**MJP Journal of Education and Teaching Learning**
*Vol.4, No.2 (2025): 1092 – 1099*
*https://jurnalilmiah.co.id/index.php/MJPJETL*



# Effects of Differentiated Instruction on Elementary Students' Learning of Pancasila Symbols and Principles: A Quasi-Experimental Study

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***Article Info***

***Keywords:***

*Differentiated Learning; Elementary School; Learning Outcomes; Pancasila Education; Quasi-Experimental Design*

## ABSTRACT

This study aimed to examine the effect of differentiated learning on elementary school students' ability to identify and recite the symbols and principles of Pancasila. This research was motivated by students' limited mastery of Pancasila symbols and principles due to conventional instruction that did not sufficiently accommodate differences in readiness, interests, and learning profiles. A quantitative approach with a quasi-experimental method and nonequivalent control group design was employed. The sample consisted of 50 elementary school students, including 25 students in the experimental group and 25 students in the control group, selected through purposive sampling. Data were collected through achievement tests, observations, and questionnaires, then analyzed using descriptive and inferential statistics with JASP. The results showed that the overall mean score increased from 58.36 in the pretest to 79.38 in the posttest. The experimental group achieved a higher posttest mean score of 87.36 than the control group, which obtained 71.40. The Wilcoxon Signed-Rank Test and Mann–Whitney U Test showed significance values of < 0.001. These findings imply that differentiated learning is an effective pedagogical strategy for improving elementary Pancasila Education.

**Informasi Artikel**

***Kata Kunci:***

*Hasil Belajar; Kuasi-Eksperimen; Pembelajaran Berdiferensiasi; Pendidikan Pancasila; Sekolah Dasar*

## ABSTRAK

Penelitian ini bertujuan untuk menguji pengaruh pembelajaran berdiferensiasi terhadap kemampuan peserta didik sekolah dasar dalam mengidentifikasi lambang dan menyebutkan bunyi sila Pancasila. Penelitian ini dilatarbelakangi oleh masih terbatasnya penguasaan peserta didik terhadap lambang dan bunyi sila Pancasila akibat pembelajaran konvensional yang belum sepenuhnya mengakomodasi perbedaan kesiapan belajar, minat, dan profil belajar peserta didik. Penelitian ini menggunakan pendekatan kuantitatif dengan metode quasi experiment dan desain nonequivalent control group design. Sampel penelitian terdiri atas 50 peserta didik sekolah dasar, yaitu 25 peserta didik pada kelas eksperimen dan 25 peserta didik pada kelas kontrol, yang dipilih melalui purposive sampling. Data dikumpulkan melalui tes hasil belajar, observasi, dan angket, kemudian dianalisis menggunakan statistik deskriptif dan inferensial dengan bantuan JASP. Hasil penelitian menunjukkan bahwa rata-rata nilai meningkat dari 58,36 pada pretest menjadi 79,38 pada posttest. Kelas eksperimen memperoleh rata-rata posttest sebesar 87,36, lebih tinggi dibandingkan kelas kontrol sebesar 71,40. Hasil uji Wilcoxon Signed-Rank Test dan Mann–Whitney U Test menunjukkan nilai signifikansi < 0,001. Temuan ini mengimplikasikan bahwa pembelajaran berdiferensiasi efektif digunakan untuk meningkatkan kualitas Pendidikan Pancasila di sekolah dasar.

***Article History***

Received : 15/08/2026
Revised : 10/09/2026
Accepted : 21/10/2026

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## 1. Introduction

Pancasila Education in Indonesian elementary schools plays a fundamental role in shaping students' civic literacy, moral awareness, national identity, and early character formation. At the primary level, the ability to identify the symbols of Pancasila and recite the principles associated with each symbol is not merely a memorization task, but an initial stage in helping children connect symbolic representation with civic values, social responsibility, and moral conduct in everyday life [1], [2], [3]. Civic and character education research emphasizes that value-based learning should be introduced through meaningful, contextual, and age-appropriate pedagogical experiences because children construct moral and social understanding gradually through interaction, representation, repetition, and guided practice [4], [5], [6]. Therefore, teaching Pancasila symbols and principles in elementary schools requires instructional strategies that enable students to observe, discuss, manipulate, visualize, and express their understanding through activities that correspond to their cognitive development and learning diversity [7], [8], [9].

