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Enhancing Learning Outcomes and Creative Thinking through Project-Based Learning Modules in Fourth Grades

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ABSTRACT

The study aimed to determine the improvement of learning outcomes and creative thinking through project-based learning modules in fourth graders. The research method used was a pre-experimental design with a one-group pretest-posttest design. The research subjects were fourth-grade students from an Islamic elementary school in Lubuklinggau city with a population of as many as two classes with a random sampling technique and obtained class IVA. The research instrument used was an objective test consisting of 10 essay questions with material on cultural diversity, local wisdom, history, and culture, and rubrics to assess students' creative thinking skills, including fluency, flexibility, originality, and elaboration. Based on the hypothesis testing on the cognitive aspect of learning outcomes using the t-test, it shows a significant impact on students' learning outcomes in classes that use project-based learning models in IPAS learning with an increase in the difference score of 24.77. Creative thinking skills, assessed based on the rubric for assessing students' creative thinking skills, showed that there was a significant development of student's creative thinking skills in classes that used a significant project-based learning model with an increase in the difference score of 17.32, at the basic stages of development that occurred in the preparation, implementation, and presentation of results from not creative (level 1) to creative (level 2). The implications of this study extend to future research to support the improvement of students' learning outcomes and creative thinking skills.

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1. INTRODUCTION

Learning in the 21st century demands that learners develop analytical, critical, and creative thinking skills to effectively engage with learning processes, decision-making, and the pursuit of curiosity (Rahayuningsih et al., 2023; Syamsuddin et al., 2020). However, current education systems often fall short of meeting these needs. Research indicates that learners frequently lack essential competencies, including oral and written communication, critical thinking and problem-solving, work ethics and professionalism, teamwork and collaboration, adaptability in diverse groups, technological proficiency, and project management and leadership (Trilling & Fadel, 2009).

A significant gap exists between the skills of educators and the evolving demands of contemporary society. Many educators resist accepting student ideas or feedback, often perceiving such input as disruptive or unwelcome (Baghetto, 2006; Birenbaum, 2023; Rowan et al., 2021). This resistance reflects a broader reluctance to integrate creative thinking skills into learning activities, often influenced by educators' attitudes and beliefs during their formative years and shaped by their environments.

There is a pervasive belief that creativity and academic knowledge are mutually exclusive. Educators must avoid a mindset focused on dominating and controlling learning activities. Instead, they should foster environments where students take active roles and engage in meaningful, multilateral interactions between educators and students or among peers.

This perspective emphasizes that thinking occurs when an individual formulates or solves a problem or seeks to understand something. By fostering creative thinking skills, learners can become more active in understanding, analyzing, and evaluating others' opinions with confidence. Furthermore, they can collaborate with peers to enhance these abilities (Kocak et al., 2021; Thornhill-Miller et al., 2023).

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Educators in the 21st century play a critical role in fostering academic competence by creating a positive learning environment to equip students with problem-solving skills. Selecting effective learning strategies is essential for educators to enhance students' enthusiasm, interest, and learning outcomes (Liaw & Huang, 2013; McConnell et al., 2017; Nguyen et al., 2021). Research on project-based learning (PjBL) highlights its effectiveness, as it engages students in activities and real-life tasks that challenge them to address everyday problems. However, there is a growing need for a learning model that emphasizes active participation and nurtures creativity (Irawan & Iasha, 2021).

Project-based learning (PjBL) is a learner-centered approach that provides meaningful and engaging experiences by integrating real-world tasks into the learning process. This model effectively enhances students' cognitive, affective, and practical skills while fostering motivation, problem-solving abilities, and collaboration. Students' understanding and learning outcomes are closely tied to the products created during PjBL activities, making it a powerful tool for experiential learning (Susanti et al., 2019; Wijaya et al., 2021). PjBL is highly compatible with the Independent Curriculum introduced in 2022, which emphasizes student-centered and activity-based learning. The curriculum integrates projects strengthening the Pancasila Student Profile (P5), including creative thinking skills. Moreover, PjBL supports the development of essential 21st-century competencies such as critical thinking, problem-solving, communication, media literacy, collaboration, leadership, and innovation (Häkkinen et al., 2017).

One of the most challenging tasks for teachers is to provide effective teaching materials for students who have not yet mastered key competencies (Abelarde & Cruz, 2021). Developing teaching materials allows teachers to engage in continuous professional development while personalizing and contextualizing content to reflect local issues and challenges (Bouckaert, 2019; Drake et al., 2014; Kerr, 1981; Richards, 2001).

