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# The Effect of Canva Media Use on Improving Mathematics Learning Outcomes of Grade I Elementary School Students

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**Abstract**

Early mathematics learning in grade I elementary school requires visual and concrete approaches to support number recognition and basic operations. However, many students in rural schools still experience low achievement due to limited use of technology-based instructional media. This study aims to examine the effect of Canva media on mathematics learning outcomes of grade I students at UPT SD Negeri Sembungin 2 within the Merdeka Curriculum framework. A Pre-Experimental Design with One Group Pretest-Posttest Design was applied to 19 students selected through total sampling. Data were collected using a validated 20-item multiple-choice test (KR-20 = 0.78) and observation sheets across four learning sessions. Results showed a significant increase in mean scores from 58.05 (pretest) to 75.68 (post-test). The Paired Sample t-Test yielded a significance value of 0.000 < 0.05, confirming a statistically significant effect. The N-Gain score of 0.55 was classified as moderate, while classical completeness rose from 31.6% to 73.7%. These findings demonstrate that Canva media effectively enhances early mathematics learning outcomes and supports the implementation of student-centred learning in the Merdeka Curriculum.

**Keywords :** *Canva Media, Elementary School Mathematics, Learning Outcomes, Merdeka Curriculum, Pre-Experimental Design.*

## INTRODUCTION

Education plays a central role in developing human potential, particularly in the early years of schooling when foundational cognitive skills are formed. At grade I level, mathematics learning centres on numeracy, which encompasses number recognition, counting, comparison, and basic operations. Research in early childhood mathematics education consistently shows that young learners construct mathematical understanding through concrete and visual experiences rather than abstract instruction (Clements & Sarama, 2021). The availability of visually rich, technology-based instructional media has therefore become a critical factor in supporting the mathematical development of early grade students (Wahyuni et al., 2023).

Sari & Fatonah (2022) demonstrated that technology-based media positively impacts students' motivation and learning outcomes, while Setiawati & Santoso (2024) explained that digital media enables teachers to present content in more varied formats that encourage active student participation. In the context of early mathematics, Purwanti et al. (2022) emphasized that visual media helps grade I students bridge the gap between concrete objects and abstract numerical symbols, accelerating the development of number sense. Accordingly, the integration of digital visual media into early mathematics instruction is an urgent pedagogical priority, especially at the elementary school level.

Learning outcomes serve as the primary indicator of instructional effectiveness. In the context of grade I mathematics, learning outcomes reflect students' mastery of early numeracy skills including number recognition, magnitude comparison, and basic arithmetic operations. Anderson & Krathwohl (2001) established that cognitive learning outcomes span multiple levels from remembering to applying, all of which are relevant benchmarks for early grade assessment. Critically, the cognitive development theory of Piaget (as cited in Clements & Sarama, 2021) posits that children aged 6–7 are in the concrete operational stage, means they require tangible visual representations to internalize abstract mathematical concepts. Nurhasanah & Sobandi (2021) further argued that the alignment between instructional media and students' developmental stage is a decisive factor in achieving meaningful learning outcomes. Selecting media that is visually engaging and cognitively accessible is therefore not merely a pedagogical preference but a developmental necessity for grade I learners.

However, the learning conditions observed in the field do not yet reflect optimal technology integration. Based on the results of initial observations at UPT SD Negeri Sembungin 2, it is known that the mathematics learning outcomes of grade I students remains relatively low, with most scores in the range of 30 to 60, while the Minimum Completeness Criteria (KKM) set by the school is 70. Only 6 out of 19 students or around 31.6% managed to exceed the KKM score. This condition clearly indicates that the majority of students had not yet achieved the minimum mastery threshold.

The low achievement is suspected to be closely related to the dominance of conventional lecture methods and assignments in the learning process without adequate visual media support. Husni (2019) revealed that learning that is still teacher-centred tends to make students be passive and have minimal involvement in the learning process. Susanti et al. (2024) found that monotonous learning activities have implications for decreased student motivation, which ultimately hinders the

achievement of learning outcomes. Wahyuningrum (2021) also proved that the use of innovative learning media significantly increases the engagement and learning outcomes of elementary school students compared to conventional approaches.

