



The Influence of the Local Wisdom-Based Project-Based Learning Model on Students' Learning Outcomes and Tolerance Attitudes in Learning IPAS Grade IV Elementary School

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ABSTRACT

This research is motivated by the low learning outcomes and tolerance of students in science lessons in elementary schools. The teacher-centered learning process results in students being less active in constructing knowledge and less than optimal in developing social attitudes, particularly tolerance. This study aims to determine the effect of implementing the model Project-Based Learning (PjBL) based on local wisdom on learning outcomes and tolerance attitudes of fourth grade students in science learning. This study uses a quantitative approach with the methods of an experiment and design Non-equivalent Control Group Design. The study population was all fourth-grade students of Haurkuning Public Elementary School in the 2025/2026 academic year, with class IV A as the experimental class (29 students) and class IV B as the control class (28 students). Data collection techniques used learning outcome tests, tolerance attitude observation sheets, and interviews. Data analysis was carried out through normality and homogeneity test, N-Gain, and test Mann-Whitney U. The results showed that the average posttest of the experimental class was 92.83, higher than the control class at 83.43. The implications of this study indicate that the integration of local wisdom in project-based learning can be a contextual learning alternative to improve the quality of science learning in elementary schools.

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1. INTRODUCTION

Education plays a crucial role in developing quality human resources capable of facing life's various challenges. In the implementation of the Independent Curriculum, the learning process is oriented not only toward achieving knowledge competencies but also toward developing students' character and social skills. One of the subjects that supports this goal is Natural and Social Sciences (IPAS). Through learning IPAS Students are expected to understand various phenomena occurring in their environment and develop positive social attitudes in community life (Viqri et al., 2024). However, in reality, learning outcomes and tolerance in elementary school students remain a problem that requires attention. Initial observations conducted in Grade IV at SDN Haurkuning revealed that 14 out of 28 students (50%) had not yet achieved the Minimum Mastery Criteria (KKM) in IPAS learning. Classroom observations also indicated that many students experienced difficulties in understanding the learning material and tended to be passive during classroom activities. In addition, several students demonstrated low tolerance attitudes, such as interrupting their classmates while expressing opinions, showing limited respect for different viewpoints, and being less willing to cooperate during group discussions. These findings suggest that improvements are needed not only in students' cognitive learning outcomes but also in fostering students' tolerance attitudes through more meaningful learning approaches. This is indicated by suboptimal learning outcomes. Furthermore, during learning activities, students were still found to have little respect for their peers' opinions, less ability to accept differences, and not yet demonstrated optimal tolerance.

Low learning outcomes and low student tolerance can be influenced by various factors, one of which is the use of learning models that do not provide opportunities for students to be actively involved in the learning process (Riyanti & Novitasari, 2021). Teacher-centered learning tends to make students passive and merely receive information without engaging in meaningful activities (Rahman, 2021). Therefore, a learning model is needed that can encourage active student involvement while developing academic skills and social attitudes. One learning model considered appropriate is Project-Based Learning (PjBL). The PjBL model is a student-centered learning model through project activities that require students to seek information, solve problems, collaborate, and produce products as learning outcomes. Through these activities, students gain more meaningful learning experiences because they are directly involved in the learning process (Nababan et al., 2023).

In addition to using appropriate learning models, learning also needs to be linked to students' real-life contexts to make it easier to understand and meaningful (Martati, 2022). One effort that can be made is integrating local wisdom into the learning process. Local wisdom is the values, traditions, culture, and knowledge that develop within a community and are passed down from generation to generation. Integrating local wisdom into learning can help students understand material through environments close to their lives while fostering a sense of pride in local culture (Sutarna et al., 2021). In learning, IPAS, implementation PjBL Local wisdom-based learning allows students to learn various concepts through project activities related to the local culture of Kuningan Regency so that learning becomes more contextual, interesting, and relevant to students' daily lives (Yulis et al., 2020). In addition to improving students' cognitive achievement, Project-Based Learning integrated with local wisdom also contributes to the development of students' tolerance attitudes. Collaborative project activities encourage students to communicate, exchange ideas, respect different opinions, and work together to solve problems. The integration of Kuningan

Regency's local wisdom into learning enables students to appreciate cultural diversity and internalize values such as mutual respect, cooperation, and social harmony, which are essential components of tolerance in elementary education.