A notable teaching material aligned with the Independent Curriculum is the module, which is integrated into the project-based learning model—a mandatory approach in the curriculum. These modules, available in electronic formats for anytime, anywhere access, have proven effective in enhancing students' creative thinking skills (Fitri Fatimah et al., 2024; Sari et al., 2021). Additionally, they boost motivation, self-efficacy, literacy, problem-solving, collaboration, communication, creativity, and critical thinking (Amini et al., 2019; Ardithayasa et al., 2022; Priyatni & As'ari, 2019; Auliah et al., 2020).

Learning challenges include low student outcomes, insufficient teaching materials, and the lack of curriculum-aligned modules, which lead to passive learning, reduced independence, and limited engagement (Meynishfi et al., 2021; Khoirudin et al., 2022; Rojas et al., 2016). These issues undermine the student-centered approach of the Independent Curriculum (Gusrianto & Rahmi, 2022). Project-based learning modules in social studies, integrating relevant projects and teaching materials, have proven effective in enhancing creative thinking skills and student engagement (Mutiasari et al., 2023; Praptama et al., 2023; Saryadi & Sulisworo, 2023; Santini et al., 2023). However, due to their complexity and time demands, teachers face challenges in developing these modules and adopting project-based learning models. To address this, teacher professionalism and competence can be improved through participation in learning communities such as *Kelompok Kerja Guru* (KKG), inspiration classes, and the *Guru Penggerak* program (Hashanah, 2017; Riowati & Yoenanto, 2022).

Integrating modules with project-based learning offers a solution to foster student interest and creativity in the learning process. Effective module use depends on alignment with learning outcomes, child development, teaching material needs, content accuracy, moral and social values, and the potential to enhance knowledge. The novelty of this research lies in developing a project-based learning module specifically for social studies integrated into IPAS, following the Independent Curriculum for phase B primary schools. Previous studies (Prihatin, 2021; Yanti et al., 2023) focused on project-based learning modules aligned with the 2013 curriculum or at the secondary school level without addressing IPAS integration in the Independent Curriculum. This highlights the need for further research on IPAS subjects in primary education, providing a valuable reference to address this gap.

The module is designed for Grade IV and covers material for a full school year or aligns with implementing IPAS subjects in each school. It addresses the need for student-centered learning, higher-order thinking, and 21st-century skills to enhance learning outcomes and foster creative thinking (Alkhatib, 2019; Aytaç & Kula, 2022; Dilekçi & Karatay, 2023). The module's elements are crafted to provide meaningful learning experiences while improving students' outcomes and creative thinking skills.

The project-based learning (PjBL) process effectively enhances learning, particularly during the pandemic, by enabling students to engage in flexible, independent, and enjoyable learning experiences from home

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(Mulyono, 2019). PjBL modules address diverse learning needs through varied project types, including independent and group tasks, and incorporate QR codes for online access while remaining accessible offline in print. These modules, enriched with visuals and video links, make learning more engaging and foster critical thinking about the material (Pradana et al., 2022). Research shows that PjBL modules improve creativity, learning outcomes, and scientific practices. For example, Hsin and Wu (2023) found significant improvements in young children's scientific practices across urban and indigenous communities in Taiwan, emphasizing the module's role in promoting educational equity. Similarly, Chantarasombat et al. (2022) confirm the effectiveness of modules in creating productive and meaningful learning experiences.

Modules allow students to learn independently (Al Mamun & Lawrie, 2023), reducing reliance on teacher-provided materials and school textbooks while fostering interactive and comfortable learning experiences (Prasetya, 2021). The PjBL module positively impacts learning outcomes by engaging students in activities that require problem identification through observation, designing solutions, measuring and evaluating those feedback solutions, presenting or publishing their work, and reflecting on the project (Ashfahani et al., 2020; Siswadi et al., 2024). These structured stages develop problem-solving skills, promote independent learning, encourage structured thinking, and cultivate lifelong learning habits.