To address this challenge, there is an urgent need for instructional media that can visualize mathematical content, is accessible to teachers with limited technical expertise, and is capable of sustaining the attention of grade I students. Research in early mathematics education highlights that visual representations—including number lines, pictorial models, and animated illustrations—are particularly effective in supporting number sense development among young learners (Clements & Sarama, 2021; Wahyuni et al., 2023). Canva, as a web-based graphic design platform, is especially well-suited to mathematics instruction in early grades because its colourful templates, drag-and-drop number representations, and animated slides directly support the concrete-to-abstract progression that grade I students require. Specifically, Canva allows teachers to display numerical symbols alongside visual object groupings, enabling students to connect quantity with symbol—a foundational step in number literacy (Purwanti et al., 2022). The Ministry of Education and Culture (2022) through the Merdeka Curriculum framework also explicitly encourages the use of diverse, interactive, and technology-based media to realize student-centred learning at all grade levels.

One of the media that is considered relevant to this criterion is Canva application. Ardana et al. (2022) explained that Canva is a web-based graphic design platform equipped with various ready-to-use templates for creating presentations, posters, infographics, and various other visual media. Its ease of operation allows teachers to design attractive teaching materials without the need for special graphic design skills. Prihatiningtyas & Astuti (2024) emphasized that the use of Canva in the learning process has been proven to improve the quality of material presentation, while Gurning et al. (2024) added that Canva-based media can significantly improve student learning outcomes when used interactively.

A number of previous studies have examined the effectiveness of Canva in the context of learning. Susanti & Sultonurohmah (2024) found that the use of Canva is effective in improving the learning outcomes of elementary school students. Damarsari & Widodo (2024) reported a significant increase in learning outcomes through Canva-based digital storybooks. Aprianty & Astuti (2024) showed that Canva encourages students' motivation and creativity, while Ristanti & Isdaryanti (2024) confirmed its ability to strengthen conceptual understanding. Rohani (2022) research in the context of science also showed a significant increase in the group that used Canva compared to the

group that did not.

However, these studies leave a number of gaps that have not been completely closed, especially in the context of mathematics learning in primary schools. First, most studies measured the influence of Canva on motivation or creativity, rather than directly on cognitive learning outcomes (Ilahy et al., 2025). Second, studies that used a pretest-posttest design to measure changes in learning outcomes due to the use of Canva in elementary school students were still very limited. Third, there has been no research that explicitly integrated the use of Canva into the framework of the Merdeka Curriculum in grade I elementary school. These gaps underscore the need for an empirical study that specifically tests the effectiveness of Canva's media on mathematics learning outcomes of grade I students in the context of the Merdeka Curriculum.

## METHODS

This study applied a quantitative approach with a Pre-Experimental Design, especially using the One Group Pretest-Posttest Design model. This design was chosen because it is relevant to the purpose of the research, which is to find out the differences in student learning outcomes before and after being treated in the form of Canva media use in learning activities. According to Sugiyono (2019a), this model allows researchers to measure the impact of a treatment by comparing data collected before and after the intervention in the same group. Creswell (2014) added that Pre-Experimental Design is very suitable to be applied in conditions of limited samples and aims to identify whether or not there is an effect of treatment early, The stages of this research can be described as follows:

Table 1. One Group Pretest-Posttest Design

| Pretest | Treatment | Posttest |
|---|---|---|
| $O_1$ | X | $O_2$ |

This research was carried out at the UPT SD Negeri Sembungin 2 in the even semester of the 2025/2026 school year. The subjects of the study were 19 students form grade I, chosen by applying total sampling or saturated sampling techniques. Sugiyono (2019a) stated that saturated sampling is used when the number of population members does not exceed 30 people, so that all population members are used as research samples. The application of this technique is appropriate given the limited number of populations and the need to obtain representative data from a single group.

The characteristics of grade I students at UPT SD Negeri Sembungin 2 are quite heterogeneous in terms of initial ability, as reflected in the variation in pretest scores

ranging from 40 to 88. The school is located in a rural area with limited access to technology outside the school environment, so digital media-based learning in the classroom is a relatively new experience for most students. This condition makes this research relevant as well as representative in describing the real challenges faced by teachers in integrating technology in elementary schools with limited resources.

The instruments used in this study consisted of test and non-test instruments. The test instrument was in the form of 20 multiple-choice questions that were used to measure student learning outcomes in pretest and post-test. The questions were prepared based on the Learning Outcomes (CP) of Merdeka Curriculum and were focused on the ability to understand mathematical concepts, solve number operations, and apply concepts in daily life situations. Non-test instruments were observation sheets that were used to monitor student engagement and activities during the learning process.