Various previous studies have shown that the application of Project-Based Learning is able to improve student learning outcomes in learning. IPAS in elementary school (Dheffawwaz & Jalal, 2025). Other research also shows that the integration of local wisdom in learning has a positive impact on conceptual understanding, thinking skills, and character development of students (Sutarna et al., 2021). However, most previous research still focuses on improving learning outcomes or specific skill aspects separately (Monika et al., 2023). Research that examines the influence of local wisdom-based Project-Based Learning on learning outcomes and student tolerance attitudes simultaneously, particularly in learning IPAS. The research population in grade IV of elementary school is still limited. Thus, there is a research gap that requires further study (Majid et al., 2025).

The novelty of this research lies in the integration of the Project-Based Learning model with the local wisdom of Kuningan Regency to improve learning outcomes and students' tolerance attitudes simultaneously in learning. IPAS. Learning is not only directed at improving cognitive aspects, but also at developing students' character through project activities that involve cooperation, respect for differences, and positive social interactions. Therefore, this study aims to analyze the influence of implementing the model *Project-Based Learning* based on local wisdom towards learning outcomes and tolerance attitudes of grade IV elementary school students in social studies learning.

2. RESEARCH METHODOLOGY

This research uses a quantitative approach with a quasi-experimental method (as if an experiment) (Creswell & J. David Creswell, 2023). The research design used is Nonequivalent Control Group Design. This design was chosen because the researcher could not control all external variables that influence the implementation of the research and did not randomize the research subjects. In this design, there are two groups, namely the experimental group which receives treatment in the form of the application of the model. Project-Based Learning (PjBL) based on local wisdom and a control group that received conventional learning. The research design is described in Figure 1.

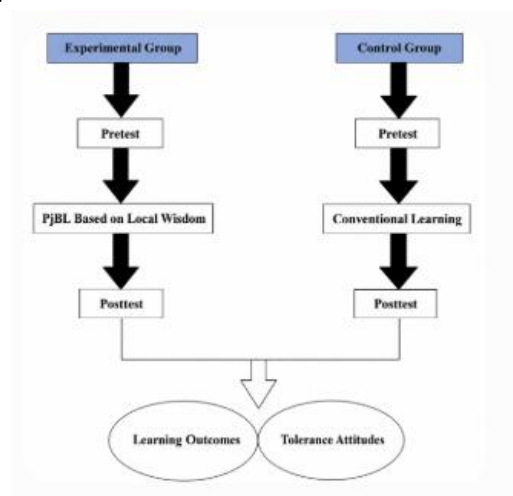


Figure 1. Research Design and Experimental Procedure

In the experimental class, the learning process was implemented using the Project-Based Learning (PjBL) model integrated with the local wisdom of Kuningan Regency. The implementation followed six stages of PjBL, namely: (1) determining the fundamental question, (2) designing the project plan, (3) developing the project schedule, (4) monitoring project implementation, (5) assessing project outcomes, and (6) evaluating learning experiences. During the project activities, students worked collaboratively in groups to identify and explore the cultural diversity of Kuningan Regency. The final project produced by each group was a mini wall magazine (mini mading) presenting various aspects of Kuningan's local wisdom, including traditional arts, local customs, traditional foods, regional tourist attractions, and cultural values. Through this project, students actively constructed knowledge while simultaneously developing tolerance attitudes by respecting different opinions, cooperating with peers, sharing responsibilities, and appreciating cultural diversity during the learning process.

The research was conducted at Haurkuning Public Elementary School in the even semester of the 2025/2026 academic year. The study population was all 57 fourth-grade students of Haurkuning Public Elementary School. The sampling technique used saturated sampling, so that all members of the population were used as research samples. The sample consisted of 29 students from grade IV A as the experimental class and 28 students from grade IV B as the control class.

Data collection techniques used include tests, observations, and interviews (Magdalena et al., 2021). Tests are used to measure student learning outcomes in learning IPAS through activities *pretest* and *posttest*. Observations were used to obtain data on students' tolerance attitudes during the learning process, while interviews were conducted with class teachers to obtain supporting information related to the development of students' tolerance attitudes.

