

Learning Pancasila through Play: The Effectiveness of the Garuda Puzzle for Elementary Students

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ABSTRACT

Understanding the symbols of Pancasila is an essential component of civic education in elementary schools because it helps students develop a sense of national identity and understand the values embodied in Pancasila. However, many first-grade students struggle to recognize and understand Pancasila symbols due to the abstract nature of the concepts and the limited use of engaging instructional media. This study aimed to examine the effectiveness of the Garuda Puzzle in improving students' understanding of Pancasila symbols. The study employed a quantitative approach, using a pre-experimental, one-group, pre-test-post-test design. The participants were 27 first-grade students from SD Negeri 50 Bulu'datu, Palopo City, selected through purposive sampling. Data were collected through pre-test and post-test assessments consisting of ten multiple-choice questions administered before and after three treatment sessions using the Garuda Puzzle. The data were analyzed using descriptive statistics and a paired-samples t-test in SPSS. The findings revealed a substantial improvement in students' understanding of Pancasila symbols after the intervention. The mean score increased from 44.07 in the pre-test to 71.48 in the post-test. Furthermore, the paired-samples t-test indicated a statistically significant difference between the pre-test and post-test scores ($p < .05$), demonstrating that the Garuda Puzzle had a significant positive effect on students' understanding of Pancasila symbols. These findings suggest that the Garuda Puzzle is an effective and developmentally appropriate instructional medium that promotes active learning and enhances civic education learning outcomes among elementary school students.

INTRODUCTION

Elementary education plays a strategic role in shaping students' character, knowledge, and national identity from an early age (Arifin, 2023; Rahmawati & Hang, 2025). At the primary school level, the internalization of Pancasila values serves as a fundamental basis for fostering national identity and developing responsible citizens with a strong sense of patriotism (Meidiani et al., 2025; Suparmini et al., 2025). One important manifestation of character education in lower-grade classrooms is the introduction of Pancasila symbols represented in the national emblem, the Garuda Pancasila (Nursalim et al., 2024; Qondias et al., 2025). Through this learning process, students are expected not only to

recognize the visual symbols but also to understand the values embodied in each principle of Pancasila as guidance for social, national, and civic life.

Teaching Pancasila symbols to first-grade students presents particular challenges given their developmental characteristics. At this stage, children are generally in the concrete operational phase, where they learn more effectively through tangible objects, visual representations, games, and hands-on activities rather than through abstract explanations or rote memorization ([Marwah et al., 2026](#); [Otemusu, 2025](#)). However, in many elementary schools, the introduction of Pancasila symbols is still predominantly conducted through conventional approaches, such as verbal instruction and textbook-based learning ([Marliana et al., 2023](#); [Sesya et al., 2025](#)). Such practices often result in limited student engagement, reduced participation, and difficulties in remembering the relationship between each symbol and its corresponding principle.

Preliminary observations conducted in Grade 1 at SD Negeri 50 Bulu'datu, Palopo City, revealed that students' understanding of Pancasila symbols remained relatively low. Many students were unable to accurately identify the symbols, match them to the corresponding principles of Pancasila, or distinguish the images on the Garuda emblem. Furthermore, the learning process did not fully utilize instructional media that were both attractive and developmentally appropriate for young learners. Consequently, classroom activities were less interactive, and students' learning outcomes were not yet optimal.

One potential solution to address these challenges is the use of game-based educational media, particularly the Garuda Puzzle. Puzzle media are instructional tools that require learners to assemble separate pieces into a complete image, thereby encouraging learning through play ([Indrasari et al., 2023](#)). The Garuda Puzzle is specifically designed to display the national emblem alongside symbols representing each principle of Pancasila. Through assembling and matching activities, students can learn the shapes, locations, and meanings of the symbols engagingly. The use of puzzle-based learning media is believed to enhance students' attention, motivation, concentration, and active participation during the learning process.

