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Improving Pancasila Education Outcomes through Project-Based Learning among Second-Grade Elementary Students

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Abstract

This study aims to examine the improvement in Pancasila Education learning outcomes of Grade II students at SDN Srondol Kulon 02, Semarang, following the application of the Project-Based Learning (PjBL) model. The research was conducted during the PPL 1 activity of the PPG Calon Guru 2026 program at Universitas PGRI Semarang, using a pre-experimental one-group pretest-posttest design without a control group and involving 27 students. Data were collected through pretests and posttests. The results showed an increase in the mean score from 62.96 to 92.96, while the mastery rate increased from 40.7% to 92.6%. These findings indicate substantial improvement in students' Pancasila Education learning outcomes following the implementation of PjBL. Academically, this finding contributes to student-centered learning literature by suggesting that project-based activities can facilitate meaningful learning experiences through active participation, collaboration, problem solving, and the application of Pancasila concepts in concrete learning activities. The findings also indicate the potential of PjBL to support Merdeka Curriculum implementation. However, the absence of a control group limits causal interpretation. Future studies should employ controlled or quasi-experimental designs with larger and more diverse samples to strengthen evidence regarding PjBL effectiveness in Pancasila Education.

Keywords: learning outcomes, Merdeka Curriculum, Pancasila Education, Project Based Learning, primary school.

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INTRODUCTION

Pancasila Education occupies an important position in Indonesia's elementary school curriculum because it is intended not only to develop students' knowledge of national values but also to support the formation of attitudes and behaviours consistent with Pancasila. At the elementary level, this objective requires learning experiences that enable children to connect abstract civic and moral concepts with situations that they can observe and experience in their everyday lives. The implementation of the Merdeka Curriculum has strengthened the emphasis on meaningful, student-centred, and contextual learning, including learning experiences that encourage students to participate actively rather than merely receive information from teachers. For young learners, particularly those in the lower grades, this orientation is important because learning activities need to accommodate their developing cognitive, social, and self-regulation capacities.

The challenge is that Pancasila Education can easily become dominated by verbal explanation and memorisation when instructional activities are not sufficiently connected with students' experiences. This problem is particularly relevant in Grade II, where students are still developing foundational academic skills and benefit from concrete experiences, interaction, visual representations, and structured opportunities to practise newly learned concepts. Pancasila values such as mutual cooperation, responsibility, caring for others, and environmental awareness are difficult to develop effectively if they are presented only as definitions or statements to be memorised. They require opportunities for students to observe situations, discuss possible actions, make decisions, collaborate with peers, and reflect on the consequences of their actions.

Project-Based Learning (PjBL) provides a pedagogical approach that can address these needs by organising learning around meaningful questions, investigation, collaborative activities, production of a tangible outcome, presentation, and reflection. Rather than separating conceptual knowledge from practical activity, PjBL creates opportunities for students to construct understanding while working on an authentic task. A large-scale meta-analysis by Chen and Yang (2019) found a medium-to-large positive effect of PjBL on students' academic achievement compared with traditional instruction. More recent evidence also supports this general pattern. Zhang and Ma (2023), based on 66 experimental and quasi-experimental studies, reported significant positive effects of PjBL on academic achievement, affective outcomes, and thinking skills. Their analysis also indicated that the effectiveness of PjBL can vary according to contextual factors such as subject area, group size, educational level, and duration of implementation.

Recent evidence has also begun to provide a more nuanced understanding of PjBL in primary education. Santos et al. (2025) demonstrated that project-based activities incorporating design thinking and making can support motivation and self-efficacy among primary school students. This finding is relevant to the present study because it indicates that project-based learning can provide more than an alternative route for delivering academic content. It can also create an environment in which students participate actively, make decisions, work with peers, and experience ownership of the learning process. A recent umbrella review of 15 meta-analyses likewise reported a consistently positive direction of PjBL effects across academic achievement, higher-order thinking, and other learning outcomes, although the authors cautioned that the methodological quality of existing meta-analyses varies considerably (Farshad & Fortin, 2026).

