

Civic Skills as a Priority for Project-Based Learning in Pancasila Education: A Mixed-Methods Needs Analysis in Elementary Schools

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Abstract

Pancasila Education in elementary schools requires learning experiences that develop civic knowledge, civic skills, and civic disposition. This study aims to describe fifth-grade students' civic competence, examine differences across schools and gender, identify associations among the measured dimensions, and compare student and teacher responses to PjBL-related learning indicators. A sequential explanatory mixed-methods design involved 112 fifth-grade students and five teachers from five public elementary schools in Sleman, Indonesia. Quantitative data were collected using a 19-item dichotomous student questionnaire and a teacher questionnaire, while qualitative data were obtained from students' open-ended responses and teacher interviews. Data were analyzed using descriptive statistics, Kruskal–Wallis, Mann–Whitney U, Spearman correlation, and qualitative content analysis. The results showed scores of 92.6% for civic knowledge, 74.9% for civic skills, 85.1% for civic disposition, and 51.3% for PjBL-related indicators. Civic skills showed the strongest association with PjBL-related indicators ($p = 0.465$, $p < 0.001$), while student and teacher responses differed substantially on PjBL-related indicators (51.3% vs. 80.0%). Qualitative findings indicated students' interest in collaborative, creative, and project-oriented activities. These findings provide preliminary evidence for considering PjBL as a potential approach to support civic-skills development, while further research should employ more comprehensive and psychometrically validated instruments and examine PjBL implementation and effectiveness.

Keywords: project-based learning, progressive learning, challenging learning, instructional design, learning strategies, innovative learning.



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1. Introduction

Pancasila Education in the Merdeka Curriculum carries a significant mandate, as it aims to develop students' civic competencies holistically starting in elementary school. [Kemendikbudristek \(2025\)](#) explicitly designs Pancasila Education to integrate the values of

Pancasila, the 1945 Constitution, Bhineka Tunggal Ika, and the Unitary State of the Republic of Indonesia into authentic and contextual learning experiences, rather than merely memorizing concepts. [Irawan et al \(2024\)](#) emphasize that basic education in the ASEAN region, including Indonesia, is

required to align teaching practices with the sustainable development agenda, including the cultivation of participatory and responsible citizens.

In this context, contemporary civic learning requires advanced learning experiences that move beyond the transmission of factual knowledge toward active, challenging, meaningful, and application-oriented learning (Zahro et al., 2026). Such challenging learning experiences should provide students with opportunities to apply civic concepts, solve contextual problems, collaborate with others, make responsible decisions, and reflect on the values underlying their actions. This orientation is particularly relevant to challenging and character-oriented learning, because civic competence is not limited to what students know, but also includes how they demonstrate responsibility, participation, respect, collaboration, and other civic values in everyday situations (Guo et al., 2020). Accordingly, progressive education and learning in Pancasila Education requires instructional approaches that connect knowledge, skills, character, and values through authentic, student-centered, collaborative, and context-responsive learning experiences.

However, in practice, the gap between the spirit of the curriculum and classroom reality remains evident; lecture-based learning and test-oriented instruction still dominate, and the results are predictable: students memorize concepts but are not trained to apply them in real life. Inthanon, (2024) emphasizes that enhancing motivation and fostering meaningful character development can only be achieved when learning is designed to precisely target students' actual needs. Similar findings were reported by Nurdiansyah et al (2025), who found that Civic Education learning remains

predominantly textual and teacher-centered, limiting students' opportunities to develop responsibility, collaboration, and authentic civic character. This condition highlights the need for innovative learning approaches that shift classroom practice toward student-centered, participatory, collaborative, and authentic learning experiences. This approach is aligned with 21st-century learning, which emphasizes collaboration, learner autonomy, and teachers' roles as facilitators rather than knowledge transmitters Maghfiroh et al., (2024). It is this situation that makes needs analysis an indispensable step in instructional design, particularly before developing a learning model that is contextually aligned with students' learning characteristics, competency gaps, and classroom needs.

The conceptual foundation of this study is based on the framework of civic competence developed by Branson, (1998), which divides civic competence into three interdependent dimensions: civic knowledge is the conceptual understanding of the values, systems, and norms of citizenship; civic skills encompass the intellectual and participatory skills that enable students to actively analyze and respond to civic issues, and civic disposition involves the internalization of democratic values that foster responsible participation in national life. These three dimensions do not operate in isolation but form a unified whole of civic competence (Setyorini & Izzaty, 2016). The problem is that the conventional approach, which structurally dominates the classroom, addresses only civic knowledge, while civic skills and civic disposition which are actually the most crucial for democratic life are given almost no adequate space to develop.

The gap between high civic knowledge and low civic skills is a predictable consequence of rote-learning-oriented instruction. When students are only required

to memorize the definitions and principles of Pancasila without being given the opportunity to discuss, argue, analyze cases, or make decisions in real-life contexts, their civic skills will not develop, no matter how high their test scores may be. [Dian & Maryani, \(2025\)](#) demonstrated that a problem-based, active learning approach in fifth-grade elementary school significantly improved students' conceptual understanding as well as their process skills, elementary school students possess sufficient cognitive capacity for high-skill-based learning. What is needed is not to change the students, but to change the learning model.

Project-Based Learning (PJBL) is the model that is theoretically and empirically most relevant to addressing these conditions. PJBL positions students as active agents who learn through authentic, collaborative, and meaningful projects and real-world problem-solving experiences, making it a learning strategy that can facilitate the development of civic skills and civic dispositions beyond rote memorization. [Rezkilaturahmi et al \(2025\)](#), through a meta-analysis, demonstrated that PJBL significantly enhances essential skills and learning motivation. [Guo et al \(2020\)](#), in a systematic review, confirmed the positive effects of PJBL on collaboration, engagement, and critical thinking. [Bell, \(2010\)](#) asserts that PJBL is the most appropriate vehicle for 21st-century skills, including citizenship competencies. Furthermore, [Santhosh et al., \(2023\)](#) add that the effects of PJBL are highly dependent on the alignment of the design with the specific context and needs a strong empirical argument for prioritizing needs analysis. Project-Based Learning positions students as active participants who learn through authentic collaboration and problem-solving experiences ([Winarti et al., 2024](#)). This pedagogical approach has also been shown to

foster richer classroom communication and collaborative interaction, which are essential for developing higher-order civic skills

In the Indonesian context and at the elementary school level, research on active and collaborative approaches continues to evolve. [Silviani et al \(2025\)](#) demonstrated that collaborative learning tools based on local wisdom significantly enhance elementary school students' national character and creativity a strong indication that elementary school students possess a far greater capacity for active learning than is often assumed. Project-Based Learning (PJBL) has great potential to strengthen students' independence, particularly when designed to address real-world needs ([Ishayati et al., 2025](#)). Meanwhile, research [Astratova et al \(2026\)](#) shows that PJBL designed as an authentic practice-based pedagogy yields a far stronger impact compared to implementations without pre-development analysis. Consistent across all these findings is that PJBL is effective in establishing a strong foundation for learning in elementary school.