The implementation of puzzle media aligns with constructivist learning theory, which emphasizes that knowledge is actively constructed through direct experience and learner engagement ([Vygotsky & Cole, 2018](#)). By assembling puzzles, students gain concrete learning experiences that help transform abstract concepts into more understandable forms ([Anugrah & Rudyanto, 2024](#); [Strukova et al., 2025](#)). Moreover, visual and manipulative learning media have been shown to improve memory retention among elementary school students by integrating visual perception, motor activities, and cognitive processing ([Buhamad et al., 2024](#); [Hikrawati et al., 2025](#)). Therefore, the Garuda Puzzle has considerable potential as an innovative instructional medium for enhancing students' understanding of Pancasila symbols.

Previous studies have demonstrated that puzzle-based learning media positively influence elementary students' learning outcomes, particularly in terms of cognitive achievement, learning motivation, and concept recognition through visual representations ([Leksono et al., 2025](#); [Pratiwi & Andaryani, 2026](#); [Rohimah et al., 2024](#)). Puzzle activities have also been found to create enjoyable learning environments and promote greater student participation during classroom instruction ([Bawazeer et al., 2022](#); [Putri et al., 2024](#); [Salsabila et al., 2025](#)). Nevertheless, studies specifically examining the effectiveness of the Garuda Puzzle in improving first-grade students' understanding of Pancasila symbols remain limited, particularly within the context of elementary schools in Palopo City. This gap highlights the novelty of the present study in terms of its instructional medium, research setting, and participant characteristics.

Based on the foregoing discussion, innovative learning strategies are needed to improve students' understanding of Pancasila symbols through instructional media that align with their developmental needs. Therefore, this study employed a pre-experimental one-group pre-test-post-test design to investigate the effect of the Garuda Puzzle on improving first-grade students' understanding of Pancasila symbols at SD Negeri 50 Bulu'datu, Palopo City. The findings are expected to contribute theoretically to the development of civic education learning media in elementary schools and practically to support teachers in creating active, creative, and enjoyable learning experiences.

METHODS

Research Design

This study employed a quantitative, pre-experimental design (Thyer, 2010). The design was selected to examine the effect of the Garuda Puzzle learning media on first-grade students' understanding of Pancasila symbols through direct intervention in a single group of participants. A one-group pre-test–post-test design was utilized. In this design, participants were administered a pre-test to assess their initial level of understanding before the intervention. Subsequently, they participated in learning activities using the Garuda Puzzle as the treatment. Following the intervention, a post-test was administered to measure changes in students' understanding of Pancasila symbols. The research design can be represented as follows:

Table 1. One-Group Pre-test–Post-test Design

Pre-test	Treatment	Post-test
O_1	X	O_2

Where:

O_1 = Pre-test

X = Learning activities using the Garuda Puzzle

O_2 = Post-test

Research Site and Participants

The study was conducted at SD Negeri 50 Bulu'datu, Palopo City, Indonesia, during the second semester of the 2025/2026 academic year. The selection of the research site was based on preliminary observations indicating that students' understanding of Pancasila symbols required improvement. The population consisted of all first-grade students at the school, totaling 55 students. Participants were selected purposively (Robinson, 2023), yielding a sample of 27 students from Class IA. This class was chosen because its characteristics aligned with the study's objectives, and it was recommended by the classroom teacher as an appropriate group for the intervention.

Research Variables

This study involved two variables: an independent variable and a dependent variable. The independent variable was the use of the Garuda Puzzle as an instructional medium. The Garuda Puzzle consists of detachable pieces of the Garuda Pancasila emblem that students assemble during learning activities, enabling them to actively engage in recognizing and understanding the symbols of Pancasila. The dependent variable was students' understanding of Pancasila symbols. This understanding encompassed students' ability to identify the symbols representing each principle of Pancasila, correctly name the symbols, match them with the corresponding principles, identify the appropriate principle based on a given symbol, and recognize the location of each symbol on the Garuda emblem. The level of understanding was measured through students' performance on the pre-test administered before the intervention and the post-test administered after the implementation of the Garuda Puzzle learning activities.