The relevance of PjBL becomes stronger when the project is closely connected to the values and everyday experiences that students are expected to understand. In Pancasila Education, the learning process should not stop at students' ability to identify the principles or provide correct verbal definitions. Students should also have opportunities to demonstrate values through observable actions. The theme *Aku Peduli Lingkungan* (I Care for the Environment), used in the present study, provides such a context because environmental care can be directly observed in the school environment. Students can identify clean and unclean conditions, discuss appropriate behaviour, cooperate in developing solutions, and communicate their ideas through a project product. This creates a direct connection between Pancasila values and students' lived experiences.

The contextual dimension of Pancasila learning is also supported by previous work by Suttrisno and Rofi'ah (2023), who emphasised the integration of local wisdom into projects designed to strengthen the Pancasila Student Profile in Madrasah Ibtidaiyah. Their study highlights the importance of providing students with learning experiences that connect Pancasila values with the social and cultural environment surrounding them. Suttrisno and Amreta (2023) similarly examined the internalisation of the Pancasila Student Profile through project-oriented extracurricular activities in elementary school, reinforcing the importance of experiential activities in developing Pancasila-related values. More recently, Cahyani et al. (2025), including Suttrisno as a co-author, reported that project-based learning in Madrasah Ibtidaiyah can support the development of 21st-century skills, particularly critical thinking, creativity, communication, collaboration, and problem solving.

Despite the growing evidence supporting PjBL, an important empirical gap remains. Much of the international literature examines PjBL in science, technology, engineering, mathematics, language, or broader academic achievement contexts. Evidence concerning the application of PjBL specifically to value-oriented subjects such as Pancasila Education remains comparatively limited, particularly among students in the lower grades of elementary school. This gap matters because PjBL effectiveness cannot automatically be assumed to be identical across subjects. A project designed to develop scientific knowledge, for instance, may operate differently from a project intended to help young children understand and practise civic and moral values. The latter requires a stronger connection between classroom activity, social interaction, reflection, and everyday behaviour.

A second gap concerns the developmental characteristics of lower-grade students. Although PjBL has been increasingly implemented in elementary education, empirical evidence focusing specifically on Grade II students remains less visible than research involving older elementary or secondary students. Younger learners may require more explicit teacher scaffolding, shorter project cycles, concrete materials, visual support, and carefully structured collaboration. Consequently, evidence from older students cannot be transferred directly to Grade II without considering developmental differences. The present study addresses this issue by examining a short, structured PjBL cycle designed around concrete environmental observations and poster production.

A third gap concerns the relationship between PjBL and the implementation of the Merdeka Curriculum in actual classroom practice. The Merdeka Curriculum promotes meaningful learning and the development of student competencies and character, yet empirical studies that document how these principles are translated into a specific Pancasila Education lesson in a lower-grade elementary classroom remain needed. The present study therefore does not merely examine whether students' test scores increase.

It also documents how the PjBL syntax is translated into concrete learning activities, including posing a guiding question, planning a project, observing the school environment, producing a poster, presenting the product, and reflecting on the Pancasila values embedded in the activity.

The initial classroom assessment at SDN Srondol Kulon 02 Semarang provides a clear empirical rationale for conducting the study. Before the intervention, the mean score of the 27 Grade II students was 62.96, and only 11 students (40.7%) achieved the predetermined mastery criterion of 75. These results indicated that students' understanding of the targeted Pancasila Education material required instructional improvement. The classroom context also provided an appropriate setting for a project because the selected topic, *Sikapku Peduli Lingkungan* (My Attitude of Caring for the Environment), could be directly connected to students' daily experiences at school.

Based on these considerations, the present study examines the improvement in Pancasila Education learning outcomes among Grade II students at SDN Srondol Kulon 02 Semarang following the implementation of PjBL. The study focuses specifically on a lower-grade elementary classroom and a value-oriented Pancasila Education topic, thereby addressing an area that remains less represented in the existing PjBL literature. The study asks whether there is a statistically significant difference between students' learning outcomes before and after participation in the PjBL learning cycle. The findings are expected to provide empirical evidence concerning the feasibility of using a structured project-based approach for Pancasila Education in Grade II and to contribute to discussions concerning student-centred learning within the Merdeka Curriculum.

RESEARCH METHODS

This study used a quantitative approach with a pre-experimental design, specifically a one-group pretest-posttest design, in which measurements were taken before and after treatment without a control group (Sugiyono, 2022). This design was chosen because only one class was available as the research subject.

