students to explore ideas, design solutions, develop products, reflect, and present learning outcomes independently or in groups (Krajcik & Blumenfeld, 2021; Larmer et al., 2022). This approach is in line with constructivist theory which emphasizes that knowledge is built through direct experience and social interaction in the learning process (Hmelo-Silver, 2021). In addition, a number of studies have shown that PjBL is able to increase students' motivation to learn because it provides a more authentic and relevant learning experience to daily life (Almulla, 2022; Yustina et al., 2023; Sari & Sugiyono, 2024). In the Indonesian context, the implementation of the Independent Curriculum further strengthens the urgency of using project-based learning as a means of strengthening the Pancasila Student Profile which includes creativity, mutual cooperation, independence, and critical reasoning skills (Ministry of Education and Culture, 2022; Yulianti et al., 2024). Therefore, PjBL is seen as one of the relevant learning strategies to prepare students to face the challenges of 21st century education.

Although various studies have proven the benefits of project-based learning, there are still a number of research gaps that need attention. Most previous studies have focused on the influence of PjBL on learning outcomes, critical thinking skills, science literacy, STEM competencies, and problem-solving skills at the secondary and tertiary education levels (Guo et al., 2020; Chen & Yang, 2021; Almulla, 2022; Markula & Aksela, 2022). Research that specifically examines the effectiveness of PjBL in increasing the creativity of elementary school students is still relatively limited, especially in the context of elementary schools in non-urban

areas or developing areas (Rahmawati et al., 2023; Fitriani et al., 2024; Nurhayati et al., 2024). In addition, most previous studies have used quantitative approaches oriented to the measurement of final outcomes so that there has not been much exploration of the learning process that allows students' creativity to develop during the implementation of the project (Bell, 2021; Markham, 2022). The results of previous studies also show mixed findings regarding the effectiveness of PjBL. Several studies have found a very significant increase in creativity after the implementation of learning projects (Almulla, 2022; Haatainen & Aksela, 2021), while other research shows that successful implementation is strongly influenced by teacher readiness, learning environment support, school culture, student characteristics, and availability of learning resources (Kokotsaki et al., 2021; Condliffe et al., 2022; Wahyuni et al., 2024). In the context of elementary schools in areas such as East Lombok, these factors can produce different dynamics compared to schools in urban areas. Therefore, research is needed that is able to provide an in-depth understanding of how project-based learning is implemented and how the process contributes to increasing student creativity in the context of regional basic education.

Based on this description, this study aims to analyze the effectiveness of project-based learning in increasing student creativity at SDN 1 Selong, East Lombok Regency. The novelty of this research lies in the focus of the study that not only assesses learning outcomes, but also explores the process of developing students' creativity through the implementation of learning projects at the elementary school level. In addition, this research was conducted in the context of basic education in East Lombok Regency which is still relatively rarely the object of study in the project-based learning literature. The research also integrates the perspective of creativity as a 21st-century competency with a constructivistic approach that emphasizes authentic, collaborative, and problem-solving-based learning experiences. The research findings are expected to make a theoretical contribution to the development of project-based learning studies and student creativity, enrich the literature on the implementation of PjBL in elementary schools in the region, and provide practical recommendations for teachers, schools, and education policy makers in designing learning strategies that are more innovative, participatory, and relevant to the needs of 21st century education.

RESEARCH METHODS

This study uses a qualitative approach with a case study design to gain an in-depth understanding of the effectiveness of project-based learning in increasing student creativity at SDN 1 Selong, East Lombok Regency. The qualitative approach was chosen because it allows researchers to explore the learning process holistically, understand the experiences of students and teachers during the implementation of the project, and interpret the meanings that emerge from learning interactions contextually. The research was carried out in the even semester of the 2025/2026 school year with a focus on learning activities that applied the Project-Based Learning (PjBL) model in grades IV and V. The research informants consisted of the principal, four classroom teachers, and twenty students who were selected purposively based on their active involvement in learning project activities.

Data collection techniques were carried out through participatory observation, in-depth interviews, and documentation. Observation is used to directly observe student activities during the process of planning, implementation, and presentation of project results. In-depth interviews were conducted with teachers and students to obtain information about the learning experience, challenges faced, and changes in creativity felt during project-based learning. Documentation in the form of photos of activities, student works, learning tools, reflection journals, and school archives was used to strengthen the data from observations and interviews. The use of various

data collection techniques aims to increase the depth of information and strengthen the validity of research findings through triangulation of sources and methods.