Data Collection Procedures

Data were collected using achievement tests administered before and after the intervention. The pre-test was conducted to determine students' initial understanding of Pancasila symbols, including their ability to recognize symbols, identify their names, and match them with the appropriate principles. Following the pre-test, students participated in three treatment sessions using the Garuda Puzzle learning media. During these sessions, students actively engaged in assembling the Garuda Pancasila puzzle, identifying the symbols associated with each principle, and matching them to the corresponding Pancasila statements through interactive activities. After all treatment sessions, a post-test was administered to evaluate students' understanding of the intervention. Comparisons between pre-test

and post-test results were used to determine the extent of improvement in students' understanding of Pancasila symbols.

Research Instruments

The primary research instrument was an achievement test designed to measure students' understanding of Pancasila symbols before and after the intervention. The test was administered in two stages: a pre-test before the treatment and a post-test after the treatment. Given the developmental characteristics of first-grade elementary school students, the instrument consisted of 10 multiple-choice questions covering symbol recognition, symbol identification, matching symbols to the appropriate principles, and understanding the relationship between symbols and the principles of Pancasila. In addition to the achievement test, an observation sheet was used to record students' participation and learning activities during the implementation of the Garuda Puzzle-based instruction.

Data Analysis

The collected data were analyzed using descriptive and inferential statistics with the Statistical Package for the Social Sciences (SPSS). Descriptive statistics were used to summarize students' learning outcomes before and after the intervention, including the mean, minimum, maximum, and standard deviation of the pre-test and post-test scores.

Student scores were calculated from their responses to 10 multiple-choice items. Each correct answer was awarded one point, while each incorrect answer received zero points. The total score was then converted into a percentage score using the following formula:

$$\text{Score} = \frac{\text{Number of Correct Answers}}{\text{Total Number of Items}} \times 100$$

To examine the effect of the Garuda Puzzle learning media on students' understanding of Pancasila symbols, a paired-samples *t*-test was conducted. This statistical test was selected because the study compared pre-test and post-test scores within the same group of participants. The level of statistical significance was set at 0.05. If the significance value (Sig. 2-tailed) was less than 0.05, the null hypothesis (H_0) was rejected, and the alternative hypothesis (H_1) was accepted, indicating that the Garuda Puzzle learning media had a significant effect on improving students' understanding of Pancasila symbols. Conversely, if the significance value exceeded 0.05, the null hypothesis was accepted, indicating that the intervention did not have a significant effect.

RESULTS

Students' Pre-Test Results

The pre-test was administered before implementing the Garuda Puzzle learning media to determine students' initial understanding of Pancasila symbols. The test consisted of 10 multiple-choice questions, with each correct answer earning 1 point and the final score ranging from 0 to 100.

Table 2. Pre-Test Results

Students	Correct Answer	Total Score
AA	5	50
AAI	4	40
ARA	5	50
AAP	6	60
AZA	4	40
AAAP	6	60
ATA	4	40
AAL	3	30

Students	Correct Answer	Total Score
BYG	5	50
DFHP	3	30
AAS	3	30
ED	4	40
GAA	4	40
GFS	5	50
HAK	4	40
HM	4	40
HAM	5	50
MAR	6	60
MIA	4	40
MJM	6	60
NA	3	30
NHI	3	30
RSA	4	40
RSAH	4	40
RAN	5	50
RF	6	60
YCAM	4	40

Table 2 shows that students' initial understanding of Pancasila symbols was relatively low. Among the 27 participants, the highest score was 60, while the lowest was 30. The mean pre-test score was 44.07, indicating that, on average, students answered fewer than half of the test items correctly. The standard deviation was 10.10, suggesting moderate variation in students' initial levels of understanding.

Table 3 presents the descriptive statistics of the pre-test scores.