The question grid included four main indicators: (1) recognizing and naming the numbers 11 to 20, (2) comparing two numbers using a larger, smaller, or equal symbol, (3) completing the addition and subtraction operations of the numbers 11 to 20, and (4) solving simple story problems related to addition and subtraction in a real context. The distribution of questions was made proportional to each indicator by considering the cognitive levels C1 (remembering) to C3 (applying) according to the taxonomy of Anderson & Krathwohl (2001). The observation sheet was compiled using a four-point Likert scale to evaluate three aspects of student engagement: activeness in asking questions, response to visual stimuli, and ability to answer oral questions from teachers.

The validity of the instrument was studied through content validity involving two experts, namely a supervisor and an experienced classroom teacher. The two experts evaluated the suitability of the question items with the learning outcomes, the level of difficulty, and the clarity of the language used. The instrument is declared valid after revision based on the advice of these experts. The reliability of the instrument was tested using the Kuder-Richardson formula of 20 (KR-20) considering that the instrument used a dichotomy answer format (true/false). The calculation results produced a reliability coefficient of 0.78. Based on Guilford's criteria (in Suharsimi, 2021), this figure is in the high category (0.70–0.90), so the instrument is suitable for use as a consistent and reliable measuring tool. Arikunto (2021) stated that the combination of content validity and reliability test can produce valid and reliable data as the basis for analysis.

Data were collected through tests, observations, and documentation across two

phases. In the first phase, a pretest was administered to measure students' initial ability. The second phase consisted of four Canva-based learning sessions (approximately four weeks), concluding with a post-test. At each session, the researchers delivered mathematics content through Canva presentations aligned with the Merdeka Curriculum learning objectives. Observation sheets were completed at every session to record student engagement.

Each learning session was designed with a consistent structure. In the opening part (10 minutes), the teacher conducted an apperception activity and communicated the learning objectives. The core activity (50 minutes) was delivered through Canva-based materials that contained visual illustrations, simple animations, and interactive practice questions completed collaboratively. At the first meeting, the material focused on introducing numbers 11 to 20 through concrete object representations. The second meeting addressed greater-than and less-than concepts. The third meeting covered addition operations, while the fourth meeting addressed subtraction through the counting-forward method. The closing segment (10 minutes) consisted of structured reflection and material reinforcement. The consistency of the Canva media use in each meeting aims to build students' familiarity with the format of presenting the material so that students' cognitive capacity can be focused on understanding the content, rather than on adapting to a constantly shifting format (Mayer, 2009).

Data were analysed using descriptive and inferential statistics. Descriptive analysis included mean grades, highest grades, lowest grades, standard deviations, and classical completeness percentages. The normality test was carried out using the Shapiro-Wilk technique considering the relatively small number of samples ($n < 30$). If the data was distributed normally, hypothesis testing was carried out using the Paired Sample t-Test. The magnitude of the increase in learning outcomes was calculated using an N-Gain score with high (>0.70), medium (0.30–0.70), and low (<0.30) categorization based on the criteria of Hake (1999). The entire analysis process used SPSS software version 26. The selection of this analysis method is in line with Pallant's (2020) recommendation for small-scale research oriented towards measuring the effectiveness of interventions.

The N-Gain formula used refers to Hake (1999), namely: N-Gain = (Posttest Score-Pretest Score) / (Maximum Score-Pretest Score). This formula was chosen because it was able to correct the differences in initial ability between students so that it resulted in a fairer measure of improvement than the difference in raw scores. The Shapiro-Wilk normality test was chosen based on the recommendation of Razali & Wah

(2011) who stated that this test has the highest statistical power for small samples compared to other normality tests such as Kolmogorov-Smirnov. If the assumption of normality is met, the Paired Sample t-Test is used to test the null hypothesis ($H_0$) that there is no significant difference between the average pretest and post-test scores, with a significance level of $\alpha = 0.05$.

## RESULTS AND DISCUSSION

### Results

Descriptive analysis was conducted to summarize students learning outcome data across both testing stages, including mean scores, standard deviations, and minimum and maximum values. Results are presented in Table 2.

Table 2. Descriptive Statistics of Pretest and Post-test

| Statistic | Minimum Score | Maximum Score | Average | Std. Deviation |
|---|---|---|---|---|
| Pretest | 40 | 88 | 58.05 | 15.25 |
| Post-test | 65 | 92 | 75.68 | 8.61 |
| **Mean Difference** | **-** | **-** | **17.63** | **-** |

Source: Research Primary Data, 2026

Based on Table 2, the pretest results showed a lowest score of 40 and a highest score of 88 with an average of 58.05 and a standard deviation of 15.25. The high standard deviation of pretest (15.25) reflects the considerable diversity of students' initial abilities in one class. The post-test results showed the lowest score of 65 and the highest score of 92 with an average of 75.68 and a standard deviation of 8.61. The reduction of the standard deviation from 15.25 to 8.61 indicates that the implementation of Canva's media not only has raised the mean score but also has produced a more uniform distribution of student understanding.