The research subjects were all 27 Grade 2 students of SDN Srondol Kulon 02 Semarang in the even semester of the 2025/2026 academic year. The research was conducted during the PPL 1 activity of the PPG Calon Guru 2026 program at Universitas PGRI Semarang.

The research procedure consisted of three stages: (1) preparation, including the development of PjBL-based learning tools, instrument preparation, and validation; (2) implementation, including the initial assessment, PjBL implementation, and the final assessment; and (3) evaluation, including data processing and analysis (Nurhasanah et al., 2024). The PjBL syntax refers to six steps: determining the basic question, project planning, scheduling, project monitoring, assessing the outcome, and evaluating the experience (Hasanah & Kristin, 2022).

The research instrument was a written test consisting of multiple-choice and short-answer items, referring to the Learning Outcomes (Capaian Pembelajaran) of Grade II Pancasila Education under the Merdeka Curriculum, with scores ranging from 0–100. Content validity was examined by two expert validators prior to use (Rahmawati & Sujarwo, 2023). Data were analyzed using descriptive quantitative analysis and a paired t-test at a significance level of $\alpha = 0.05$ (Sugiyono, 2022).

The population in this study consisted of all Grade II students at SDN Srondol Kulon 02 Semarang, while the sample was determined using a saturated sampling technique (sampling jenuh), in which all 27 members of the population were used as research subjects because the class consisted of only one rombongan belajar (Sugiyono, 2022). The independent variable in this study was the Project Based Learning model, and the

dependent variable was students' learning outcomes in Pancasila Education, operationally defined as the score obtained on a written test covering the Learning Outcomes (Capaian Pembelajaran) of Grade II Pancasila Education under the Merdeka Curriculum.

This research was conducted with permission from the principal of SDN Srondol Kulon 02 and in coordination with the cooperating class teacher, and it was carried out as part of the regular Pancasila Education curriculum so that no student experienced any disadvantage from participating. Verbal assent was obtained from the students, and all data were treated confidentially and used solely for the purposes of this study and the PPG Calon Guru 2026 practicum requirements.

The pretest was administered in the first meeting before any PjBL activity took place, in order to obtain a baseline measure of students' existing understanding of the Pancasila Education material. The posttest, using the same set of items, was administered in the third meeting immediately after the project presentation and class reflection, so that the interval between the two measurements corresponded to the full duration of the PjBL treatment described in Table 7.

The instrument grid (kisi-kisi soal) was developed based on the Learning Outcomes of Grade II Pancasila Education, Chapter 4 "Aku Peduli Lingkungan," sub-topic "Sikapku Peduli Lingkungan." The instrument consisted of 10 multiple-choice items and 5 short-answer items (15 items in total), each mapped to specific indicators of achievement and cognitive levels ranging from C1 (remembering) to C4 (analyzing) according to the revised Bloom's taxonomy. Each multiple-choice item was worth 6 points and each short-answer item was worth 8 points, so that the total score ranged from 0 to 100.

Table 6. Grid of the Research Instrument (Kisi-Kisi Soal)

Sub-Topic	Indicator	Item No.	Cognitive Level
Sikapku Peduli Lingkungan	Recognizing the characteristics and effects of a clean or dirty school environment	1, 3, 4, 5, 10, 11, 13	C1–C2
Sikapku Peduli Lingkungan	Identifying examples of caring behavior toward the environment	2, 12	C1–C2
Sikapku Peduli Lingkungan	Applying an appropriate caring attitude in everyday school situations	6, 7, 14	C3
Sikapku Peduli Lingkungan	Analyzing the purpose of cooperating to care for the environment, including through campaign media such as posters	8, 9, 15	C3–C4

As shown in Table 6, the fifteen items were distributed proportionally across four indicators within the sub-topic "Sikapku Peduli Lingkungan," with cognitive demand progressing from simple recall (C1) to simple analysis (C4), in accordance with the characteristics of concrete-operational learners (Piaget, 1970).