Data analysis was carried out using the Miles, Huberman, and Saldaña interactive model which included data reduction, data presentation, and conclusion drawing and verification. The analysis process is carried out repeatedly since the data collection took place so that it allows researchers to identify patterns, themes, and relationships between categories in more depth. To ensure the credibility of the data, the research applied source triangulation techniques, method triangulation, member checking, and peer discussion. With this procedure, the results of the research are expected to be able to comprehensively describe the effectiveness of project-based learning in developing the creativity of elementary school students.

RESULT AND DISCUSSION

The results of the study show that the implementation of project-based learning at SDN 1 Selong has a significant influence on the development of students' creativity. Based on the results of observations during the learning process, students showed a higher level of involvement compared to conventional learning that was previously dominantly used. In the early stages of the project, students are encouraged to identify problems that exist in the environment around the school and formulate solutions that can be realized through project activities. The process gives rise to a variety of diverse ideas and shows divergent thinking skills which are one of the main indicators of creativity. The teacher revealed that students who previously tended to be passive began to dare to convey ideas, ask questions, and provide alternative solutions to the problems discussed in the group.

The findings of the study show that students' creativity develops through three main dimensions, namely the ability to generate new ideas, the ability to develop products or works, and the ability to solve problems creatively. In the first dimension, students are able to generate a variety of different ideas in designing learning projects. For example, when given the theme of the school environment, each group develops different project concepts such as the creation of mini gardens, educational media on waste management, to simple digital campaigns about environmental cleanliness. The diversity of ideas suggests that project-based learning provides a wider space for students to express their imagination and creativity.

In the product development dimension, students not only receive information from the teacher, but actively create works based on pre-planned ideas. The results of the documentation show that the products produced by the students have unique characteristics and reflect the creativity of each group. The teacher explained that in previous learning, students did more tasks that were reproductive, while in project-based learning they were required to produce original works that were relevant to the context of daily life. This condition encourages students to explore various sources of information, discuss with friends, and conduct simple experiments before coming up with the final product.

The third dimension that has developed is problem-solving skills. During the project process, students faced various challenges such as material limitations, technical difficulties, and differences of opinion in groups. Nevertheless, they demonstrate the ability to find alternative solutions independently through discussion, information exploration, and consultation with teachers. The experience provides an opportunity for students to develop the flexibility of thinking that is an important component of creativity. These findings show that creativity is not only reflected in the final product produced, but also in the thought process and decision-making during the execution of the project.

The results of interviews with students showed that they felt happier and more motivated when participating in project-based learning. Most students stated that the project activities provided an opportunity to learn through hands-on experience so that the subject matter became

easier to understand. In addition, they feel they have the freedom to develop ideas according to their interests and abilities. This freedom contributes to the emergence of confidence in expressing opinions and trying new ways to complete tasks. These findings show that a learning environment that provides space for exploration is able to encourage the development of creativity more optimally.

The results of this study are in line with the findings of Guo et al. (2020) who stated that project-based learning has a positive impact on the development of 21st century skills, including creativity and problem-solving skills. In the study, it was explained that students' active involvement in authentic projects allows them to connect knowledge with real situations resulting in a more meaningful learning experience. Similar findings were also found by Chen and Yang (2021) who concluded that Project-Based Learning is able to improve creative thinking skills through a process of investigation, collaboration, and reflection that is carried out in a continuous manner.

From the perspective of constructivism, the effectiveness of project-based learning in increasing creativity can be understood through the process of knowledge construction that students actively carry out. Knowledge is not acquired passively from teachers, but rather is built through interaction with the environment, learning experiences, and social collaboration. In this study, students are directly involved in the process of planning, implementing, and evaluating projects so that they have the opportunity to build a deeper understanding of the learning materials. Such active involvement allows students to develop high-level thinking skills that are the foundation of creativity.

The research findings also show that group collaboration plays an important role in encouraging student creativity. During the learning process, students exchange ideas, provide input, and work together to complete projects. Such interactions create a learning environment rich in perspectives and allow for the emergence of new ideas that would not arise if students worked individually. This condition supports the opinion of Kokotsaki et al. (2021) who affirm that collaboration is one of the main elements in project-based learning because it can enrich students' creative thinking processes.