However, classroom practices in elementary civic education often remain constrained by uniform instructional activities, teacher-centered explanation, and recall-oriented assessment. Such practices may be less effective for learners who differ in readiness, prior knowledge, attention span, learning preferences, and modes of expression [10], [11], [12]. The "one-size-fits-all" model of instruction tends to overlook learner diversity and may reduce opportunities for students to engage actively with learning materials, particularly in lower grades where concrete, visual, kinesthetic, and collaborative learning experiences are pedagogically important [13], [14], [15]. In the context of Pancasila Education, this problem becomes more critical because the learning objectives involve not only factual recall of symbols and principles but also the early internalization of civic values through meaningful learning experiences .

Differentiated instruction offers a relevant pedagogical response to this issue because it is designed to accommodate students' readiness, interests, and learning profiles through flexible adjustment of content, learning processes, products, and classroom environments [16], [17], [18]. Previous studies show that differentiated instruction can support student achievement when teachers use diagnostic information, flexible grouping, varied tasks, scaffolding, and multiple forms of learning representation [19], [20], [21]. Systematic reviews and empirical studies further indicate that differentiation has positive potential for improving students' cognitive outcomes, engagement, motivation, and participation, although its effectiveness depends strongly on the quality of planning, teacher competence, and alignment between learning activities and students' actual needs [22], [23], [24]. In elementary school settings, differentiated learning has also been found to promote joyful, meaningful, and inclusive learning because students are given varied opportunities to process concepts and demonstrate understanding according to their learning characteristics [4], [5], [8].

In Indonesia, differentiated instruction has become increasingly significant within the implementation of the Merdeka Curriculum, which emphasizes student-centered learning, flexible teaching, formative assessment, and learning that responds to students' diversity. Studies conducted in Indonesian educational contexts indicate that differentiated instruction supports the development of more adaptive classroom practices and helps teachers address differences in students' learning needs, interests, and abilities [25], [26], [27]. In Pancasila Education specifically, recent research shows that differentiated instruction can improve students' motivation, participation, and learning outcomes because teachers are able to design activities that vary in content, process, and product while still maintaining the same learning objectives. Other studies on Pancasila symbols and principles also demonstrate the importance of concrete and interactive media, such as educational games and visual learning materials, in helping elementary students understand the relationship between symbols, principles, and civic character [25], [28], [29].

Although previous studies have provided valuable evidence on differentiated instruction and Pancasila Education, several limitations remain. First, many studies on differentiated instruction in elementary schools focus on mathematics, reading, science, or general learning outcomes rather than on specific civic competencies related to Pancasila symbols and principles . Second, studies related to Pancasila Education have often examined teacher perceptions, character formation, Pancasila Student Profile development, or media development, but fewer studies have tested differentiated learning as an instructional treatment for improving students' ability to identify Pancasila symbols and recite the corresponding principles [29], [30], [31]. Third, empirical evidence using a quasi-experimental design in this specific topic remains limited, particularly studies that compare students taught through differentiated learning with those taught through conventional instruction [19], [22], [32]. Therefore, the research gap addressed in this study lies in the limited empirical evidence on the effect of differentiated learning activities on elementary school students' ability to identify and recite the symbols and principles of Pancasila. To address this gap, this study aims to examine the effect of a differentiated learning approach on elementary school students' ability to identify and recite the symbols and principles of Pancasila. Specifically, this study investigates students' ability before and after the implementation of differentiated learning and determines whether there is a significant difference in learning outcomes between students taught using differentiated learning and students taught using conventional instruction.

## 2. Method

This study employed a quantitative approach using a quasi-experimental method with a nonequivalent control group design. This design was selected because the research was conducted in an authentic classroom setting involving two intact groups that were not randomly assigned. Quasi-experimental designs are widely used to evaluate educational interventions when random assignment is not feasible, but they require careful comparison between treatment and control groups, pretest information, and transparent reporting of the intervention procedures to strengthen internal validity [33], [34], [35]. In this study, the experimental group received differentiated learning, whereas the control group received conventional instruction. Both groups were administered a pretest before the treatment and a posttest after the treatment to measure changes in students'

ability to identify the symbols of Pancasila and recite the corresponding principles. This design enabled the researcher to compare students' initial and final learning outcomes and to determine whether differentiated learning produced a significant effect on elementary school students' achievement in Pancasila Education.