Table 3. Descriptive Statistics of Pre-Test Scores

Statistic	Value
Number of Students (N)	27
Mean	44.07
Standard Deviation	10.10
Minimum Score	30
Maximum Score	60

The distribution of scores further showed that most students scored between 40 and 50. Specifically, six students scored 30, ten scored 40, six scored 50, and five scored 60. No student reached a score above 60, indicating that students had not yet mastered the identification and interpretation of Pancasila symbols before the intervention.

These findings are consistent with the preliminary classroom observations, which revealed that many students had difficulty recognizing the symbols of Pancasila, associating them with the corresponding principles, and identifying their meanings within the Garuda Pancasila emblem. Therefore, the pre-test results confirmed the need for an instructional intervention to improve students' understanding of Pancasila symbols through more engaging, developmentally appropriate learning media.

Table 4. Frequency Distribution of Pre-test Scores

Score	Frequency	Percentage (%)
30	6	22.22
40	10	37.04
50	6	22.22
60	5	18.52
Total	27	100.00

The frequency distribution shows that the largest proportion of students (37.04%) scored 40, followed by 22.22% who scored 30 and another 22.22% who scored 50. Only 18.52% of students scored 60. These results suggest that most students had limited prior knowledge of Pancasila symbols before participating in the Garuda Puzzle learning activities.

Students' Post-Test Results

Following the implementation of the Garuda Puzzle learning media across three instructional sessions, a post-test was administered to evaluate students' understanding of Pancasila symbols. The results revealed a substantial improvement in students' performance compared with the pre-test scores.

Table 5. Post-Test Result

Students	Correct Answer	Total Score
AA	8	80
AAI	8	80
ARA	8	80
AAP	7	70
AZA	6	60
AAAP	7	70
ATA	8	80
AAL	8	80
BYG	7	70
DFHP	6	60
AAS	8	80
ED	6	60
GAA	8	80
GFS	8	80
HAK	6	60
HM	7	70
HAM	7	70
MAR	8	80
MIA	6	60
MJM	8	80
NA	6	60
NHI	6	60
RSA	7	70

Students	Correct Answer	Total Score
RSAH	8	80
RAN	7	70
RF	8	80
YCAM	6	60

Among the 27 participants, the highest post-test score was 80, while the lowest score was 60. The mean post-test score increased to 71.48, indicating a considerably higher level of understanding after the intervention. The standard deviation was 8.64, suggesting that students' scores were relatively consistent and clustered around the mean.

Table 6. Descriptive Statistics of Post-test Scores

Statistic	Value
Number of Students (N)	27
Mean	71.48
Standard Deviation	8.64
Minimum Score	60
Maximum Score	80

Compared with the pre-test mean score of 44.07, the post-test mean increased by 27.41 points. This improvement indicates that students demonstrated a better understanding of Pancasila symbols after participating in learning activities using the Garuda Puzzle. The increase was evident in students' ability to recognize symbols, identify their meanings, and match them with the corresponding principles of Pancasila.

The frequency distribution of post-test scores is presented in Table 7.

Table 7. Frequency Distribution of Post-test Scores

Score	Frequency	Percentage (%)
60	8	29.63
70	7	25.93
80	12	44.44
Total	27	100.00

The table shows that 44.44% of students achieved a score of 80, the largest proportion. Meanwhile, 25.93% scored 70, and 29.63% scored 60. Notably, no student scored below 60 on the post-test, whereas six students had scored only 30 on the pre-test. This shift in score distribution demonstrates a clear improvement in students' understanding of Pancasila symbols following the intervention. To provide a clearer comparison between students' performance before and after the implementation of the Garuda Puzzle, the descriptive statistics of the pre-test and post-test scores are presented in Table 8.