The research instruments used were learning outcome test questions and tolerance observation sheets. Indicators of tolerance observed included respecting opinions, accepting differences, mutual respect, and non-discrimination. Prior to use, the research instruments were tested for validity and reliability to ensure their suitability for measuring the research variables.

Data analysis was carried out in stages through descriptive and inferential statistical analysis with the help of SPSS software version 28. The prerequisite tests carried out included normality tests using Shapiro-Wilk and homogeneity tests using *Levene Test*. Because the research data is not normally distributed and is not homogeneous, hypothesis testing is carried out using non parametric tests. *Mann-Whitney U*. In addition, the effectiveness of the application of the learning model was analyzed using a test. *N-Gain* to find out the improvement in student learning outcomes after being given treatment.

3. RESULT AND DISCUSSION

3.1. Research Result

3.1.1. Student Learning

This study aims to determine the effect of implementing the model *Project-Based Learning* (PjBL) based on local wisdom on student learning outcomes in learning IPAS Fourth grade elementary school. Student learning outcomes were measured through pretests and posttest given to the experimental and control classes.

Table 1. Summary of Results *Pretest* and *Posttest*

Class	N	Pretest	Posttest	Improvement
Experiment	29	79,31	92,83	13,52
Control	28	76,86	83,43	6,57

Based on Table 1, both classes experienced improved learning outcomes after the learning process. However, the improvement in learning outcomes in the experimental class was higher than in the control class. The experimental class experienced an increase of 13.52 points, while the control class only experienced an increase of 6.57 points.

To determine the effectiveness of improving student learning outcomes, an analysis was carried out using the N-Gain test.

Table 2. N-Gain Test Results

Class	Mean N-Gain	Percentage	Category
Experiment	0,66966	66%	Quite Effective
Control	0,26571	26%	Ineffective

Based on Table 2, the average N-Gain value of the experimental class was 0.66966 (66%), which is categorized as moderately effective based on the normalized gain interpretation proposed by Hake (1999). Meanwhile, the control class obtained an average N-Gain value of 0.26571 (26%), which is categorized as low. These findings indicate that the implementation of the local wisdom-based Project-Based Learning model was more effective in improving students' learning outcomes than conventional learning (Hake, 1999).

Next, a hypothesis test was carried out using *Mann–Whitney U* because the research data is not normally distributed and is not homogeneous.

Table 3. Results of the Mann–Whitney Test of Learning Outcomes

Data	Sig. (2-tailed)	Information
Pretest	0,628	There is no significant difference
Posttest	0,007	There is a significant difference

Test results *Mann–Whitney* shows that the pretest significance value is $0.628 > 0.05$, indicating that the initial abilities of students in both groups are relatively equal. Meanwhile, the posttest significance value is $0.007 < 0.05$, indicating a significant difference in learning outcomes between the experimental and control classes after being given treatment.

3.1.2. Students Tolerance Attitude

In addition to learning outcomes, this study also examines the influence of the local wisdom-based PjBL model on students' tolerance attitudes.

Table 4. Average Student Tolerance Attitude

Class	Average Score
Experiment	69,03
Control	61,32

The data in Table 4 shows that the average tolerance level of students in the experimental class was higher than that of the control class. These results indicate that the implementation of the local wisdom-based PjBL model has made a positive contribution to the development of students' tolerance.

To determine the significance of the differences, a test was carried out. *Mann–Whitney*.

Table 5. Results of the Mann–Whitney Test of Tolerance Attitudes

Variables	Sig. (2-tailed)	Information
Tolerant Attitude	0,002	There is a significant difference

The significance value of $0.002 < 0.05$ indicates that there is a significant difference in tolerance attitudes between students in the experimental class and the control class after being given treatment.

3.2. Discussion

3.2.1. The Influence of the Local Wisdom-Based Project-Based Learning Model on Student Learning Outcomes

The results of the study show that the application of the model *Project-Based Learning* based on local wisdom has a positive influence on student learning outcomes in learning IPAS. This can be seen from the increase in the average student grades in the experimental class, which was higher than the control class. Furthermore, the Mann–Whitney test results showed a significance value of $0.007 < 0.05$, indicating a significant influence of the implementation of the local wisdom-based PjBL model on student learning outcomes.