The population of this study consisted of elementary school students who were studying the topic of Pancasila symbols and principles. The sample involved 50 students, consisting of 25 students in the experimental class and 25 students in the control class, as stated in the original manuscript . The sample was selected using purposive sampling because the researcher determined the participants based on specific considerations, including the relevance of the learning material, the availability of two comparable classes, and the suitability of the classroom context for implementing the instructional treatment. The experimental and control classes studied the same topic and were assessed using the same learning indicators so that the comparison of learning outcomes could be attributed more directly to the instructional approach used in each group. The use of intact classroom groups was consistent with quasi-experimental educational research, particularly when researchers seek to examine the effectiveness of an intervention within naturally occurring school conditions [14], [34], [35].

The instructional treatment in the experimental class was implemented through differentiated learning activities designed to accommodate students' learning readiness, interests, and learning profiles. The activities included matching Pancasila symbols with the corresponding principles, coloring Pancasila symbols, cutting and pasting symbol images, and creating a chain of Pancasila symbols according to students' learning needs and interests, as described in the manuscript . These activities were intended to provide concrete, visual, and hands-on learning experiences so that students could understand the relationship between the symbols and principles of Pancasila more meaningfully. Differentiated instruction is relevant in this context because it enables teachers to adapt learning content, processes, products, and classroom activities to students' diverse readiness levels, interests, and learning characteristics . Previous empirical studies also show that differentiated instruction can support students' achievement and engagement when it is implemented through systematic planning, flexible grouping, and tasks aligned with learners' needs. In contrast, the control class received conventional instruction, which emphasized teacher explanation and uniform learning tasks for all students.

Data were collected using learning achievement tests, observation sheets, and questionnaires. The learning achievement test was used as the primary instrument to measure students' ability to identify the symbols of Pancasila and recite the principles of Pancasila before and after the instructional treatment. Observation sheets were used to examine students' engagement and participation during the learning process, while the questionnaire was used to obtain students' responses toward the implementation of differentiated learning. The questionnaire was arranged using a Likert scale to capture students' responses to the learning process. The use of multiple instruments strengthened the data collection process because it allowed the study to capture both learning outcomes and supporting classroom-process information. In educational and social research, instrument development requires alignment between the construct, indicators, item content, and the intended use of the data to ensure that the collected information is valid and interpretable [33], [34], [36].

The quality of the instruments was examined through content validity and empirical validity. Content validity was conducted through expert judgment to ensure that the items were aligned with the research objectives, learning indicators, and characteristics of elementary school students. Empirical validity was tested using the Product Moment correlation technique, while instrument reliability was analyzed using Cronbach's Alpha. An alpha coefficient greater than 0.70 was considered acceptable as an indicator of internal consistency, although Cronbach's Alpha should be interpreted carefully and should not be treated as the only evidence of instrument quality [37], [38]. The instruments were tested before being used in the main study to ensure that they were appropriate for measuring students' learning outcomes and responses in the context of Pancasila Education.

Data analysis was conducted using descriptive and inferential statistics with the assistance of JASP software. Descriptive statistics were used to calculate the mean, standard deviation, minimum score, and maximum score of students' pretest and posttest results. Before hypothesis testing, the normality of the data was examined using the Shapiro–Wilk test. Normality testing is an important preliminary step in quantitative analysis because the distribution of data influences the selection of parametric or nonparametric statistical procedures [35], [36], [39]. The results showed that the pretest data were normally distributed, whereas the posttest data were not normally distributed; therefore, nonparametric statistical tests were used to analyze the research data. The Wilcoxon Signed-Rank Test was applied to determine whether there was a significant difference between students' pretest and posttest scores, while the Mann–Whitney U Test was used to determine whether there was a significant difference in posttest scores between the experimental and control groups. These nonparametric procedures are appropriate when the data do not meet normality assumptions and when researchers need to compare paired scores or independent groups using ranked data. All analyses were conducted using JASP because it provides accessible statistical procedures and transparent output for common research designs (Love et al., 2019). The level of significance was set at 0.05, and the research hypothesis was accepted when the significance value was lower than 0.05, indicating that differentiated learning had a significant effect on students' ability to identify and recite the symbols and principles of Pancasila.