Table 8. Comparison of Pre-test and Post-test Scores

Statistic	Pre-test	Post-test
N	27	27
Mean	44.07	71.48
Standard Deviation	10.10	8.64

Statistic	Pre-test	Post-test
Minimum Score	30	60
Maximum Score	60	80

The comparison demonstrates a notable increase in students' learning outcomes after the intervention. The mean score increased from 44.07 to 71.48, while the minimum score improved from 30 to 60. Furthermore, the reduction in the standard deviation indicates that students' achievement levels became more homogeneous after participating in the Garuda Puzzle-based learning activities. These findings suggest that the Garuda Puzzle positively enhanced students' understanding of Pancasila symbols.

Paired Samples t-Test Results

A paired-samples *t*-test was conducted to determine whether the use of the Garuda Puzzle significantly improved students' understanding of Pancasila symbols by comparing the pre-test and post-test scores. The results are presented in Table 9.

Table 9. Paired Samples t-Test Results

Variable	Mean	SD	t	df	Sig. (2-tailed)
Pre-test	44.07	10.10			
Post-test	71.48	8.64			
Difference	-27.41	10.59	-13.442	26	.000

Table 9 shows that the mean score increased from 44.07 in the pre-test to 71.48 in the post-test, indicating an average improvement of 27.41 points after the implementation of the Garuda Puzzle learning media. The paired-samples *t*-test revealed a *t*-value of -13.442 with 26 degrees of freedom and a significance value (Sig. 2-tailed) of 0.000, which is lower than the significance level of 0.05.

Since the significance value was less than 0.05 ($p < 0.05$), the null hypothesis (H_0) was rejected, and the alternative hypothesis (H_1) was accepted. This finding indicates a statistically significant difference between students' pre-test and post-test scores. Therefore, the use of the Garuda Puzzle had a significant positive effect on improving first-grade students' understanding of Pancasila symbols at SD Negeri 50 Bulu'datu, Palopo City.

The substantial increase in students' scores suggests that the Garuda Puzzle successfully facilitated learning by providing concrete, interactive experiences appropriate for young learners. Through puzzle-based activities, students actively engaged in identifying, matching, and understanding the symbols of Pancasila, thereby improving comprehension and retention of the learning material. These findings demonstrate that game-based instructional media can be an effective strategy for enhancing civic education outcomes among elementary school students.

DISCUSSION

The findings of this study indicate that the use of the Garuda Puzzle effectively enhanced students' understanding of Pancasila symbols. This improvement suggests that learning activities incorporating visual and manipulative media can facilitate conceptual understanding among young learners. Through puzzle-based activities, students actively engaged in identifying, matching, and organizing the symbols of Pancasila, enabling them to construct knowledge through direct experience rather than passive memorization.

The effectiveness of the Garuda Puzzle can be explained through constructivist learning theory, which emphasizes that learners actively construct knowledge through interaction with their environment and learning experiences (Vygotsky & Cole, 2018). By assembling the puzzle and identifying the symbols represented on the Garuda Pancasila emblem, students participated in meaningful learning activities that encouraged exploration, observation, and knowledge construction.

Consequently, the learning process became more engaging and facilitated deeper understanding of the concepts being taught.

The findings are also supported by cognitive development theory. Children at the elementary school level are generally in the concrete operational stage, during which learning is most effective when abstract concepts are presented through concrete objects and direct experiences ([Pakpahan & Saragih, 2022](#); [Piaget, 2015](#)). The Garuda Puzzle transformed the abstract concept of Pancasila symbols into tangible learning materials that students could manipulate and observe directly. This approach enabled learners to better recognize the symbols, understand their meanings, and associate them with the corresponding principles of Pancasila.

In addition, Dale's Cone of Experience suggests that students retain information more effectively when they are actively involved in learning activities ([Dale, 1969](#); [Novianty et al., 2025](#)). Learning experiences involving observation, manipulation, and direct participation tend to produce stronger understanding than those based solely on verbal explanations. The puzzle-based activities implemented in this study allowed students to interact directly with learning materials, thereby promoting active participation and improving comprehension.