In addition to increasing creativity, project-based learning also has a positive impact on students' communication skills. The results of the observation showed that students became more active in expressing their opinions, presenting project results, and explaining the processes they had carried out. These communication skills develop along with increased confidence and social skills during working in groups. These findings show that the creativity that develops through project-based learning does not stand alone, but rather is related to the development of other competencies needed in 21st century life.

Nonetheless, the study also found several challenges in the implementation of project-based learning. The teacher revealed that project planning takes longer than conventional learning. In addition, the success of the project is highly dependent on the teacher's ability to facilitate the learning process and manage the dynamics of student groups. Some students also show difficulties in the early stages because they are not used to learning that demands high independence and initiative. However, these challenges gradually diminish once students begin to understand project-based learning flows and get adequate mentoring from teachers.

To strengthen the interpretation of the research results, some previous findings can be used as references. Guo et al. (2020) state that "Project-based learning promotes students' creativity through authentic and collaborative learning experiences." This statement is in line with the findings of this study which show that authentic learning experiences are a major factor in increasing student creativity. Chen and Yang (2021) also explain that "students engaged in project-based learning demonstrate significantly higher creative thinking skills than those in traditional classrooms." The findings reinforce the results of the study that students' active

involvement in projects is able to improve their creative thinking skills. Meanwhile, Almulla (2022) emphasized that "project-based learning provides opportunities for learners to generate ideas, solve problems, and create meaningful products." The citation shows conformity with the findings of the research that shows the development of students' creativity through the process of product creation and problem solving during the project.

The practical implication of this research is the need for schools to integrate project-based learning more systematically in the learning process. Teachers need to obtain adequate training on project design, learning facilitation strategies, and creativity assessment techniques so that the implementation of PjBL can run optimally. In addition, schools need to provide support for learning facilities and resources that allow students to explore more broadly. Thus, project-based learning is not only an alternative learning method, but an integral part of 21st-century competency development strategies in primary schools.

From the theoretical side, this research contributes to the development of studies on the relationship between project-based learning and student creativity at the elementary education level. The research findings reinforce constructivism's view that creativity develops through active, collaborative, and contextual learning experiences. In addition, this research shows that creativity can be developed systematically through learning designs that provide space for exploration, reflection, and the creation of real products.

This research has several limitations. First, the research was only conducted in one school so that the findings could not be generalized in all basic education contexts. Second, the research uses a qualitative approach so that it does not measure the magnitude of the increase in creativity quantitatively. Third, the research was conducted in a relatively limited period so that it could not describe the long-term impact of project-based learning on the development of students' creativity. Therefore, further research is recommended using a mixed methods approach, involving more schools, and conducting longitudinal studies to gain a more comprehensive understanding of the effectiveness of project-based learning in developing students' creativity.

CONCLUSION

The results of the study show that Project-Based Learning (PjBL) is effective in increasing student creativity at SDN 1 Selong, East Lombok Regency. This effectiveness can be seen from the increased ability of students to generate new ideas, develop creative products, and solve various problems that arise during the learning process. The active involvement of students in every stage of the project, from planning, implementation, to presentation of results, provides ample opportunities to develop divergent thinking skills, imagination, and innovation. These findings show that project-based learning is able to create a more meaningful learning experience than conventional learning that tends to be teacher-centric.

Practically, the results of this study imply that elementary schools need to integrate project-based learning more systematically in the learning process. Teachers not only play the role of conveyors of information, but also as facilitators who are able to create a learning environment that encourages student exploration, collaboration, and creativity. Strengthening teachers' capacity in designing learning projects, managing group work, and conducting authentic assessments are important factors to increase the success of the implementation of PjBL. In addition, support for learning facilities, adequate learning resources, and school policies that support learning innovation will further strengthen the development of student creativity as one of the main competencies of the 21st century.

From a theoretical perspective, this research reinforces the view of constructivism that places active learning experiences as the main foundation in the development of students' creativity. The findings of the study show that creativity does not develop through the process of memorization or knowledge transfer alone, but rather through learning experiences that

provide opportunities for students to explore, create, collaborate, and reflect on their learning outcomes. Further research is recommended to involve more schools with diverse characteristics, using mixed methods or longitudinal approaches, and examining other variables such as learning motivation, parental support, collaboration skills, and teacher competence to gain a more comprehensive understanding of the factors that influence the success of project-based learning in increasing student creativity.

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