Given the diversity of research findings, there is significant potential for developing social studies modules based on project-based learning (PjBL) to enhance students' creative thinking skills. PjBL in social studies provides opportunities for teachers to engage students in activities that develop social thinking skills, challenge the curriculum, and offer meaningful educational experiences (Simons & Baeten, 2016; Zimmerman, 2010). This approach also creates engaging and relevant learning experiences for students (Ningsih et al., 2020) while fostering critical and creative thinking skills essential for achieving 21st-century learning outcomes (Andini & Rusmini, 2022).

This study investigates the effectiveness of a PjBL-based social studies module in improving fourth-grade students' learning outcomes and creative thinking skills. Specifically, the research seeks to address two questions:

1. How effective is a PjBL-based social studies module in improving the learning outcomes of fourth-grade primary school students?
2. How effective is a PjBL-based social studies module in enhancing the creative thinking skills of fourth-grade primary school students?

2. MATERIAL AND METHOD

Research Design and Participants

The development model employed in this research is the ADDIE model (Analyze, Design, Development, Implementation, and Evaluation), originally developed by Reiser and Mollenda in the 1990s. The study utilized a pre-experimental method designed to obtain accurate data by conducting direct experiments to assess the effects of a treatment or intervention on specific characteristics of the subject. In this case, a pre-post test was used to evaluate whether the project-based learning module could improve primary school students' learning outcomes and thinking skills. Notably, this research was only conducted with an experimental class, without including a control class.

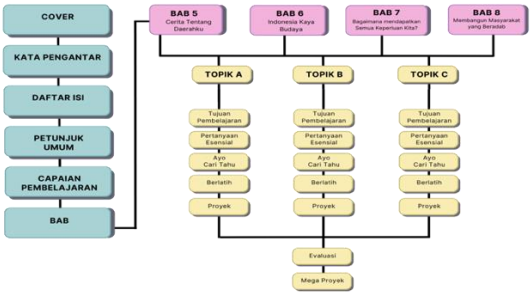

Figure 1. PjBL Module Design

This study aimed to evaluate the effectiveness of a social studies module based on Project-Based Learning (PjBL) in enhancing the learning outcomes and creative thinking skills of fourth-grade primary school

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students. The study employed a pre-experimental method, which involves direct experimentation on the research subjects to obtain accurate data and determine the impact of the intervention.

Table 1. Research Design

Group	Pretest	Treatment	Posttest
Experiment Class	T1	X	T2

Explanation:

T1 = Initial test before learning begins (pretest)
T2 = The final learning test was completed (posttest)
X = Given Treatment of Project-Based Learning Model

The hypothesis testing criterion is if $Z_{count.} > Z_{table}$ then H_a accepted and H_0 Not accepted. If $Z_{count} \leq Z_{table}$ then H_a not accepted, and H_0 Accepted. With a significant level of α = 0,05 and dk = (n-1).

Participants

This research was conducted using only an experimental class without a control group. The population consisted of fourth-grade students from a private Islamic primary school in Lubuklinggau during the 2023–2024 school year. The sample comprised one class, selected through simple random sampling from a population of two classes. Using a lottery system, class IVA was chosen as the experimental class, where students participated in learning activities using project-based learning modules.

Instruments

The instruments that will be used in this study are tests (pretest and posttest). The instruments used in this study are cognitive knowledge tests and creative thinking.

Table 2. Pre-Test and Post-Test Cognitif Test Grids

Learning Objectives	Question Indicators
Identify spatial characteristics and the use of natural resources for the community's welfare.	Giving an example of the use of natural resources
	Analyze how good the environment is
	Analyze renewable resources that cannot be updated.
Identify social, economic, cultural, ethnic, and religious diversity as the identity of the Indonesian nation.	Analyzing climate can affect the diversity of Indonesian society.
	Evaluate the effectiveness of ways to preserve culture from extinction.
	Evaluating the uniqueness of traditional houses against the conformity with the times
Identify Hindu and/or Buddhist and/or Islamic kingdoms in the local environment and their influence on today's life.	Analyzing Islamic heritage and its influence to date
	Assessing the struggle of Sultan Hasanudin (Rooster of the East) and its relevance to today's struggle
Identify economic activities and their relationship with various fields of work and social and cultural life in the surrounding environment.	Assess the process of economic activities and their impact on the community's economy.
	Analyzing the role of 3 types of industries on the progress of the nation

Cognitive knowledge tests were developed based on the IPAS Phase B learning outcomes outlined in KEMENDIKBUDRISTEK Regulation No. 033/H/KR/2022, ensuring alignment with the competencies specified in the curriculum. This alignment supports evaluating students' knowledge acquisition and offers meaningful feedback to improve teaching and learning processes. By adhering to the regulatory standards, these tests are reliable tools for measuring academic progress and readiness for 21st-century skills.