Prior to use, the instrument was validated by two expert validators, a lecturer and the cooperating class teacher, covering content validity, construct validity, and language appropriateness for Grade II students (Rahmawati & Sujarwo, 2023). Suggestions from the validators, such as simplifying vocabulary and adding illustrative images to several items, were incorporated before the instrument was administered. Because the research subjects consisted of only one intact class, empirical reliability testing through a separate try-out was not conducted; instead, the researcher relied on expert judgment and a

readability check with several students outside the sample to ensure the instrument was comprehensible and appropriate for the target respondents.

The PjBL treatment in this study was implemented on the theme "Aku Peduli Lingkungan" (I Care about the Environment), Chapter 4 of the Grade II Pancasila Education material, specifically the sub-topic "Sikapku Peduli Lingkungan" (My Attitude of Caring for the Environment), which emphasizes the Pancasila values of mutual cooperation (gotong royong) and responsibility for the shared environment. The implementation followed the six PjBL syntax steps (Hasanah & Kristin, 2022) across three classroom meetings, as summarized in Table 7.

Table 7. PjBL Implementation Procedure

Meeting	PjBL Syntax Step	Classroom Activity
1	Determining the basic question; project planning	The teacher introduced the sub-topic "Sikapku Peduli Lingkungan" and posed the guiding question "How can we take care of our school environment based on Pancasila values?" Students then formed small groups and planned a simple environmental observation and poster-making project.
2	Scheduling; project monitoring	Each group carried out a scheduled observation of areas outside the classroom within the school environment, such as the schoolyard, school corridors, canteen, and restrooms, to identify clean and dirty conditions. Based on their observations, each group then designed a poster containing an environmental-care slogan, complete with drawing and coloring, while the teacher monitored the process and provided guidance.
3	Assessing the outcome; evaluating the experience	Groups presented their posters and observation findings to the class, followed by a class reflection on the Pancasila values applied, after which the final assessment (posttest) was administered.

This procedure allowed the researcher to observe how each PjBL syntax step was translated into a concrete classroom activity, while still keeping the treatment manageable within the limited time available during the PPL 1 practicum period.

Data analysis was carried out in two stages. First, descriptive statistical analysis was used to describe the mean, highest, and lowest scores, as well as the percentage of students who achieved the Minimum Completeness Criteria (KKM) before and after the implementation of PjBL. Second, the effectiveness of the treatment was examined using the normalized gain (N-Gain) formula proposed by Hake (1998), as presented below:

$$\langle g \rangle = (S\_post - S\_pre) / (S\_max - S\_pre)$$

Where S_post is the posttest score, S_pre is the pretest score, and S_max is the maximum possible score (100). The N-Gain score was then interpreted using the following qualification categories (Hake, 1998):

Table 1. N-Gain Score Qualification

N-Gain Score	Category
g ≥ 0.70	High
0.30 ≤ g < 0.70	Moderate
g < 0.30	Low

In addition to the N-Gain analysis, a paired-samples t-test was conducted to examine whether the difference between the pretest and posttest mean scores was statistically significant, with the significance level set at α = 0.05 (Sugiyono, 2022). The decision criterion was that if the significance value (2-tailed) was smaller than 0.05, the null hypothesis (H0) was rejected, indicating a statistically significant difference between the two sets of scores.

RESULTS AND DISCUSSION

The results of the study, based on the initial and final assessment data of the 27 Grade 2 students, are presented in Table 2 and Table 3 below.

Table 2. Comparison of Descriptive Statistics

Component	Initial	Final
Mean	62.96	92.96
Highest	100	100
Lowest	0	50
Complete (≥75)	11 (40.7%)	25 (92.6%)
Incomplete	16 students	2 students

Table 2 shows an increase in the average score of 30.00 points, from 62.96 to 92.96. Learning completeness increased significantly from 40.7% (11 students) to 92.6% (25 students).

Table 3. Distribution of Student Scores

Category	Range	f Initial	f Final	% Initial	% Final
Very Good	90–100	4	23	14.8%	85.2%
Good	75–89	7	2	25.9%	7.4%
Fair	60–74	10	0	37.0%	0.0%
Poor	<60	6	2	22.2%	7.4%
Total	**–**	**27**	**27**	**100%**	**100%**

Table 3 shows a significant shift in the distribution of scores. The number of students in the Very Good category increased from 4 to 23, while the number in the Poor category decreased from 6 to 2.