A needs assessment is not merely a formal procedure, but a methodological investment in instructional design that determines the relevance, contextual alignment, and potential effectiveness of a subsequent learning intervention. [Shafarwati & Johan \(2025\)](#) demonstrate that mixed-methods-based needs assessments yield a more accurate picture of conditions and more targeted recommendations than single-source studies. [Hasanah et al \(2024\)](#) show that conducting a needs assessment before product development ensures greater precision. Without prior empirical mapping, the development of a PJBL model risks being built on unverified assumptions about students' conditions, thereby reducing its capacity to adapt instructional activities to students' learning characteristics,

preferences, competency needs, and classroom contexts. The concrete questions are very specific: to what extent do fifth-grade students currently possess civic knowledge, civic skills, and civic disposition; which dimensions most need to be strengthened; how strongly do students and teachers feel the need for PjBL; are their perceptions consistent; without empirical answers to these questions, the development of PjBL for Pancasila Education in elementary schools will merely fill gaps that have not yet been mapped.

Previous research provides substantial evidence that PjBL can support active learning, collaboration, motivation, and the development of various student competencies, but the existing evidence has important contextual and methodological boundaries. [Rezkilaturahmi et al \(2025\)](#), for example, reported positive effects of PjBL on essential skills and motivation through a meta-analytic approach. However, evidence synthesized across different educational contexts and outcomes cannot by itself establish whether the same learning approach is appropriate for Pancasila Education or for the specific civic competencies of elementary school students. Similarly, [Guo et al \(2020\)](#) reviewed PjBL research and reported benefits related to collaboration, engagement, and critical thinking, but their review focused on higher education. Consequently, its findings provide a theoretical rationale for active learning but have limited direct applicability to the developmental and curricular context of fifth-grade elementary students.

Other studies have addressed PjBL in more specific contexts but likewise leave important questions unanswered. [Santhosh et al \(2023\)](#) reported a moderate effect of PjBL in informal STEM education and emphasized the importance of aligning project design with contextual needs. Nevertheless, the STEM-

oriented context does not directly explain how PjBL should be designed to address civic competence in Pancasila Education. [Tsybulsky & Muchnik-rozanov, \(2023\)](#) examined PjBL in relation to the professional identity of pre-service teachers, while [Mardiani et al., \(2026\)](#) combined PjBL and jigsaw learning to develop teaching competence among pre-service non-formal educators. These studies demonstrate the adaptability of project-based approaches, but their participants and outcome constructs differ substantially from fifth-grade elementary students and civic competence. Thus, their findings cannot be directly interpreted as evidence of students' needs for PjBL in elementary Pancasila Education.

Evidence from elementary education is also informative but remains fragmented across subjects, competencies, and instructional purposes. [Handika & Wangid, \(2013\)](#), for instance, demonstrated the potential of problem-based learning for fifth-grade students' conceptual mastery and science process skills, but the intervention was conducted in science learning and involved problem-based rather than project-based learning. [Ishayati et al \(2025\)](#) synthesized the potential of PjBL for strengthening students' independence, yet the review did not simultaneously examine civic knowledge, civic skills, and civic disposition. Likewise, [Setyorini & Izzaty \(2016\)](#) addressed motivation and character development among elementary students but did not frame the learning needs within civic competence or Pancasila Education. These differences are not merely contextual details; they indicate that existing findings cannot adequately determine which dimensions of civic competence should be prioritized when designing a PjBL intervention for elementary Pancasila Education.

Research on needs assessment further supports the importance of systematic

diagnosis, but its methodological focus has also been different from the present study. [Shafarwati & Johan \(2025\)](#) demonstrated the value of mixed-methods needs assessment, yet their analysis focused on teachers' pedagogical competencies rather than students' learning-model needs. [Hasanah et al \(2024\)](#) similarly showed the usefulness of needs analysis before developing an elementary learning assessment instrument, but the study concerned assessment-tool development rather than the identification of instructional needs for PjBL. These studies therefore support the methodological principle of conducting needs assessment before development, while leaving unresolved the more specific question of how students' civic competence and learning preferences can be used to inform PjBL development in Pancasila Education.

Taken together, the literature indicates a fragmented evidence base rather than an absence of research. Previous studies have established the potential of PjBL and related active-learning approaches, but they differ in educational level, subject domain, participant characteristics, outcome constructs, and research purpose ([Lestari et al., 2024](#)). More importantly, much of the existing evidence evaluates the effects or potential of PjBL after or within an instructional intervention, whereas less attention has been given to the pre-development diagnostic stage in which the learning conditions and priority competencies are empirically identified before a PjBL model is designed. This distinction provides the rationale for the present study: rather than assuming that PjBL is inherently needed, the study first examines the preliminary profile of civic competence and students' learning preferences and then integrates these findings with teachers' classroom-based perspectives to identify areas that may warrant subsequent PjBL development.

Previous studies have established the potential of Project-Based Learning (PjBL) to promote active, collaborative, and problem-oriented learning. For example, [Winarti et al \(2024\)](#) demonstrated that PjBL can foster stronger student collaboration and more balanced classroom communication through independent group work. In Civic Education, contextual and participatory learning approaches have likewise been shown to provide opportunities for students to engage with real-world problems, collaborate with others, and develop social responsibility ([Nurdiansyah et al., 2025](#)). However, these findings primarily demonstrate the potential or outcomes of active learning approaches after or during implementation. They provide less evidence about how instructional priorities can be diagnosed before a PjBL model is developed, particularly in elementary Pancasila Education where civic competence is multidimensional.