The cooperative learning rubric evaluates students' group work based on detailed criteria reflecting five key principles: positive interdependence, individual responsibility, face-to-face interaction, interpersonal group skills, and group processing. These principles aim to enhance the effectiveness of future group activities. Two types of assessments were employed: one to measure learning outcomes using questions provided at the end of

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the learning process and another to evaluate creative thinking skills through questions integrated into project activities during the learning process. The initial and final test results were analyzed and compared using a t-test to determine the effectiveness of the intervention.

Table 3. Creative Thinking Ability Test Grid (Fox & Schirrmacher, 2009)

Faktor	Indikator
Fluency	Give the correct answer or idea to the question asked.
Flexibility	Generate varied answers with different points of view.
Originality	He can give answers according to his thoughts.
Elaboration	Generate varied answers with different points of view.

Procedure

The research procedure in this study involved data collection through tests. A test consists of questions, exercises, or other tools to measure an individual's or group's skills, knowledge, intelligence, and talents. The objective test consisted of 10 essay questions administered as a pre-test and a post-test using the same instrument to evaluate students' learning outcomes. The pre-test was conducted before the class received the treatment, which spanned six sessions over three weeks (two sessions per week). The post-test was conducted after the completion of the treatment.

To ensure the feasibility of the test questions, they were first administered to a class that was not part of the experimental sample. The test results were then analyzed to determine the questions' validity, reliability, difficulty level, and discriminatory power, ensuring their suitability for the study.

Table 4. Testing Schedule Pre-Test and Post-test

Pre Test	Treatment	Post Test
1 Session	6 Session	1 Session

The classification is based on the correlation coefficient rxyto interpret the question items' validity. If $r_{xy} > r_{table}$, the question item is considered valid; conversely, if $r_{xy} \leq r_{table}$, the question is deemed invalid. Based on the validity analysis, all 10 question items were determined to be valid, with four items categorized as moderately valid and six as highly valid.

The reliability of the essay questions was calculated using the alpha formula. The reliability coefficient was interpreted based on its magnitude, and the instrument analysis yielded a reliability coefficient 0.78. This indicates that the questions are highly reliable and can be trusted as a reliable measurement tool for the study.

Data Analysis

The data processing stage involved collecting data through pre-tests and post-tests to evaluate students' learning outcomes in the cognitive domain and their creative thinking abilities. The data obtained from students' test results were analyzed using scores and subjected to statistical (quantitative) analysis. The hypothesis testing criterion is if $Z_{count.} > Z_{table}$ then H_a accepted and H_0 Not accepted. If $Z_{count} \leq Z_{table}$ then H_a not accepted, and H_0 Accepted. With a significant level of α = 0,05 and dk = (n-1).

Once the data is collected, the student's responses are scored using a scoring rubric to analyze improvements in learning outcomes and critical thinking skills. Each student's score is determined based on the accuracy of their answers, with a maximum score of 4 for correct answers and a minimum score of 0 for incorrect responses. After the scoring process, data analysis is conducted to evaluate the effectiveness of the PjBL module as outlined in the research objectives. If the results indicate improved learning outcomes and creative thinking skills during the learning process, it is concluded that students have effectively understood the teaching material. Conversely, a lack of improvement suggests that the teaching material may not have been fully comprehended.

3. FINDINGS

Learning Outcome

Based on the pre-test and post-test data, the learning outcomes are calculated using specific indicators outlined in Table 5. These indicators are benchmarks for evaluating students' progress and understanding of the

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material. The comparison of pre-test and post-test scores provides insight into the effectiveness of the intervention and the extent to which the student's learning outcomes have improved.

Table 5. Scores Compare for Pre-test and Post-test learning outcome

No	learning outcome indicator	Score average pretest	Score average posttes
1	Identify spatial characteristics and the use of natural resources for the community's welfare.	48,7	64,4
2	Identify social, economic, cultural, ethnic, and religious diversity as the identity of the Indonesian nation.	43,3	74,5
3	Identify Hindu and/or Buddhist and/or Islamic kingdoms in the local environment and their influence on today's life.	59,5	82,2
4	Identify economic activities and their relationship with various fields of work and social and cultural life in the surrounding environment.	63,9	87,6

The pre-test of student learning outcomes was conducted to assess students' initial understanding before the treatment. The results showed an average score of 53.90 with a standard deviation 10.9. This indicates that the social studies learning outcomes of Grade IV students were in the low category, with the average score falling below the criteria for achieving the learning objectives.