Table 4. Result of N-Gain Analysis

Component	Value
Mean pretest score	62.96
Mean posttest score	92.96
N-Gain score	0.81
Category	High

Table 4 shows that the average normalized gain (N-Gain) score obtained was 0.81, which falls into the High category according to Hake's (1998) classification (g ≥ 0.70). This indicates that the implementation of the PjBL model was highly effective in improving students' Pancasila Education learning outcomes, exceeding what would ordinarily be expected from maturation or repeated testing alone.

Table 5. Result of Paired-Samples t-Test

Component	Value
Mean difference	30.00
t-value	12.45
df	26
Sig. (2-tailed)	**0.000** *(< 0.05)*
Decision	H_0 ditolak

Table 5 presents the results of the paired-samples t-test comparing students' pretest and posttest scores. Based on the decision criterion, a significance value smaller than 0.05 indicates that the null hypothesis (H_0) is rejected. This demonstrates that the improvement in learning outcomes following the implementation of the Project Based Learning (PjBL) model is statistically significant and not attributable to chance. Therefore, it can be concluded that the PjBL model exerts a significant positive influence on the Pancasila Education learning outcomes of grade II students.

The magnitude of the observed improvement also deserves attention beyond statistical significance. The mean score increased by 30.00 points, while the N-Gain value of 0.81 was classified as high. This pattern indicates that the improvement was not limited to a small shift around the mastery threshold, but involved a substantial redistribution of students toward the higher achievement categories. The proportion of students in the very good category increased from 14.8% to 85.2%, while the proportion of students in the fair category decreased from 37.0% to 0%. These changes suggest that the project-based learning experience was accompanied by a broad improvement across the class rather than an improvement concentrated among only a small number of high-performing students. Nevertheless, because the study employed a one-group pretest-posttest design, the magnitude of this improvement should be interpreted as evidence of substantial change following the intervention rather than definitive evidence of a causal effect.

These results are in line with the findings of Rahmawati and Sujarwo (2023), who found that PjBL can significantly improve learning outcomes because students are actively involved in the learning process. While working on projects themed around Pancasila values, students did not merely memorize concepts but internalized them through real experience, consistent with the principle of meaningful learning (Fitriani et al., 2024).

Collaboration among students during project work encouraged effective peer learning. Wulandari et al. (2022) affirmed that social interaction in PjBL helps students understand abstract Pancasila concepts in a more concrete way. This explains the substantial increase in the completeness percentage, from 40.7% to 92.6%, following the PjBL intervention.

The present finding is also consistent with broader international evidence concerning the relationship between project-based learning and academic achievement. Zhang and Ma (2023), based on a meta-analysis of 66 experimental and quasi-experimental studies, found that project-based learning produced a significant positive contribution to students' learning outcomes, with academic achievement showing one of the strongest effects among the outcomes examined. Their findings also indicate that the effectiveness of project-based learning varies according to educational level, subject area, group size, and implementation conditions. This contextual variation is important for

interpreting the present study because the intervention was implemented with a small group of Grade II students and involved a concrete, value-oriented topic rather than a predominantly theoretical subject.

The findings are also supported by the recent umbrella review of Farshad and Fortin (2026), which synthesised 15 meta-analyses and found a consistently positive direction of project-based learning effects compared with traditional instruction across academic achievement, higher-order thinking, and other learning outcomes (Furqon el al. (2025). At the same time, the review cautioned that the methodological quality of existing meta-analyses remains limited, suggesting that claims about the precise magnitude of PjBL effects should be made carefully. This caution is relevant to the present study because the observed improvement is substantial, but the absence of a control group means that alternative explanations cannot be completely excluded.

Taken together, the descriptive results in Table 2 and Table 3 and the High N-Gain category in Table 4 converge to support the same conclusion: the improvement observed after the implementation of PjBL was practically meaningful and consistent across different ways of summarizing the data. This convergence of descriptive and effect-size evidence strengthens confidence in the claim that the change in learning outcomes can reasonably be attributed to the PjBL treatment rather than to measurement artifact alone, pending confirmation from the paired-samples t-test in Table 5.

Nevertheless, 2 students had still not reached the KKM. This may be attributed to differences in individual learning styles and readiness (Apriani & Wahyudi, 2023). Therefore, PjBL needs to be balanced with differentiated learning so that all students can achieve the expected competencies in line with the spirit of the Merdeka Curriculum (Kemendikbudristek, 2022).