The improvement in students' learning outcomes can be explained through contextual learning principles. Integrating local wisdom into Project-Based Learning enables students to relate scientific concepts to their daily experiences and local cultural environment. Such meaningful learning encourages active participation, collaborative problem-solving, and deeper conceptual understanding because students construct knowledge through authentic experiences rather than memorizing information. Consequently, learning becomes more engaging and contributes to better cognitive achievement (Vygotsky, 1978; Thomas, 2000).

This improvement in learning outcomes occurred because the PjBL model provided opportunities for students to actively engage in the learning process through project planning, implementation, and presentation (Majid et al., 2025). Active student involvement enabled independent knowledge construction, making the concepts learned easier to understand and remember. Furthermore, the use of local wisdom from Kuningan Regency as a learning context brought the material closer to students' lives, making learning more meaningful (Yulis et al., 2020).

The findings of this study align with constructivism theory, which emphasizes that knowledge is constructed through students' direct learning experiences. These findings also support previous research that suggests that the local wisdom-based PjBL model can improve student learning outcomes. IPAS because it provides a contextual and authentic learning experience.

3.2.2. The Influence of the Local Wisdom-Based Project-Based Learning Model on Students' Tolerance Attitudes

In addition to improving learning outcomes, the local wisdom-based PjBL model has also been shown to increase students' tolerance. The results showed that the average tolerance score for students in the experimental class was higher than that of the control class. This finding was supported by the Mann–Whitney test, which showed a significance value of $0.002 < 0.05$.

Students' tolerance improves because during project activities, they are required to work collaboratively in heterogeneous groups. Through these activities, students learn to respect each other's opinions, accept differences, help each other complete tasks, and build positive communication. Learning activities that emphasize collaboration provide opportunities for students to develop social skills while fostering a tolerant character.

The integration of local wisdom into learning projects also plays a role in instilling social values that are alive in the community. The values of mutual cooperation, togetherness, and mutual respect embedded in local culture serve as a means for

students to internalize tolerance in their daily lives. These findings indicate that learning impacts not only cognitive aspects but also character development.

These findings are consistent with Lickona's character education theory, which emphasizes that good character is developed through continuous moral practice, positive habits, and social interaction. During Project-Based Learning activities, students repeatedly practiced respecting different opinions, cooperating with peers, sharing responsibilities, and resolving conflicts constructively. These authentic experiences enabled students to internalize tolerance values and transform them into everyday behavior, thereby strengthening both character development and social competence (Lickona, 1991; Bandura, 1977).

Overall, the research results prove that the model *Project-Based Learning* based on local wisdom is an effective learning alternative to improve learning outcomes and students' tolerance attitudes in learning IPAS in elementary school.

4. CONCLUSION

Based on the research results, it can be concluded that the application of the model Project-Based Learning (PjBL) based on local wisdom has a significant influence on the learning outcomes and tolerance attitudes of fourth grade students in learning IPAS. This is shown by the average value posttest experimental class was higher (92.83) compared to the control class (83.43), as well as the test results Mann–Whitney which shows a significance value of 0.007 ($p < 0.05$). In addition, the average tolerance attitude score of students in the experimental class (69.03) was also higher than the control class (61.32) with a significance value of 0.002 ($p < 0.05$). The test results N-Gain The results showed that the implementation of local wisdom-based PjBL was quite effective in improving student learning outcomes with a value of 0.66966 (66%). This finding indicates that the integration of local wisdom in project-based learning can create a more contextual learning experience, improve conceptual understanding, and develop students' tolerance. Therefore, the local wisdom-based PjBL model can be used as an effective learning alternative to improve the quality of learning. IPAS in elementary school. The practical implication of this study is that elementary school teachers can adopt Project-Based Learning integrated with local wisdom as an alternative instructional approach to improve both students' learning outcomes and tolerance attitudes. By utilizing local cultural resources as learning contexts, teachers can create meaningful, contextual, and character-oriented learning experiences that support the objectives of the Merdeka Curriculum, particularly in IPAS learning (Kemendikbudristek, 2022).

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