After the treatment, the post-test results revealed an average score of 78.67 with a standard deviation 13.15. These results indicate that the student's learning outcomes had improved significantly, falling into the high category, with the mean score surpassing the criteria for achieving the learning objectives. The difference between the pre-test and post-test scores was 24.77, demonstrating a significant improvement. These findings suggest that project-based learning modules effectively enhance students' learning outcomes. The detailed data is presented in Table 6.

Table 6. Analysis of Pre-test and Post-test values for learning outcome

Standard Deviation	Mean	Min	Max	Completed	Not Completed
			Pretest		
10,90	53,90	38,5	56,5	4	16
			Posttest		
13,15	78,67	48,5	75,4	14	6

Using the Z-test, the calculated Z_{count}=12.72, which is greater than Z_{table}=1.64. As $Z_{count}>Z_{table}$, the null hypothesis (H0) is rejected, and the alternative hypothesis (Hα) is accepted. This confirms that the hypothesis proposed in this study is valid, indicating that the project-based learning module significantly improves student learning outcomes in social studies for Grade IV elementary school students.

The results show a significant difference in students' learning outcomes before and after the treatment with project-based learning modules. This approach is highly effective in helping students better understand the subject, as it fosters active and enjoyable learning conditions that enhance engagement and comprehension.

Creative Thinking Skills

Based on the pre-test and post-test data obtained, students' creative thinking ability was analyzed using specific indicators, as outlined in Table 7. These indicators provide a detailed assessment of the improvements in students' creative thinking skills before and after the treatment. The comparison highlights the effectiveness of the intervention in fostering students' creative abilities, demonstrating measurable growth through project-

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based learning modules.

Table 7. Presentase pre-test and post-test creative thinking skills

No	Creative thinking indicator	Pretest Percentage	Criteria	Posttest Percentage	Criteria
1	*Fluency*	40,16 %	quite creative	79,45 %	creative
2	*Flexibility*	47,40 %	quite creative	71,56 %	creative
3	*Originality*	50,38 %	quite creative	69,86 %	creative
4	*Elaboration*	55,10 %	quite creative	65,76 %	creative

Creative thinking skills were assessed through essay-based tests. For the fluency indicator, the pre-test percentage was 40.16% (categorized as "quite creative"), which increased to 79.45% (categorized as "creative") in the post-test. For the flexibility indicator, the pre-test percentage was 47.40% ("quite creative"), rising to 71.56% ("creative") in the post-test. In the originality indicator, the pre-test percentage was 50.38% ("quite creative"), improving to 69.86% ("creative") in the post-test. Lastly, for the elaboration indicator, the pre-test percentage was 55.10% ("quite creative"), which increased to 65.76% ("creative") in the post-test. As shown in Table 7, the post-test results indicate that the fluency indicator achieved the highest percentage, while the elaboration indicator had the lowest percentage.

The students' creative thinking skills were also evaluated based on the average scores of the pre-test and post-test. The pre-test results showed an average score of 54.16 with a standard deviation 10.9. Based on this data, it can be concluded that the creative thinking skills of Grade IV students in social studies were categorized as Level 1, or "less creative," with an average score below the criteria for achieving the learning objectives.

The post-test results of students' learning outcomes showed an average score of 71.48 with a standard deviation of 12.26. Based on these results, it can be concluded that the creative thinking ability of Grade IV students in social studies is categorized as Level 2 or "creative," with an average score meeting the criteria for achieving the learning objectives. The comparison of pre-test and post-test scores indicates an improvement, with a score difference of 17.32. These findings demonstrate that project-based learning modules effectively enhance students' creative thinking skills. The detailed research data are presented in Table 8.

Table 8. Analysis of the pre-test and post-test values for creative thinking skills

Standard Deviation	Mean	Min	Max	Completed	Not Completed
			Pretest		
15,08	54,16	19,4	47,2	3	17
			Posttest		
12,26	71,48	45,5	80	12	8

There is a significant improvement in students' learning outcomes before and after implementing project-based learning modules. Using these modules in social studies is highly effective in helping students understand the subject matter, as they foster active, innovative, creative, and engaging learning conditions that enhance the overall educational experience.