Accordingly, the contribution of the present study is not the use of teacher–student triangulation itself, but the use of triangulation as a diagnostic mechanism for interpreting learning needs from complementary sources of evidence. Students provide information about their own learning experiences and preferences, whereas teachers provide an external classroom-based perspective on students' demonstrated civic competence and instructional conditions ([Silviani et al., 2025](#)). When these perspectives converge, the evidence can strengthen the identification of a learning priority; when they diverge, the discrepancy becomes analytically meaningful because it may indicate differences between students' perceptions and teachers' observations. This approach is particularly relevant to civic competence because knowledge, skills, and dispositions are expressed through different forms of learning behavior and cannot be adequately interpreted from a single

respondent perspective (Tsybulsky & Muchnik-Rozanov, 2023). Thus, the theoretical value of the dual-perspective design lies in its capacity to distinguish perceived learning preferences from observed instructional needs, rather than merely adding two sources of data.

Importantly, this study does not assume that a low score on the PjBL-related items automatically represents a high demand for PjBL. The 51.3% student score should instead be interpreted as a relatively low level of positive endorsement on the specific PjBL-related indicators included in the diagnostic questionnaire. It therefore cannot, by itself, establish that students have a high demand for PjBL. The qualitative evidence is used to explain this quantitative pattern by examining students' expressed learning preferences and experiences, including their interest in games, poster-making, group activities, and producing learning works, thereby providing information that can support adaptive instructional planning based on students' expressed learning characteristics and preferences (Astratova et al., 2026). These preferences may share characteristics with PjBL, but they should not be treated as direct evidence that students consciously demand PjBL as a named pedagogical model. The integration of quantitative and qualitative evidence therefore provides a more cautious basis for determining whether PjBL characteristics are appropriate for subsequent instructional development.

On this basis, the needs assessment is conceptualized as a pre-development diagnostic process rather than as a direct measure of demand for a particular instructional model. Its purpose is to identify patterns of civic competence, learning preferences, and classroom needs that can inform the design of a contextually appropriate PjBL intervention (Anggraini et al., 2024). This distinction is

important because the subsequent development of PjBL should respond to empirically identified learning characteristics rather than assume that students' preferences, teachers' perceptions, or a single percentage score independently demonstrate the necessity of PjBL.

Based on the identified research gap, this study aims to conduct a preliminary needs assessment for the development of Project-Based Learning (PjBL) in Pancasila Education at the elementary school level. Specifically, the study aims to: (1) describe the preliminary profile of fifth-grade students' civic competence across civic knowledge, civic skills, and civic disposition; (2) identify students' learning needs, preferences, and experiences relevant to PjBL; and (3) examine how students' quantitative responses and teachers' perspectives converge in identifying priority areas for subsequent PjBL development. Given the diagnostic nature and limited scope of the questionnaire, the findings are intended to provide an initial empirical mapping of learning conditions rather than a comprehensive measurement of civic competence or a causal evaluation of PjBL effectiveness.

2. Method

This study employs a mixed-methods approach with a Sequential Explanatory design, in which quantitative data are analyzed first, followed by the use of qualitative data to explain and elaborate on the findings (Creswell & Creswell, 2023). This study is a needs assessment survey designed to identify gaps between the observed and desired levels of students' civic competencies and to examine their learning preferences as an empirical basis for context-responsive instructional design and adaptive development of a Project-Based Learning model.

This study was conducted at five public elementary schools in Sleman Regency, Special Region of Yogyakarta, namely SDN Sariharjo, SDN Jongkang, SDN Karangmloko I, SDN Karangmloko II, and SDN Nglempung. The research subjects consisted of 112 fifth-grade students (69 boys, 43 girls) and 5 fifth-grade teachers from the five schools, selected using purposive sampling. The rationale for selecting fifth-grade students was that they had completed the full Pancasila Education curriculum in previous grades, allowing for a representative assessment of their competencies. One teacher per school was selected as the primary informant who best understood the learning conditions in their classroom. The distribution of students was as follows: SDN Karangmloko II (28), SDN Nglempung (26), SDN Jongkang (25), SDN Karangmloko I (23), and SDN Sariharjo (10).

Data were collected using four complementary instruments designed for a preliminary diagnostic needs assessment. First, a student questionnaire consisting of 19 dichotomous items (YES/NO) was developed to obtain an initial mapping of selected indicators of civic competence and PjBL-related learning needs. The questionnaire comprised four items for civic knowledge (CK1–CK4), five items for civic skills (CS1–CS5), five items for civic disposition (CD1–CD5), and five active items for PjBL-related learning needs. Although seven PjBL-related indicators were conceptually identified during instrument development, only five active items were included in the student questionnaire; therefore, the maximum observable score for this component was five, while the seven-item theoretical framework was retained as a conceptual reference.

The dichotomous response format was selected because the questionnaire was intended to provide a brief and accessible

preliminary diagnostic for fifth-grade students rather than to function as a comprehensive psychometric scale. Accordingly, the instrument was not designed to estimate latent levels of civic competence. Instead, each item represented a specific observable or self-reported indicator, and the resulting scores were interpreted as the proportion of affirmative responses across the indicators included in each dimension (Khairi & Ishafit, 2026). This distinction is important because the four- to five-item coverage of each dimension and the dichotomous response format necessarily limit response sensitivity and the breadth of construct representation.

Second, eight open-ended questions were administered to students to explore their learning experiences, preferences, and perceptions related to project-oriented and active learning. Third, a teacher questionnaire containing 17 four-point Likert-scale items was used to obtain classroom-based perceptions of students' civic competence (10 items) and PjBL-related learning needs (7 items). Fourth, semi-structured interviews consisting of 13 questions were conducted with teachers to obtain contextual explanations of students' learning conditions, instructional practices, and perceived needs. The use of these complementary instruments was intended to provide contextual depth beyond the limited quantitative diagnostic questionnaire.

Content and face validity of the instruments were examined through expert judgment, focusing on the alignment of items with the intended indicators, clarity of wording, readability for fifth-grade students, and appropriateness of the item content to the constructs under investigation. Given the limited number of items and the dichotomous format, the student questionnaire was not treated as a validated comprehensive psychometric scale (Bell, 2010). No factor analysis or internal-consistency reliability estimation was

conducted. Consequently, the quantitative results are interpreted cautiously as descriptive evidence from selected indicators and are considered together with the open-ended student responses and teacher data rather than as stand-alone estimates of the full civic competence constructs.