## 3. Result and Discussion

### *3.1 Result*

#### 3.1.1 Descriptive Statistics of Students' Learning Outcomes

The descriptive analysis was conducted to provide an overview of students' learning outcomes before and after the instructional treatment. The pretest was administered to identify students' initial ability to identify and recite the symbols and principles of Pancasila, while the posttest was administered after the learning process to examine changes in students' achievement. The descriptive statistics are presented in Table 1.

**Table 1.** Descriptive Statistics of Students' Learning Outcomes

| Variable | N | Mean | SD | Minimum | Maximum |
|---|---|---|---|---|---|
| **Pretest** | 50 | 58.36 | 2.174 | 55 | 63 |
| **Posttest** | 50 | 79.38 | 8.303 | 69 | 92 |

As shown in Table 1, the mean pretest score was 58.36 with a standard deviation of 2.174, indicating that students' initial ability to identify and recite the symbols and principles of Pancasila was relatively homogeneous before the learning process. After the instructional treatment, the mean posttest score increased to 79.38 with a standard deviation of 8.303. This increase indicates that students demonstrated higher learning achievement after participating in the learning activities. The wider standard deviation in the posttest also suggests greater variation in students' final achievement compared with their initial scores.

### 3.1.2 Normality Test

Before conducting hypothesis testing, a normality test was performed to determine whether the pretest and posttest data met the assumption of normal distribution. The Shapiro–Wilk test was used because the number of participants was relatively limited and this test is appropriate for examining data distribution in small to moderate samples. The results of the normality test are presented in Table 2.

**Table 2**. Shapiro-Wilk Normality Test Results

| Variable | Significance Value |
|---|---|
| **Pretest** | 0.063 |
| **Posttest** | < 0.001 |

Table 2 shows that the pretest data had a significance value of 0.063, which is greater than 0.05. This indicates that the pretest scores were normally distributed. However, the posttest data had a significance value of < 0.001, which is lower than 0.05, indicating that the posttest scores were not normally distributed. Because the assumption of normality was not fully met, the hypothesis testing was conducted using nonparametric statistical procedures, namely the Wilcoxon Signed-Rank Test and the Mann-Whitney U Test.

### 3.1.3 Difference Between Pretest and Posttest Scores

The Wilcoxon Signed-Rank Test was used to examine whether there was a significant difference between students' pretest and posttest scores. This test was selected because the posttest data did not meet the assumption of normality. The results of the Wilcoxon Signed-Rank Test are presented in Table 3.

**Table 3**. Wilcoxon Signed-Rank Test Results

| Comparison | Z | Significance Value |
|---|---|---|
| **Pretest-Posttest** | -6.154 | < 0.001 |

As presented in Table 3, the Wilcoxon Signed-Rank Test produced a Z value of -6.154 with a significance value of < 0.001. Since the significance value was lower than 0.05, the null hypothesis was rejected. This result indicates that there was a statistically significant difference between students' pretest and posttest scores. In other words, students' ability to identify and recite the symbols and principles of Pancasila increased significantly after the learning process.

### 3.1.4 Comparison of Learning Outcomes Between the Experimental and Control Groups

To determine whether differentiated learning produced better learning outcomes than conventional instruction, the posttest scores of the experimental and control groups were compared using the Mann–Whitney U Test. This test was used because the posttest data were not normally distributed. The results are presented in Table 4.

**Table 4.** Mann-Whitney U Test Results for the Experimental and Control Groups

| Group | Mean Rank | Mean Score | U | Significance Value |
|---|---|---|---|---|
| **Experimental** | 38.00 | 87.36 | 625.00 | < 0.001 |
| **Control** | 13.00 | 71.40 | | |

Table 4 shows that the experimental group obtained a higher mean rank of 38.00 and a higher mean score of 87.36, while the control group obtained a mean rank of 13.00 and a mean score of 71.40. The Mann–Whitney U Test produced a significance value of < 0.001, which is lower than 0.05. This result indicates that there was a statistically significant difference in posttest scores between students taught using differentiated learning and those taught using conventional instruction. The higher mean score in the experimental group demonstrates that differentiated learning had a stronger positive effect on students' ability to identify and recite the symbols and principles of Pancasila.