Before Canva's media intervention was implemented, only 6 out of 19 students (31.6%) managed to achieve KKM. After implementation, the number increased to 14 out of 19 students (73.7%). This increase in the percentage of classical completeness by 42.1 percentage points provides direct evidence of Canva media's effectiveness in improving student learning outcomes. Prior to the Paired Sample t-Test, a normality test was conducted to confirm that the data distribution satisfied parametric assumptions. The Shapiro-Wilk test was selected given the small sample size ($n < 30$). Results are presented in Table 3.

Table 3. Shapiro-Wilk Normality Test Results

| Data | Statistic | df | Sig. |
|---|---|---|---|
| Pretest | 0.938 | 19 | 0.123 |
| Post-test | 0.942 | 19 | 0.158 |

Table 3 shows that the Shapiro-Wilk significance values is 0.123 for the pretest and 0.158 for the post-test, both exceeding the 0.05 threshold. A significance value > 0.05 indicates a normal distribution. Both datasets therefore satisfied the normality assumption, and parametric hypothesis testing using the Paired Sample t-Test was carried out accordingly.

Once the data were confirmed to be normally distributed, a Paired Sample t-Test was conducted to evaluate the significance of the difference between pretest and post-test scores. The decision criterion applied was: if the significance value is (Sig. 2-tailed) < 0.05, the alternative hypothesis (Ha) is accepted. Results are presented in Tables 4 and 5.

Table 4. Paired Sample t-Test Statistics

| Group | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|
| Pretest | 58.05 | 19 | 15.25 | 3.50 |
| Post-test | 75.68 | 19 | 8.61 | 1.98 |

Table 5. Paired Sample t-Test Results

| Comparison | Mean Difference | t | df | Sig. (2-tailed) |
|---|---|---|---|---|
| Post-test – Pretest | 17.63 | 5.97 | 18 | 0.000 |

Table 5 shows that the significance value (2-tailed) is 0.000 < 0.05, leading to acceptance of the alternative hypothesis (Ha). This confirms a statistically significant effect of Canva media use on grade I mathematics learning outcomes. The t-value of 5.97 (df = 18) further establishes that the mean difference between pretest and post-test scores reflects a genuine treatment effect rather than random variation. The magnitude of learning improvement was calculated using the N-Gain score to determine the effectiveness of the intervention. Individual student N-Gain scores are presented in Table 6.

Table 6. N-Gain Score of Each Student

| Student Name | Pretest | Post-test | N-Gain | Category |
|---|---|---|---|---|
| Student 1 | 50 | 75 | 0.50 | Moderate |
| Student 2 | 65 | 80 | 0.43 | Moderate |
| Student 3 | 53 | 78 | 0.53 | Moderate |
| Student 4 | 50 | 73 | 0.46 | Moderate |
| Student 5 | 66 | 81 | 0.44 | Moderate |
| Student 6 | 43 | 72 | 0.51 | Moderate |
| Student 7 | 70 | 88 | 0.60 | Moderate |
| Student 8 | 48 | 75 | 0.52 | Moderate |
| Student 9 | 64 | 87 | 0.64 | Moderate |
| Student 10 | 74 | 89 | 0.58 | Moderate |
| Student 11 | 62 | 82 | 0.53 | Moderate |
| Student 12 | 46 | 75 | 0.54 | Moderate |
| Student 13 | 48 | 76 | 0.54 | Moderate |
| Student 14 | 73 | 91 | 0.67 | Moderate |
| Student 15 | 62 | 85 | 0.61 | Moderate |
| Student 16 | 38 | 71 | 0.53 | Moderate |
| Student 17 | 75 | 92 | 0.68 | Moderate |
| Student 18 | 55 | 85 | 0.67 | Moderate |
| Student 19 | 41 | 70 | 0.49 | Moderate |
| | 57.00 | 80.26 | **0.55** | **Moderate** |

The average N-Gain score of 0.55 which is in the medium category indicates that Canva media use is quite effective in improving student learning outcomes evenly, although there is still room for optimization in longer implementations.