For the student questionnaire, affirmative responses were coded as 1 and negative responses as 0. Dimension-level descriptive scores were calculated by summing the affirmative responses and dividing them by the maximum observable score for the corresponding set of indicators, followed by conversion into percentages. These percentages represent the proportion of affirmative responses to the indicators included in the diagnostic questionnaire and should not be interpreted as direct estimates of the overall level of the underlying latent constructs. Descriptive categories were retained for reporting purposes ($\geq 80\%$ = high, 60–79% = moderate, and $< 60\%$ = low), but these categories were interpreted descriptively rather than as psychometric classifications of students' overall civic competence.

Quantitative data from the student questionnaire were analyzed using JASP version 0.18.3.0. Because the student items were dichotomous, affirmative responses were coded as 1 and negative responses as 0. Descriptive statistics were calculated for each set of indicators, including means and standard deviations. Dimension-level percentages were obtained by dividing the observed mean score by the maximum observable score and multiplying by 100. These percentages were interpreted as the proportion of affirmative responses to the measured indicators, rather than as direct estimates of the complete underlying constructs. For descriptive reporting, the following categories were retained: $\geq 80\%$ high, 60–79% moderate, and $< 60\%$ low.

The Shapiro–Wilk test was used to examine the distribution of observed dimension scores. Given the non-normal distribution of most data groups, non-parametric procedures were applied. The Kruskal–Wallis test with Dunn's post-hoc test and Bonferroni correction was used to explore differences in observed indicator scores across schools. The Mann–Whitney U test was used to examine differences by gender, with rank-biserial correlation reported as an effect-size measure. Spearman's rank correlation with 1,000 bootstrap replications was used to examine exploratory associations among the observed dimension scores. These inferential analyses were treated as exploratory because the underlying dimensions were represented by a small number of dichotomous indicators.

Teacher questionnaire data were analyzed descriptively to identify patterns in teachers' perceptions of students' civic competence and PjBL-related learning needs. Qualitative data from students' open-ended responses and teacher interviews were analyzed using content analysis involving data reduction, coding, categorization, and theme development (Saldana, 2021). Finally, source triangulation was conducted by comparing quantitative patterns with qualitative evidence from students and teachers. The qualitative evidence was used to contextualize and explain the quantitative patterns rather than to compensate for or establish the psychometric validity of the student questionnaire.

3. Result and Discussion

The Shapiro–Wilk test indicated that 19 of the 20 data groups (five schools $\times$ four dimensions) did not meet the assumption of normality ($p < 0.05$), except for Total Civic Skills at SDN Sariharjo ($W = 0.924$; $p = 0.389$). Accordingly, nonparametric procedures were used for the subsequent inferential analyses.

Table 1. Descriptive Statistics on Students' Civic Responses by School

School	n	Mean (CK)	SD	Mean (CS)	SD	Mean (CD)	SD	Mean (PjBL)	SD
Jongkang	25	3,64	0,64	3,32	1,28	4,04	0,84	3,20	1,04
Karangmloko I	23	3,78	0,42	4,17	0,83	4,48	0,59	3,74	0,69
Karangmloko II	28	3,71	0,46	3,86	1,11	4,36	0,73	3,75	0,80
Nglempong	26	3,73	0,45	3,89	1,14	4,35	0,75	3,77	0,82
Sariharjo	10	3,60	0,52	3,20	1,23	3,90	0,74	3,30	0,82
Total	112	3,71	-	3,74	-	4,27	-	3,59	-

NB: M = Mean; SD = Standard Deviation; CK = Civic Knowledge (max 4); CS = Civic Skills (max 5); CD = Civic Disposition (max 5); PjBL = PjBL Needs (theoretical max 7). Percentage of reference score was calculated as $(\text{mean} / \text{maximum score}) \times 100$. The percentages are descriptive indicators of responses to the measured items and should not be interpreted as comprehensive estimates of the underlying constructs.

Table 1 presents the descriptive statistics for the four measured areas across the five schools. The overall mean scores were 3.71 for civic knowledge, 3.74 for civic skills, 4.27 for civic disposition, and 3.59 for PjBL-related learning needs. Across the school groups, civic knowledge showed relatively consistent mean scores, ranging from 3.60 at SDN Sariharjo to 3.78 at SDN Karangmloko I. Civic skills showed greater variation, with the highest mean observed at SDN Karangmloko I ($M = 4.17$, $SD = 0.83$) and the lowest at SDN Sariharjo ($M = 3.20$, $SD = 1.23$) and SDN Jongkang ($M = 3.32$, $SD =$

1.28). Civic disposition scores were comparatively high across schools, ranging from 3.90 at SDN Sariharjo to 4.48 at SDN Karangmloko I. PjBL-related learning-need scores ranged from 3.20 at SDN Jongkang to 3.77 at SDN Nglempong. These descriptive patterns indicate variation in students' responses across dimensions and schools, but they should be interpreted as patterns in the measured indicators rather than as comprehensive estimates of the underlying civic competence constructs (Rezkiaturahmi et al., 2025).

Table 2. Results of the Kruskal-Wallis Test: Differences in Scores Among Schools

Dimension	H	df	p	Description
Civic Knowledge (CK)	1,188	4	0,880	No significant difference between schools
Civic Skills (CS)	8,581	4	0,072	Not significant, but the largest variation
Civic Disposition (CD)	7,564	4	0,109	No significant differences between schools
PjBL Needs	8,239	4	0,083	No significant difference between schools

NB: Dunn's post hoc test with Bonferroni correction; no dimension reached significance after multiple comparisons (all $p > 0.05$)

No dimension showed significant differences between schools. The Dunn post-hoc test identified a trend toward a difference between SDN Jongkang and SDN Karangmloko I on CS ($z = -2.379$; Bonferroni

$p = 0.174$), but it did not reach significance after correction. The results of the Mann-Whitney U test for differences based on gender are presented in Table 3.