### 3.1.5 Summary of Findings

The results of the descriptive and inferential analyses indicate that students' learning outcomes improved after the implementation of differentiated learning. The overall mean score increased from 58.36 in the pretest to 79.38 in the posttest. The Wilcoxon Signed-Rank Test confirmed a significant difference between pretest and posttest scores, while the Mann–Whitney U Test showed that the experimental group achieved significantly higher posttest scores than the control group. These findings provide statistical evidence that differentiated learning significantly improved elementary school students' ability to identify and recite the symbols and principles of Pancasila compared with conventional instruction.

## *3.2 Discussion*

The findings of this study demonstrate that differentiated learning significantly improved elementary school students' ability to identify and recite the symbols and principles of Pancasila. The increase in students' mean score from 58.36 in the pretest to 79.38 in the posttest indicates that students achieved better learning outcomes after participating in learning activities designed according to their readiness, interests, and learning profiles. In addition, the experimental group obtained a higher posttest mean score than the control group, suggesting that differentiated learning was more effective than conventional instruction in supporting students' understanding of Pancasila symbols and principles. This result indicates that students' mastery of symbolic civic content can be strengthened when learning is presented through concrete, varied, and student-centered activities rather than through uniform explanation and memorization-based instruction.

This finding is consistent with Deunk, who reported that differentiation practices in primary education can have positive cognitive effects, particularly when learning is adapted to students' needs and supported by structured instructional planning [10]. The present study extends this evidence by showing that differentiated learning is not only useful in general primary education or core academic subjects but also applicable to value-based civic learning in Pancasila Education. The activities used in this study, such as matching symbols, coloring, cutting and pasting images, and arranging symbol chains, provided students with multiple learning pathways to understand the same content. This supports the argument that differentiated instruction becomes more meaningful when students are given flexible opportunities to process information visually, kinesthetically, and collaboratively.

The results also align with Prast et al., who found that differentiated instruction in primary mathematics contributed to students' achievement when teachers adapted learning activities to diverse educational needs [14]. Although Prast et al. focused on mathematics, the present study confirms a similar pattern in Pancasila Education: students learn more effectively when instructional tasks are adjusted to their learning characteristics [14]. However, this study differs from Prast et al. because it applies differentiation to symbolic and civic content rather than numerical or procedural knowledge. This distinction is important because the ability to identify Pancasila symbols and recite their principles requires students to connect visual representation, verbal recall, and civic meaning. Therefore, differentiated learning in this study functioned not only as an achievement-enhancing strategy but also as a bridge between symbolic recognition and early civic understanding.

The findings further support the study by Pozas et al., which emphasized that differentiated instruction is a practical response to learner diversity when teachers vary learning activities, grouping, and task demands [11]. In the present study, the differentiated learning approach enabled students with different levels of readiness to engage with the same Pancasila content through activities that were more accessible and developmentally appropriate. This is particularly relevant in elementary education because students often differ in attention span, fine motor skills, oral expression, and prior familiarity with national symbols. Compared with conventional learning, which tends to provide the same task for all students, differentiated learning allows students to approach the material through varied forms of engagement while still working toward the same learning objectives.

This study is also in line with Smale-Jacobse et al., who argued that differentiated instruction can support achievement when it is implemented as a systematic pedagogical approach rather than as an incidental variation of classroom activities [12]. The present study confirms that differentiation is effective when learning activities are intentionally designed based on students' readiness, interests, and learning profiles. However, Smale-Jacobse et al. also noted that the empirical evidence on differentiated instruction varies depending on context, implementation quality, and teacher readiness. Therefore, the significant result in this study should be interpreted in relation to the specific instructional design used: the learning activities were concrete, visual, and directly aligned with the targeted competence of identifying and reciting Pancasila symbols and principles.

The present findings also strengthen the results of Efendi et al., who found that differentiated instruction in elementary Pancasila Education can improve students' motivation, participation, and learning outcomes based on teachers' perceptions [9]. While Efendi et al. emphasized teacher perceptions and classroom experiences, this study provides quantitative evidence through pretest–posttest comparison and posttest comparison between experimental and control groups. Thus, this study contributes stronger empirical support by demonstrating that differentiated learning has a statistically significant effect on students' measurable learning outcomes in Pancasila Education. This distinction is important because previous studies have often discussed differentiated learning in Pancasila Education at the level of perception or implementation, whereas this study directly tested its effect on students' ability to master specific Pancasila content.