Viewed together, the findings of Rahmawati and Sujarwo (2023) on motivation, Wulandari et al. (2022) on peer collaboration, and the present study on measurable learning outcomes suggest that the benefits of PjBL in lower-grade classrooms operate through multiple, mutually reinforcing pathways: increased motivation sustains engagement, peer collaboration deepens conceptual understanding, and the combination of both is ultimately reflected in higher assessment scores. This multi-pathway explanation offers a more complete account of why the mean score in this study improved by 30.00 points rather than a smaller, purely test-familiarity-driven gain.

These findings support the constructivist perspective proposed by Piaget (1970) and Vygotsky (1978), which posits that children construct more durable understanding when knowledge is built through direct experience and social interaction rather than through rote memorization. During the PjBL activities, students directly observed real conditions in various areas of their school environment and then translated those observations into a group poster containing an environmental-care slogan, complete with drawing and coloring, which allowed them to experience concepts such as cooperation and responsibility directly rather than merely reading about them (Aulia, 2025).

The result is particularly meaningful when viewed from the developmental characteristics of Grade II students. At this stage, students generally benefit from learning activities that provide concrete objects, observable situations, visual representations, and opportunities for social interaction. The project used in this study incorporated these elements through direct observation of the school environment, group discussion, drawing, colouring, poster production, presentation, and reflection. Such activities reduced the distance between the abstract language of Pancasila Education and the situations that students encounter in their daily lives.

Recent international evidence also supports the relevance of project-based approaches for primary education. Santos et al. (2025), for instance, found that project-based activities involving design thinking and making could support motivation and self-efficacy among primary school students. Although their study focused on science, technology, engineering, and design rather than Pancasila Education, the finding is relevant to the present study because it demonstrates that project-based environments can provide young learners with opportunities for active participation, decision making, and ownership of learning.

The present study adds a different contextual dimension by applying project-based learning to a value-oriented subject. Rather than using a technologically complex project, the intervention employed a simple environmental observation and poster project that was feasible within the classroom context and appropriate for Grade II students. This suggests that the pedagogical value of PjBL does not necessarily depend on sophisticated technology or complex products. For young learners, the alignment between the project, developmental level, curriculum objective, and students' immediate environment may be more important than the complexity of the final product.

The choice of the "Aku Peduli Lingkungan" theme also appeared to strengthen this internalization process. Because caring for the environment is a concrete, observable behavior, students could directly connect the abstract Pancasila values of mutual cooperation and social responsibility to simple actions within their own school environment, such as keeping the classroom clean or working together on a class poster. This concreteness is consistent with Fitriani et al. (2024), who found that PjBL is particularly effective for value-oriented subjects when the project theme is close to students' everyday experience.

The specific design of the project is important in explaining why PjBL was appropriate for Pancasila Education in this classroom. The project did not introduce Pancasila values as isolated concepts; instead, students encountered these values through an observable problem in their immediate environment. By identifying clean and unclean areas, discussing appropriate behaviour, producing environmental-care posters, and presenting their ideas, students were required to connect knowledge with action. The learning process consequently provided opportunities to experience mutual cooperation, responsibility, and environmental care as practices rather than merely as definitions. This characteristic distinguishes the present application of PjBL from project activities that focus primarily on producing a final product without explicit reflection on the values underlying the project.

This interpretation is relevant to the implementation of the Merdeka Curriculum because Pancasila-related learning is expected to connect knowledge, character, and meaningful student experiences. Suttrisno and Rofi'ah (2023) argued that project activities connected with students' surrounding context can provide opportunities for the internalisation of Pancasila values rather than limiting learning to conceptual understanding. Their work emphasised the importance of contextualising projects within students' environments so that Pancasila values can be experienced and subsequently applied in everyday life.

For teacher candidates undergoing the PPG Calon Guru practicum, these findings also carry professional significance. Designing and facilitating a PjBL cycle, from posing an authentic question to guiding students through planning, production, and reflection, requires classroom management and scaffolding skills that go beyond delivering a lecture. The positive results obtained in this study suggest that structured practicum experiences with PjBL can serve as a meaningful arena for teacher candidates to develop

these competencies while simultaneously improving pupils' learning outcomes, supporting the dual goals of the PPG program.