Table 3. Results of the Mann-Whitney U Test: Differences by Gender

Dimensions	W	p	r	Description
Civic Knowledge	1437	0,726	-0,031	No difference by gender
Civic Skills	1434,0	0,760	-0,033	No difference by gender
Civic Disposition	1364,5	0,433	-0,080	No difference by gender
PjBL Needs	1412,5	0,645	-0,048	No difference by gender

NB: r = rank-biserial correlation as a measure of effect; $|r| < 0.10$ = trivial

There were no significant differences by gender across all dimensions (all $p > 0.05$), with trivial effect sizes ($|r| = 0.031$ – 0.080). Table 4 presents the Spearman rank correlations among the measured dimensions. Civic skills showed the strongest positive association with PjBL-related learning needs ($\rho = 0.465$, $p < 0.001$, 95% bootstrap CI [0.301, 0.603]). Civic knowledge was also positively associated with civic skills ($\rho = 0.348$, $p < 0.001$, 95% bootstrap CI [0.178, 0.499]). A smaller positive association was observed between civic skills and civic disposition ($\rho = 0.224$, $p = 0.018$, 95% bootstrap CI [0.041, 0.402]) and between

civic disposition and PjBL-related learning needs ($\rho = 0.267$, $p = 0.004$, 95% bootstrap CI [0.081, 0.436]). In contrast, the associations between civic knowledge and civic disposition ($\rho = -0.025$, $p = 0.795$) and between civic knowledge and PjBL-related learning needs ($\rho = 0.144$, $p = 0.129$) were not statistically significant. Thus, among the observed indicator scores, the association involving civic skills and PjBL-related learning needs was the strongest, whereas civic knowledge showed no statistically significant association with either civic disposition or PjBL-related learning needs (Mardiani et al., 2026).

Table 4. Spearman's Correlations Among the Measured Dimensions (n = 112)

Variable Pairs	ρ	p	95% Bootstrap CI Lower	95% Bootstrap CI Upper	Interpretation
CK – CS	0,348	<,0001	0,178	0,499	Significantly positive
CK – CD	-0,025	0,795	-0,222	0,165	Not significant
CK – PjBL	0,144	0,129	-0,055	0,311	Not significant
CS – CD	0,224	0,018	0,041	0,402	Significantly positive
CS – PjBL	0,465	<,001	0,301	0,603	Significantly positive
CD – PjBL	0,267	0,004	0,081	0,436	Significantly positive

NB: CK: Civic Knowledge, CS: Civic Skill, CD: Civic Disposition, PjBL: Project Based Learning, ρ : Spearman's, p: p-value.

The observed association between civic skills and PjBL-related learning needs ($\rho = 0.465$) is noteworthy because it suggests that students' responses to indicators of active civic participation were more closely aligned with their responses to the measured PjBL-related indicators than were their civic knowledge responses. This pattern is theoretically plausible because project-based learning requires students to engage in discussion, collaboration, problem solving,

decision making, and the application of knowledge to meaningful tasks (Zahro et al., 2026). However, the correlation should not be interpreted as evidence that stronger civic skills cause greater PjBL needs. The finding only indicates that students who provided more affirmative responses on the measured civic-skills indicators also tended to provide more affirmative responses on the measured PjBL-related indicators. Moreover, because both dimensions were represented by a

limited number of dichotomous indicators, the magnitude of the association should be interpreted cautiously (Saldaña, 2021). The result therefore provides exploratory empirical support for considering civic skills

when designing a PjBL-oriented learning model, rather than establishing a causal relationship between civic skills and PjBL needs.

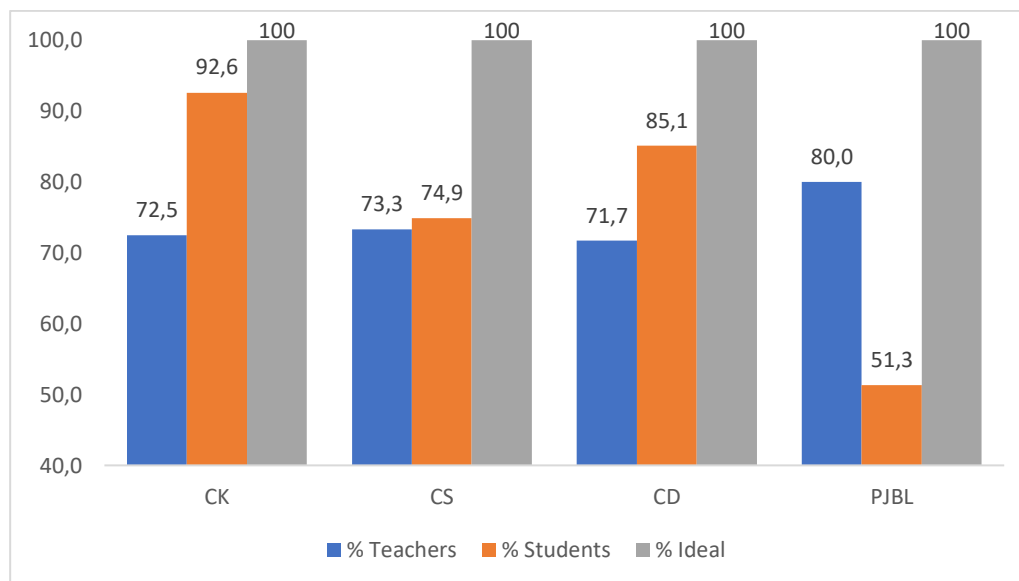


Figure 1. Gap Analysis of Civic Competence: Teachers' vs. Students' Perspectives Relative to the Ideal Condition

Figure 1 presents the differences between teachers' and students' reported scores relative to the ideal reference point of 100%. The comparison shows that civic knowledge had the largest difference between students' and teachers' ratings (92.6% versus 72.5%), followed by civic disposition (85.1% versus 71.7%). In contrast, civic skills showed the smallest difference, with students reporting 74.9% and teachers reporting 73.3%, representing a 1.6-percentage-point difference. The PjBL-related learning-needs

dimension showed the largest divergence in direction, with teachers reporting 80.0% compared with 51.3% among students. These differences indicate that perceptions of students' civic competence and PjBL-related learning needs were not uniform across data sources (Inthanon, 2024). Accordingly, the gap analysis is used as a descriptive basis for identifying areas requiring further interpretation through the qualitative data rather than as evidence that one perspective is inherently more accurate than the other.