The present findings are consistent with previous studies that have reported the positive impact of puzzle-based learning media on students' learning outcomes. Relevant research found that puzzle media enhanced elementary school students' cognitive development and critical thinking skills by encouraging active problem-solving during learning activities ([Rohimah et al., 2024](#); [Ziliwu & Anas, 2024](#)). Similarly, another study reported that puzzle-assisted learning significantly improved students' learning outcomes by increasing participation and engagement throughout the instructional process ([Lestari et al., 2026](#); [Nasir & Amaliyah, 2024](#)). Furthermore, other research demonstrated that interactive puzzle media fostered greater student involvement and contributed to improved academic performance among elementary school learners ([Lu et al., 2020](#); [Ramlah et al., 2022](#)).

The findings also support a previous study, which highlighted the effectiveness of the Garuda Bird Puzzle Game in introducing Pancasila values to young learners ([Nursalim et al., 2024](#)). Their study concluded that puzzle-based activities provide meaningful learning experiences that help children recognize and internalize civic values enjoyably. Similarly, relevant studies reported that educational games based on the Garuda symbol strengthened students' understanding of Pancasila and increased their enthusiasm for learning civic education ([Cuga et al., 2024](#); [Syahputra & Taufika, 2025](#)). The consistency between these previous studies and the present findings strengthens the argument that puzzle-based learning media can effectively support civic education learning outcomes at the elementary school level.

Another important finding of this study concerns the role of educational games in creating enjoyable learning environments. Young learners are naturally attracted to play-based activities, and integrating game elements into classroom instruction can increase motivation, attention, and participation. The Garuda Puzzle transformed the learning process from a teacher-centered activity into a student-centered experience in which learners actively explored and discussed the symbols of Pancasila. Such learning conditions are essential for promoting meaningful learning and sustaining students' interest in civic education.

The novelty of this study lies in its focus on the Garuda Puzzle as a learning medium specifically designed to improve first-grade students' understanding of Pancasila symbols. Although previous studies have investigated the effectiveness of puzzle media in mathematics, science, and general cognitive learning, research examining puzzle-based learning within the context of Pancasila education remains limited. Therefore, this study extends the existing literature by providing empirical evidence that puzzle-based instructional media can effectively support civic education learning in Indonesian elementary schools.

Despite its contributions, this study has several limitations. The use of a pre-experimental design without a control group limits the ability to attribute improvements exclusively to the intervention. Furthermore, the study involved participants from a single school, which may affect the generalizability of the findings. Future research is recommended to employ experimental or quasi-experimental designs with larger, more diverse samples to further investigate the effectiveness of the Garuda Puzzle across different educational contexts.

The findings overall suggest that the Garuda Puzzle is an effective and developmentally appropriate instructional medium for teaching Pancasila symbols to elementary school students. By combining visual learning, hands-on activities, and educational play, the medium supports meaningful learning experiences and enhances civic education outcomes.

CONCLUSION

This study concludes that the use of the Garuda Puzzle is effective in improving first-grade students' understanding of Pancasila symbols at SD Negeri 50 Bulu'datu, Palopo City. The implementation of puzzle-based learning activities enabled students to more effectively recognize, identify, and associate Pancasila symbols with their corresponding principles. The findings indicate that the Garuda Puzzle provided meaningful learning experiences by combining visual, manipulative, and play-based elements that were appropriate for young learners' developmental characteristics.

The results further demonstrate that the Garuda Puzzle can serve as an innovative instructional medium for civic education in elementary schools. By encouraging active participation and direct interaction with learning materials, the puzzle helped transform abstract concepts into concrete learning experiences, thereby facilitating students' comprehension of Pancasila symbols.

This study contributes to the growing body of literature on the use of educational games and puzzle-based learning in elementary education, particularly within the context of Pancasila education. In practice, the findings suggest that teachers may use the Garuda Puzzle as an alternative learning medium to create more engaging, interactive, and student-centered classroom environments. Future studies are recommended to involve larger samples and more rigorous research designs to further examine the effectiveness of puzzle-based learning media in civic education and other subject areas.

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