Creative thinking skills were assessed through essay-based tests. For the fluency indicator, the pre-test percentage was 40.16% (categorized as "quite creative"), which increased to 79.45% (categorized as "creative"). Students with curiosity demonstrated the ability to express ideas smoothly to solve problems. In the flexibility indicator, the pre-test percentage was 47.40% ("quite creative"), improving to 71.56% ("creative"). Students showed the ability to provide varied answers, suggesting multiple approaches to solving a problem in the project. For the originality indicator, the pre-test percentage was 50.38% ("quite creative"), which increased to 69.86% ("creative"). Students exhibited confidence in expressing their ideas in their language and thoughts, such as

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answering questions by creating unique miniature mosques inspired by Islamic kingdom heritage.

For the elaboration indicator, the pre-test percentage was 55.10% (categorized as "quite creative"), which increased to 65.76% (categorized as "creative") in the post-test. This indicates that students can explain and elaborate on their answers or ideas, although their responses are not always well-structured. This limitation may stem from students' lack of familiarity with structured problem-solving. The post-test results in Table 7 show that the fluency indicator achieved the highest percentage. In this indicator, curious students demonstrated the ability to smoothly express ideas for solving problems, such as identifying forms of royal heritage based on their religion. Conversely, the elaboration indicator had the lowest percentage. This reflects students' challenges in providing detailed, well-written responses, particularly when addressing structured problems related to the development of kingdoms in Indonesia and their heritage.

Students' creative thinking skills before and after implementing the project-based learning module were analyzed using a paired t-test. The significance value was $p<0.05$, specifically 0.000, indicating a statistically significant result. The criterion for hypothesis testing was that if $t_{count} \leq -t_{table}$ or $t_{count} > t_{tablet}$, then H0 is rejected, and H1 is accepted. In this study, the count value was -17.503, while the table value was -2.04227, with df=30 and a significance level of 0.025. The negative t-value indicates that the post-test scores were significantly higher than the pre-test scores. This confirms that implementing the project-based learning module improved the creative thinking abilities of Grade IV students in social studies.

4. Discussion

Visual Design of the Module

The effectiveness of the PjBL module lies in its attractive design, featuring a clear PjBL syntax, child-appropriate images, and video tutorials that enhance engagement and comprehension. The module also includes Higher-Order Thinking Skills (HOTS) questions to assess and develop students' creative and reasoning abilities through evaluation and assessment tasks. This PjBL module has been shown to positively impact learning outcomes (Ashfahani et al., 2020; Siswadi et al., 2024) and is proven to enhance students' creative thinking skills (Mutiasari et al., 2023; Praptama et al., 2023; Saryadi & Sulisworo, 2023; Santini et al., 2023).

Figure 2. Cover Module

Based on Figure 2, the cover provides an overview of the material to be studied, including topics such as regional stories, Indonesia's diversity, human needs, and civilized society. The cover was designed using Canva Pro with visually appealing images and colors to capture students' attention. Feedback from students indicated that they appreciated the attractive design, vibrant colors, and well-chosen images. The cover is printed in color with clearly legible text to ensure ease of reading. Teachers also expressed positive feedback, noting that the material related to "My Region" is effectively represented through the imagery on the cover, aligning with the module's objectives.

Using the PjBL module during the student trial revealed high enthusiasm among students. They found the module's layout, design, and structure more engaging and easier to understand than their textbooks. The module's development involved a thorough needs analysis, collaboration with experienced teachers, and a

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review of learning outcomes (Logan et al., 2021). The creative activities included in the module, such as making miniature mosques, preparing herbal medicine, organizing a market day, and conducting interviews with traditional leaders, were distinct from the students' previous project experiences. Additionally, the questions in the module were varied and tailored to low, medium, and high levels of thinking, effectively stimulating curiosity and encouraging students to explore the material further.

The Project-Based Learning (PjBL) model offers several advantages, such as enhancing students' motivation, self-efficacy, literacy, problem-solving, collaboration, communication, creativity, and critical thinking skills (Amini et al., 2019; Ardithayasa et al., 2022; Priyatni & As'ari, 2019). The novelty of this research lies in developing a PjBL module specifically for social studies subjects, integrating material explanation videos, project tutorial videos, and HOTS (Higher-Order Thinking Skills) questions. This module is designed for Grade IV students, covering material for an entire school year or tailored to implementing IPAS subjects in each school.