Table 5. Summary of Teacher Evaluations by Dimension (n = 5, Likert Scale 1–4)

Dimension	Item	Mean	% of Teachers	% of Students	Description
Civic Knowledge (CK)	4	2,90	72,5%	92,6%	Perception gap of 20,1% - teachers scored lower than students
Civic Skills (CS)	3	2,93	73,3%	74,9%	Consistent gap between teachers and students (1,6% difference) .
Civic Disposition (CD)	3	2,87	71,7%	85,1%	Perception gap of 13,4% - students rated it higher.
PjBL Needs	7	2,80	80,0%	51,3%	Teachers feel a stronger need for PjBL (a difference of 28,7%)

Teachers' assessments placed all dimensions within the moderate range, whereas students' responses indicated relatively higher scores for civic knowledge and civic disposition. The smallest difference between teacher and student scores was observed for civic skills (1.6 percentage points), indicating a relatively close alignment between the two sources on this measured dimension (Irawan et al., 2024). In contrast, the PjBL-related indicators showed a larger difference, with teachers reporting

80.0% compared with 51.3% among students. This difference should be interpreted as a discrepancy between the two respondent groups rather than as evidence that the lower student score represents an unmet need for active learning (Arrahmi & Praheto, 2024). To further examine the meaning of these quantitative patterns, Table 6 presents the frequency distribution of the dominant codes identified from the open-ended responses of the 112 students.

Table 6. Frequency Distribution of Dominant Codes in Students' Open-Ended Responses

P	Domain Kode	Description	f	%	Theme
P1	M-01	Norms in My Life (difficult material)	52	46,4%	Material requiring extensive memorization and abstract concepts
P2	K-01	Difficulty memorizing/recalling	64	57,1%	Predominantly memorization-based approach
P3	C-01	Watching videos/screens	54	48,2%	Visual & active preferences
P3	C-02	Group discussion/work	44	39,3%	Collaborative preference
P4	MD-01	Video is the most helpful medium	62	55,4%	Need for visual media
P5	E-01	Group work/group discussion	50	44,6%	Meaningful collaborative experience
P6	S-01	More educational games	63	56,3%	The need for gamification in learning
P7	PR-01	Creating a poster as a project deliverable	63	56,3%	Readiness to produce a tangible deliverable
P8	H-01	Yes, Civics helps students develop respect and a sense of responsibility	101	90,2%	The value of Civics is recognized as meaningful

Table 6 shows that 90.2% of students (H-01: 101 students) acknowledged that Civics helped them become better people. In terms of needs, 56.3% wanted more games (S-01: 63), 56.3% wanted to create posters as project outcomes (PR-01: 63), and 42.9% wanted to create artworks or projects (S-02: 48). These preferences indicate students' receptiveness to innovative and active learning strategies, particularly learning activities involving educational games, collaborative work, creative production, and tangible project deliverables that are compatible with several characteristics of PjBL (Branson, 1998).

a. Systemic Imbalances in Civic Competence: The Paradox of Knowledge and Skills

The descriptive results show a clear difference between civic knowledge (92.6%) and civic skills (74.9%). However, the high civic knowledge score should be interpreted cautiously because it was based on only four dichotomous items and therefore reflects performance on the measured indicators rather than comprehensive civic knowledge (UI Alam et al., 2025). The 17.7-percentage-point difference nevertheless indicates that

application-oriented civic skills may require greater instructional attention.

Table 7. Comparative Profile of Civic Knowledge, Civic Skills, and Civic Disposition

Civic Competence Dimension	Mean Score	Maximum Score	Percentage of Reference Score	Descriptive Level	Key Interpretation
Civic Knowledge (CK)	3.71	4	92.6%	High	High proportion of affirmative/correct responses to the measured knowledge indicators
Civic Skills (CS)	3.74	5	74.9%	Moderate	Lower relative performance, indicating greater room for development in application and participation
Civic Disposition (CD)	4.27	5	85.1%	High	Relatively strong responses to the measured disposition indicators
CK–CS Difference			17.7 percentage points		Descriptive gap between knowledge and skills within the measured indicators

Note: Percentage = (mean/max score) × 100. The percentages represent responses to the measured indicators and should not be interpreted as comprehensive estimates of the constructs.

As shown in Table 7, civic skills recorded the lowest percentage among the three dimensions, while civic knowledge showed the highest. This pattern suggests that students may have stronger responses to knowledge-oriented indicators than to those involving application and participation. This interpretation is consistent with the view that civic skills require active participation and cannot be developed through information delivery alone (Branson, 1998).

The pattern was relatively consistent across schools, with no statistically significant differences in civic knowledge, civic skills, or civic disposition (Kruskal–Wallis: CK $p = 0.880$, CS $p = 0.072$, CD $p = 0.109$). Thus, the lower civic-skills score was not concentrated in a particular school but appeared across the participating schools.

From a pedagogical perspective, this finding highlights the need for progressive and challenging learning strategies that move beyond knowledge acquisition toward active participation, collaboration, problem solving,

decision making, and the application of civic knowledge in authentic situations. Such challenging and progressive learning experiences can help students transform civic knowledge into observable civic practices (Dian & Maryani, 2025). This orientation is particularly relevant to Pancasila Education because civic values need to be experienced and practiced, not merely understood conceptually.

Taken together, the findings indicate a descriptive knowledge–skills gap within the measured indicators. Although the result cannot establish a structural imbalance or causal relationship, the relatively lower civic-skills score provides a meaningful basis for prioritizing learning approaches that emphasize authentic civic practice and active participation

b. The Correlation Between Civic Skills and PjBL: Interpreting Data to Identify Needs

The strongest association was found between civic skills and PjBL-related learning needs ($p = 0.465$, $p < 0.001$, 95% bootstrap CI

[0.301, 0.603]). This moderate positive correlation indicates that students with more affirmative responses on the measured civic-skills indicators also tended to report more affirmative responses on the measured PjBL-

related indicators (Maghfiroh et al., 2024). However, the relationship should be interpreted as an association rather than a causal effect.