The findings are also relevant to Rohmah et al., who developed SIMLA educational game-based learning media to support students' understanding of Pancasila symbols and principles. Both studies emphasize the importance of concrete and interactive learning experiences in helping elementary students understand symbolic Pancasila material [8]. However, the present study differs by focusing on differentiated learning as an instructional approach rather than on media development. This means that the contribution of the current study lies not only in the use of attractive learning activities but also in the pedagogical principle of adjusting activities to students' readiness, interests, and learning profiles. In this sense, differentiated learning may complement media-based approaches because it provides a broader instructional framework for selecting, adapting, and organizing learning activities according to student diversity.

The novelty of this study lies in its specific focus on the effect of differentiated learning on elementary school students' ability to identify and recite the symbols and principles of Pancasila. Previous studies have widely examined differentiated instruction in mathematics, reading, general elementary learning, teacher perceptions, and broader character education outcomes. However, empirical studies that test differentiated learning through a quasi-experimental design in the specific context of Pancasila symbols and principles remain limited. This study therefore contributes to the literature by showing that differentiated learning can be operationalized through simple but meaningful activities such as matching, coloring, cutting, pasting, and arranging Pancasila symbols. These activities are not merely supplementary tasks; they serve as differentiated pathways that help students connect visual symbols, verbal principles, and civic meaning in a developmentally appropriate manner.

The practical implication of this study is that elementary school teachers should consider differentiated learning as a viable strategy for improving Pancasila Education, particularly in topics that require students to recognize symbols, remember principles, and understand civic values. Teachers can design varied learning activities based on students' readiness, interests, and learning profiles without changing the core learning objectives. For curriculum implementation, this study supports the need for lesson plans that provide flexible learning processes and varied student products while maintaining clear competency targets. For school leaders and teacher educators, the findings imply that professional development should equip teachers with

practical skills in diagnostic assessment, differentiated task design, flexible grouping, and formative evaluation so that differentiated learning can be implemented more systematically and sustainably in elementary classrooms.

Despite its contribution, this study has several limitations. First, the study involved only 50 students, consisting of 25 students in the experimental class and 25 students in the control class; therefore, the generalizability of the findings to broader elementary school contexts should be made cautiously. Second, the study used a quasi-experimental design with intact classes, so individual randomization was not conducted. Although this design is appropriate for authentic classroom research, it may not fully control all external variables that could influence learning outcomes. Third, the study focused only on students' ability to identify and recite the symbols and principles of Pancasila, so it did not measure deeper dimensions of civic understanding, value internalization, or long-term retention. Fourth, the available data do not include effect size, delayed posttest, or qualitative evidence from student interviews, which could have provided a richer explanation of how differentiated learning influenced students' learning processes. Future research is therefore recommended to involve larger samples, multiple schools, longer intervention periods, effect size reporting, delayed posttests, and mixed-method designs to examine not only learning outcomes but also students' engagement, meaning-making processes, and internalization of Pancasila values.

## 5. Conclusion

This study concludes that the differentiated learning approach had a significant positive effect on elementary school students' ability to identify and recite the symbols and principles of Pancasila. The improvement in students' learning outcomes, as reflected in the increase from the pretest mean score to the posttest mean score, indicates that learning activities designed according to students' readiness, interests, and learning profiles can support more meaningful understanding of symbolic civic content. The higher posttest achievement of the experimental group compared with the control group further confirms that differentiated learning was more effective than conventional instruction in helping students connect Pancasila symbols with their corresponding principles. These findings suggest that differentiated learning can serve as an appropriate pedagogical strategy for Pancasila Education in elementary schools, particularly when teachers use concrete, visual, and hands-on activities to accommodate learner diversity. The study contributes empirical evidence to the implementation of differentiated instruction in civic and value-based education; however, its findings should be interpreted within the limitation of a small sample and a quasi-experimental design. Future studies are recommended to involve larger samples, longer intervention periods, delayed posttests, and additional measures of students' civic understanding and value internalization.

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