Learning Outcome Visualization

The effectiveness of the project-based learning module on the learning outcomes of Grade 4 social studies students is illustrated in Figure 3. The data shows a significant improvement in student performance. The number of students who achieved passing scores increased from 4 on the pre-test to 14 on the post-test. Similarly, the number of students who did not achieve passing scores decreased from 16 in the pre-test to 6 in the post-test. Additionally, the average learning outcomes improved notably, with the average score rising from 53.90 in the pre-test to 78.67 in the post-test. This demonstrates the positive impact of the project-based learning module on students' learning outcomes.

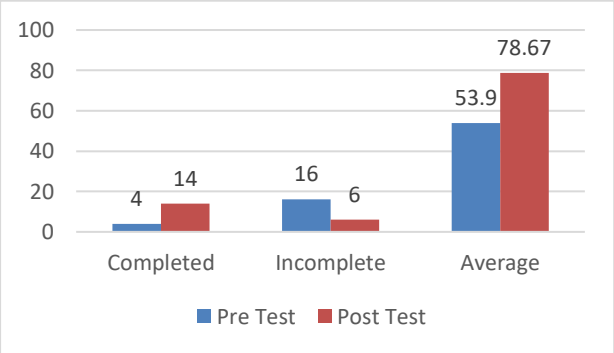

Figure 3. Visual Representation of Learning Outcome

Figure 4. Learning Outcome

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The Project-Based Learning (PjBL) module in Social Studies follows a structured process: pre-project, Phase 1 (problem identification), Phase 2 (project design and implementation schedule), Phase 3 (research), Phase 4 (product draft/prototype development), Phase 5 (product measurement, evaluation, and improvement), Phase 6 (product analysis and publication), and post-project (Abidin, 2016). This structured approach demonstrates the module's effectiveness in improving learning outcomes.

Figure 3 illustrates the significant progress achieved, with the number of students passing increasing from 4 in the pre-test to 14 in the post-test, while those not passing decreased from 16 to 6. This improvement is closely related to the module's well-designed and consistent format, including its organizational structure, visual appeal, appropriate font size, and effective use of white space, all of which contribute to an engaging learning experience (Arsyad, 2019).

Project-Based Learning Process

The implementation of the project-based learning (PjBL) module on social studies learning outcomes and critical thinking skills for 4th-grade primary school students is illustrated in Figure 5. A structured approach in the PjBL module is crucial in helping students understand and follow each step of the PjBL process effectively. The results demonstrate a significant improvement in student performance, with the number of students passing increasing from 4 in the pre-test to 14 in the post-test and the number of students not passing decreasing from 16 in the pre-test to 6 in the post-test. Additionally, there was a notable increase in average learning outcomes, with the average score rising from 53.90 in the pre-test to 78.67 in the post-test, underscoring the module's effectiveness in enhancing student learning and critical thinking skills.

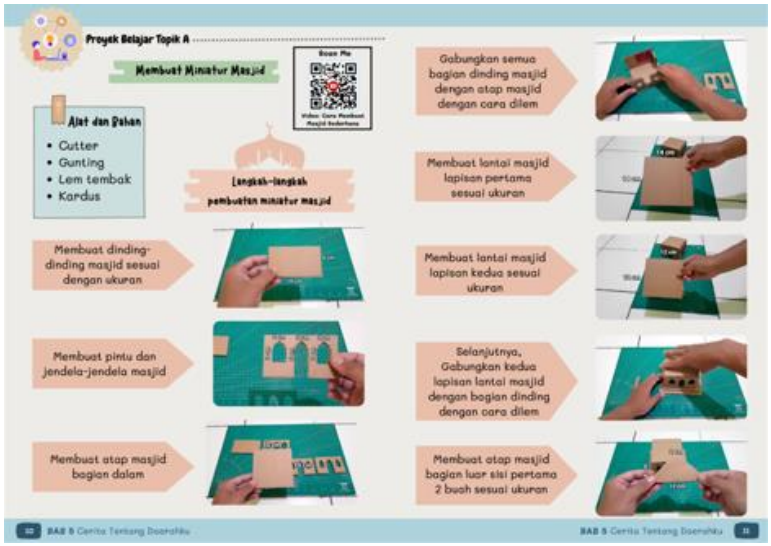

Figure 5. Project-Based Learning Process

The overall interpretation of the research findings confirms that the Project-Based Learning (PjBL) module effectively improves learning outcomes and enhances students' creative thinking skills in social studies for Grade IV (Boss & Krauss, 2007; Chen et al., 2022). This conclusion is supported by analyzing the pre-and post-test results, which revealed significant improvements. The effectiveness test showed a 24.77-point increase in learning outcomes and a 17.32-point improvement in creative thinking skills.