Table 8. Correlations Between Civic Competence Dimensions and PjBL-Related Learning Needs

Civic Competence Dimension	Spearman's ρ	p-value	95% Bootstrap CI	Interpretation of Association	Implication for PjBL Development
Civic Knowledge (CK)	0.144	0.129	-0.055 to 0.311	Not significant	Knowledge indicators alone provide limited evidence for prioritizing PjBL-related learning needs
Civic Skills (CS)	0.465	< 0.001	0.301 to 0.603	Moderate, significant positive association	Civic skills represent the strongest empirical basis for prioritizing active, collaborative, and project-oriented learning experiences
Civic Disposition (CD)	0.267	0.004	0.081 to 0.436	Weak-to-moderate, significant positive association	Civic disposition may be supported through meaningful, participatory, and collaborative PjBL activities

Note: ρ = Spearman's rank correlation coefficient; CI = bootstrap confidence interval. Correlations represent associations among observed indicator scores and should not be interpreted as causal relationships.

The results in Table 8 show that civic skills had the strongest relationship with PjBL-related indicators, whereas civic disposition showed a weaker but significant association. Civic knowledge, in contrast, was not significantly associated with PjBL-related indicators (Zhang & Ma, 2023). This pattern suggests that the measured PjBL indicators are more closely related to the application and participation dimensions of civic competence than to declarative knowledge alone.

The CS–PjBL association is theoretically consistent with the characteristics of project-based learning, which involve discussion, collaboration, problem solving, decision making, and applying knowledge to meaningful tasks. These activities provide opportunities for students to transform civic knowledge into active civic practices (Hasanah et al., 2024). However, the correlation does not establish that stronger civic skills cause greater PjBL needs;

it only indicates that the two measured dimensions tend to vary together.

The significant association between civic disposition and PjBL-related indicators ($\rho = 0.267, p = 0.004$) further suggests that project-oriented learning may provide opportunities to practice responsibility, collaboration, and other civic values. Conversely, the non-significant CK–PjBL association ($\rho = 0.144, p = 0.129$) indicates that responses to the measured knowledge indicators were not systematically related to PjBL-related responses.

Taken together, the correlation findings provide a focused basis for PjBL development: civic skills should become the primary target, while civic knowledge and disposition function as complementary dimensions (Winarti et al., 2024). Accordingly, subsequent instructional design for PjBL should emphasize authentic tasks that require students to collaborate, solve problems, make

decisions, communicate ideas, and apply Pancasila values in meaningful situations, while providing sufficient flexibility to accommodate students' learning characteristics and contextual needs (Khusnani et al., 2026). This positioning strengthens the relevance of PjBL as a challenging, progressive, and value-oriented learning approach, while recognizing that its actual effectiveness requires validation through subsequent intervention research.

c. Gap Analysis and Teachers' Perspectives: Setting Priorities for Intervention

The comparison between student and teacher responses reveals different perceptions of students' civic competence and PjBL-related learning needs. The largest gap

occurred in civic knowledge, with students reporting 92.6% compared with 72.5% among teachers, followed by civic disposition (85.1% vs. 71.7%). In contrast, civic skills showed the closest alignment, with only a 1.6-percentage-point difference (74.9% vs. 73.3%). PjBL-related indicators showed the largest divergence, with teachers reporting 80.0% compared with 51.3% among students (Prasitya et al., 2025). These differences should be interpreted as variations in perspective rather than evidence that one source is inherently more accurate; instead, the divergence provides instructional-design information for adapting subsequent learning activities to both students' expressed preferences and teachers' observations of classroom needs.

Table 9. Gap Analysis Between Students' and Teachers' Perspectives and Implications for Intervention

Dimension	Students' Score	Teachers' Score	Absolute Gap	Direction of Difference	Implication for Intervention
Civic Knowledge (CK)	92.6%	72.5%	20.1 pp	Students > Teachers	Strengthen application and external observation of knowledge rather than focusing only on conceptual recall
Civic Skills (CS)	74.9%	73.3%	1.6 pp	Students > Teachers	High priority: strong convergence indicates a shared need to strengthen application, participation, collaboration, and problem solving
Civic Disposition (CD)	85.1%	71.7%	13.4 pp	Students > Teachers	Strengthen sustained practice and observable civic behavior to support internalization of values
PjBL-Related Needs	51.3%	80.0%	28.7 pp	Teachers > Students	Requires triangulation and cautious interpretation before concluding that students have a high demand for PjBL

Note: pp = percentage points. The gap is calculated as the absolute difference between students' and teachers' reported percentages. The scores represent responses to the measured diagnostic indicators and should not be interpreted as comprehensive estimates of the underlying constructs.

As shown in Table 9, The most important finding is the strong convergence on civic skills. The minimal 1.6-point gap suggests that students and teachers provide a relatively consistent assessment of this dimension, making it the most defensible priority for

instructional intervention. This finding is strengthened by the correlation analysis, in which civic skills showed the strongest association with PjBL-related indicators ($\rho = 0.465, p < 0.001$).

The larger differences in civic knowledge and disposition require more cautious interpretation. Students' higher self-reported scores may reflect differences between perceived competence and teacher-observed performance (Ishayati et al., 2025). This is particularly relevant to civic disposition, where 90.2% of students acknowledged the value of Civic Education in developing respect and responsibility, while teachers still observed behavioral concerns. Thus, character and value development should be supported through observable practice rather than self-perception alone (Handika & Wangid, 2013).

The 28.7-point difference in PjBL-related indicators also warrants caution. The lower student score should not be interpreted as evidence of an unmet need for PjBL because the questionnaire measured a limited set of dichotomous indicators. Nevertheless, students' qualitative responses particularly their preferences for educational games (56.3%), poster-based projects (56.3%), and other creative activities suggest receptiveness to several characteristics of project-oriented learning.

Taken together, the gap analysis establishes civic skills as the clearest intervention priority because they show both the smallest teacher–student discrepancy and the strongest relationship with PjBL-related indicators. PjBL development should therefore focus on

authentic activities that strengthen collaboration, problem solving, decision making, participation, and the application of Pancasila values (Nurdiansyah et al., 2025). At the same time, the substantial differences in PjBL-related perceptions indicate that intervention design should rely on triangulated evidence rather than a single respondent group or percentage score. This positioning provides a stronger foundation for a challenging, progressive, and value-oriented PjBL intervention.

d. Qualitative Confirmation and Implications for the Development of PjBL

Teacher interviews provide qualitative confirmation of the quantitative findings. Four of five teachers stated that PjBL is necessary or very necessary, while teachers who provided substantive responses emphasized the need for systematic and practical guidance. The main challenges involved understanding the alignment between PjBL and the Merdeka Curriculum and developing appropriate assessment procedures (Alakayleh, 2025). These findings indicate that the primary issue is not only the perceived relevance of PjBL but also teachers' readiness to implement it effectively.