The project process also created opportunities for students to practise skills that extend beyond the cognitive outcomes measured by the written test. Group planning, environmental observation, poster production, presentation, and reflection required students to communicate ideas, cooperate with peers, make decisions, and solve simple problems. These processes are consistent with the broader evidence that PjBL can support collaboration, communication, creativity, and problem solving alongside academic achievement. Cahyani et al. (2025), including Suttrisno as a co-author, similarly reported the relevance of PjBL for developing 21st-century skills among Madrasah Ibtidaiyah students. Their findings reinforce the view that project-based learning can provide a broader learning environment in which academic knowledge and transferable skills develop together.

However, the present study did not directly measure collaboration, creativity, communication, or civic attitudes using separate instruments. These outcomes should therefore be regarded as pedagogical implications of the learning process rather than empirical outcomes demonstrated by the present dataset. Future research could address this limitation by combining achievement tests with validated measures of collaboration, communication, creativity, and Pancasila-related attitudes.

This result is also consistent with the broader research synthesis conducted by Thomas (2000), who reviewed numerous studies on Project Based Learning and concluded that, when properly designed, project-based approaches can produce learning gains equal to or greater than those achieved through traditional instruction, particularly for outcomes that require deeper conceptual understanding rather than simple factual recall.

From a practical standpoint, these findings suggest that PjBL can serve as a viable alternative to the lecture-based methods still commonly used in Pancasila Education classrooms (Apriani & Wahyudi, 2023). By allowing Grade II students to take an active role in planning and completing simple projects, teachers can create a more engaging classroom atmosphere while simultaneously strengthening students' character development, in line with the profil pelajar Pancasila that the Merdeka Curriculum seeks to cultivate (Kemendikbudristek, 2022).

This study has several limitations that should be acknowledged. First, the one-group pretest-posttest design without a control group means that external factors, such as maturation, test familiarity, or concurrent instruction in other subjects, cannot be completely ruled out as alternative explanations for the observed improvement (Sugiyono, 2022). Second, the study was conducted on a single intact class of 27 students, which severely limits the generalizability of the findings to other schools or grade levels. Third, because the instrument relied solely on expert judgment and a readability check rather than an empirical try-out, statistical reliability indices such as Cronbach's Alpha could not be computed, so some measurement error in the instrument cannot be entirely excluded. Future studies are therefore encouraged to employ a quasi-experimental design with a control group, to conduct a pilot try-out with a non-sample group to establish statistical instrument reliability alongside expert validation, and to use a larger, more diverse sample to strengthen the external validity of the findings.

CONCLUSION AND ADVICE

The implementation of the Project Based Learning (PjBL) model was associated with a marked improvement in the Pancasila Education learning outcomes of Grade II students at SDN Srondol Kulon 02: the average score increased from 62.96 to 92.96, and

the completeness percentage increased from 40.7% to 92.6%. Given the one-group pretest-posttest design used in this study, this improvement should be interpreted as suggestive rather than conclusive evidence of a causal effect.

Beyond the classroom level, these findings offer a practical reference point for curriculum developers and school leaders seeking concrete, field-tested strategies to support the implementation of the Merdeka Curriculum's profil pelajar Pancasila in the early grades. Embedding structured, age-appropriate project cycles within the Pancasila Education syllabus, rather than treating projects as occasional supplementary activities, may help ensure that character values are learned through sustained practice rather than isolated lessons.

Teachers are advised to apply PjBL consistently in Pancasila Education learning and to combine it with differentiated learning strategies to ensure that all students achieve the expected competencies. Further research is recommended to use a quasi-experimental design with a control group to strengthen the validity of the findings (Sugiyono, 2022).

In addition, considering that the N-Gain analysis indicated a High category of improvement, schools and teacher professional development programs may consider incorporating PjBL-based training into in-service teacher workshops, particularly for character- and value-based subjects such as Pancasila Education. Future researchers are also encouraged to examine the long-term retention of the values learned through PjBL, as well as its effect on non-cognitive outcomes such as collaboration skills and civic attitudes, using a quasi-experimental design with a control group as suggested by Sugiyono (2022).

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