The PjBL module follows a structured process, starting with project determination, preparation of steps and timelines, and group collaboration to complete the project by producing a tangible product. Throughout the process, teachers provide guidance, encourage students to express opinions about the project, assist in report writing, and evaluate the final project outcomes. This systematic approach ensures active student engagement, fostering improved academic performance and critical skills development (Nurkanti, 2024).

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Project-based learning (PjBL) modules are grounded in real-world learning activities that connect with everyday life, emphasizing active engagement and fostering creativity (Guo et al., 2020; Irawan & Iasha, 2021). Examples of project activities include creating miniature mosques that reflect the predominant religion of the students, producing region-specific written batik, such as "durian batik" from Lubuklinggau and "berserk batik" from Bengkulu, and making herbal remedies tailored to regional practices or addressing prevalent illnesses. Additionally, students interview local traditional leaders to deepen their understanding of regional customs and traditions. These activities encourage meaningful, culturally relevant learning experiences while nurturing students' creative and critical thinking skills.

The effectiveness of the project-based learning (PjBL) module for improving the social studies outcomes of Grade 4 elementary school students is illustrated in Figure 4. Learning achievements in Phase B are a reference for determining and designing the project. At the same time, the Pancasila Student Profile, particularly the creative profile, is a targeted outcome of the project. Research data indicate a significant improvement in students' learning outcomes from pre-test to post-test, demonstrating the effectiveness of the PjBL module. This result supports Pratami's observation that PjBL enhances creativity and prepares students for real-world challenges by encouraging critical thinking throughout their projects (Pratami, 2024).

The implementation of the PjBL module follows a structured learning syntax. It begins with project determination, where students explore relics of Islamic kingdoms in Indonesia, identifying nearby historical sites, such as mosques significant to their religion. For instance, students designed a miniature mosque project inspired by historic mosques in their region. The planning process involved gathering references and coordinating with parents through a WhatsApp group. The teacher provided detailed, step-by-step instructions for creating the miniatures in video format, ensuring clarity and accessibility. This instructional support is vital for guiding students through the project while accommodating various learning styles (Rahmawati, 2024)

Students collaborated in groups to complete the project, progressing through each implementation stage to produce a final product. After the lesson, students prepared reports and evaluated their project outcomes. The session ended with students presenting their completed projects to the class, fostering public speaking and teamwork skills alongside their creative and academic growth (Siahaan & Siahaan, 2023; Chintya, 2023).

Learning in this study was learner-centered and designed to provide meaningful experiences. The results demonstrated that the project-based learning (PjBL) module was implemented effectively and aligned well with the intended learning outcomes. The module's effectiveness was evident in the significant improvement in students' cognitive learning outcomes, as indicated by the difference between pre-test and post-test scores. The structured learning activities incorporated within the module successfully stimulated students' creative abilities, enabling them to solve problems systematically. Furthermore, the impact of the PjBL module was substantial, with the effect size indicating a high level of effectiveness in enhancing students' learning outcomes and creativity (Chintya, 2023; Tegeh, 2023).

5. CONCLUSION

The effectiveness of the project-based learning (PjBL) module has been demonstrated in improving the learning outcomes and creative thinking skills of fourth-grade students at SDIT Raudhatul Jannah Lubuklinggau. This PjBL module can be effectively implemented in IPAS learning, focusing on social studies in the classroom and out-of-classroom activities. Given its proven ability to enhance learning outcomes and foster creative thinking, it is recommended that teachers and schools adopt this PjBL module to provide students with a new, meaningful learning experience that improves conceptual understanding and skill development in the taught material. For future research, it is suggested that similar studies be conducted on a larger scale to further validate the module's effectiveness. Additionally, researchers are encouraged to integrate other 21st-century skills into the modules to support the development of broader competencies and better prepare students for future challenges.

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