Table 10. Qualitative Findings and Implications for PjBL Development

Qualitative Finding	Evidence from Teacher Interviews	Implication for PjBL Development
Strong perceived relevance of PjBL	4 of 5 teachers stated that PjBL was necessary or very necessary	PjBL development should be prioritized as a potential instructional approach
Need for practical guidance	All teachers providing substantive responses requested systematic and practical guidance	Develop structured teacher guidelines covering preparation, implementation, and evaluation
Limited understanding of PjBL–Merdeka Curriculum alignment	Teachers reported difficulty connecting PjBL with the Merdeka Curriculum	Explicitly map project activities to relevant curriculum learning outcomes
Assessment difficulties	Teachers identified assessment as an implementation challenge	Provide operational assessment instruments and clear criteria for evaluating project processes and outcomes
Authentic project themes	“Pancasila in My Life” was proposed by three teachers	Develop projects connected to students' everyday civic experiences

Qualitative Finding	Evidence from Teacher Interviews	Implication for PjBL Development
School-based civic context	“Mini School Constitution” was proposed by one teacher	Include authentic school-context projects that encourage participation, discussion, and decision making

Note: The table summarizes qualitative findings reported in the teacher interviews and translates them into implications for subsequent PjBL development. The proposed implications are development-oriented interpretations rather than direct measurements of intervention effectiveness.

Data presented in Table 10, the proposed themes, “Pancasila in My Life” and “Mini School Constitution,” provide concrete directions for authentic project development because they are grounded in students’ everyday school experiences. Such projects can create opportunities to practice civic skills, including collaboration, communication, participation, and collective decision making, while connecting these practices with Pancasila values (Loyens et al., 2023).

These findings are consistent with previous research showing that teachers’ awareness of new pedagogical needs does not necessarily ensure implementation readiness and that structured operational guidance remains important (Basilotta-Gomes-Pablos et al., 2022). Similarly, clear learning structures have been associated with improved implementation of active learning in elementary classrooms (Alakayleh, 2025). Thus, PjBL development should include not only student project activities but also teacher-oriented implementation and assessment guidance, thereby supporting innovative learning implementation through structured instructional strategies and context-sensitive classroom practices.

The qualitative findings from students further support this direction. Students expressed preferences for educational games (56.3%), poster production (56.3%), and other creative project activities, indicating receptiveness to several characteristics of PjBL. However, these preferences should be understood as interest in particular learning

activities rather than direct evidence of demand for PjBL as a pedagogical model (Safitri, 2024).

Taken together, the quantitative and qualitative evidence supports the development of a PjBL approach that prioritizes civic-skills development through authentic, collaborative, and value-oriented projects. The model should be accompanied by systematic implementation procedures and operational assessment instruments, while maintaining alignment with the Merdeka Curriculum (Shafarwati & Johan, 2025). Importantly, the present findings provide a needs-analysis foundation for PjBL development, not evidence of its effectiveness; implementation and effectiveness should therefore be examined in subsequent intervention research.

4. Conclusion

This study provides a preliminary empirical description of fifth-grade students’ civic competence and PjBL-related learning indicators in Pancasila Education across five elementary schools. The descriptive findings indicate relatively high proportions of correct responses on the measured civic knowledge items and relatively lower scores for civic skills, while the qualitative findings indicate students’ interest in collaborative, creative, and project-oriented learning activities. The positive association between civic skills and PjBL-related indicators ($p = 0.465$; $p < 0.001$), together with the differences between student and teacher responses and the qualitative evidence, provides a basis for considering PjBL as a potential approach for

strengthening civic skills in Pancasila Education. However, these findings should be interpreted within the limitations of the diagnostic instrument. Civic knowledge was assessed using only four dichotomous items, while the other dimensions were also represented by a limited number of dichotomous indicators. Consequently, the resulting percentage scores should be understood as descriptive evidence related to the specific indicators measured rather than as comprehensive estimates of students' civic competence or learning needs. In particular, the 92.6% civic knowledge score should not be interpreted as definitive evidence of high overall civic knowledge, and the 51.3% PjBL-related score should not be interpreted as direct evidence of an unmet need for active learning.

The interpretation of the findings also depends on the completeness and transparency of the empirical evidence presented in the manuscript. The Spearman correlation results and gap-analysis data have therefore been explicitly presented in the revised manuscript to ensure that the corresponding interpretations can be independently examined. Nevertheless, the study remains limited by its small and purposively selected sample, the preliminary nature of the diagnostic instrument, and the limited psychometric sensitivity of the dichotomous measures. Future studies should employ more comprehensive and psychometrically validated instruments, include a larger and more diverse sample, and examine PjBL implementation directly to determine whether the identified civic-skills pattern can be translated into measurable improvements in students' civic competence.

From a pedagogical perspective, the findings position PjBL as a potentially progressive, challenging, and innovative learning approach for Pancasila Education

because it can connect civic knowledge with active participation, problem solving, collaboration, decision making, and the practice of civic values. Its subsequent instructional design should be informed by students' competency profiles, learning preferences, and classroom contexts so that learning strategies can be adapted to identified needs. Its potential contribution extends beyond academic learning to character development and value-oriented learning when project activities are deliberately designed around authentic social situations and observable civic behaviors. Future PjBL development may also incorporate sustainability-oriented contexts, such as responsible use of resources and care for the school environment, although such dimensions were not directly examined in the present study. Accordingly, the present findings should be regarded as a needs-analysis foundation for subsequent development and validation of PjBL interventions rather than as definitive evidence of PjBL effectiveness. Therefore, subsequent research should develop and validate a contextually grounded PjBL model that integrates civic competence, character formation, value-based learning, and authentic student participation while remaining aligned with the curricular and developmental characteristics of elementary education. Such development should incorporate progressive and challenging learning experiences, innovative learning strategies, systematic instructional design, and adaptive learning principles that respond to students' competency profiles, preferences, and classroom contexts.

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