## Discussion

The findings of this study indicate that Canva media significantly has improved mathematics learning outcomes among grade I students. The mean score increased from 58.05 (pretest) to 75.68 (post-test), a gain of 17.63 points, providing empirical evidence of Canva's effectiveness as an instructional tool. This result aligns with cognitive load theory and research on early mathematics education, which consistently demonstrate that visual representations accelerate the processing and retention of numerical information in young learners (Clements & Sarama, 2021). When abstract mathematical concepts are presented visually through Canva, grade I students who are at the concrete

operational stage of development receive meaningful cognitive scaffolding that bridges the gap between physical objects and numerical symbols (Purwanti et al., 2022).


Figure 1. Display of Canva Interactive Media

Figure 2. Students observing counting-forward method material

In addition to quantitative data, the results of observations during the four meetings provide a qualitative picture that complements the findings. At the first meeting, most students showed great enthusiasm for Canva's colour-rich and animated visual appearance, although some students still needed guidance in understanding the instructions. At the second and third meetings, student participation increased consistently, as evidenced by a growing number of students volunteering to answer questions. In the fourth meeting, most of the students were able to work on the practice questions independently without direct guidance from the teacher. This progressive engagement pattern aligns with ARCS theory (Keller, 1987) which asserts that visually appealing learning media is able to maintain students' attention and motivation to learn for a longer period of time.

Figure 3. Students answering addition problems

*Figure 4. Final display of completed mission*

The increase in the percentage of classical completeness from 31.6% to 73.7% reflects an equitable impact on all groups of students, not just those with high ability. This pattern can be interpreted through Keller (1987) motivational theory in the ARCS (Attention, Relevance, Confidence, Satisfaction) model, where Canva media successfully captures students' attention (Attention), presents material that is relevant to real experiences (Relevance), and fosters confidence through clear visualization (Confidence). These findings are consistent with the results of Susanti & Sultonurohmah (2024) research which reported a significant increase in classical completeness after the implementation of Canva, as well as the research of Gurning et al. (2024) which recorded an increase in meaningful learning outcomes when Canva was used interactively.

The reduction of the standard deviation from 15.25 (pretest) to 8.61 (post-test) is a finding that deserves attention and often goes unnoticed in similar studies. This narrowing of variance shows that Canva's media is not only effective for high-ability students, but also successfully helps low-skilled students build better understanding.

This equalizing effect occurs because visual representations allow students with diverse learning styles to access mathematical content through the modality that best suits their cognitive needs (Nurhasanah & Sobandi, 2021; Wahyuni et al., 2023).

The average N-Gain score of 0.55 which is in the medium category reflects meaningful learning improvement, while also indicating room for further optimization. Some of the factors that may have limited the magnitude of the effect include: (1) the relatively short duration of the intervention (approximately four weeks), (2) limited access to technology devices at students' homes for independent review, and (3) the initial adaptation period required for students unfamiliar with digital learning media. Prihatiningtyas & Astuti (2024) found that the effectiveness of Canva tends to increase with the intensity and duration of use, suggesting that longer intervention periods would likely produce higher N-Gain scores.

Within the framework of Merdeka Curriculum, these findings carry relevant implications. The Ministry of Education and Culture (2022) emphasizes the importance of student-centred learning and the use of technology to support the achievement of Learning Outcomes (CP). Canva's media, with its capacity to produce interactive and engaging visual content, is a tangible embodiment principles of Merdeka Curriculum. Mulyasa (2023) emphasized that updates in the use of learning media are one of the key factors for the successful implementation of Merdeka Curriculum at the grade level.

Compared to conventional instructional media, Canva offers several specific advantages for early elementary mathematics. First, its ability to display colourful, animated visual representations of mathematical objects—including number groupings, comparison diagrams, and operation models—directly aligns with the developmental needs of grade I learners who require concrete visual anchors before transitioning to abstract symbol processing (Clements & Sarama, 2021; Purwanti et al., 2022). Second, Canva's flexible template system allows teachers to customize content for local contexts and differentiated student needs, consistent with the principles of the Merdeka Curriculum. Third, Canva's ease of use allows teachers who do not have a graphic design background to produce quality media (Ardana et al., 2022).

The significance value of the Paired Sample t-Test of 0.000 < 0.05 provides strong statistical confirmation that the observed differences in learning outcomes are not accidental. These results reinforce the findings of Damarsari & Widodo (2024) who reported significant improvements through Canva-based media, and Ristanti & Isdaryanti (2024) who confirmed Canva's ability to improve conceptual understanding. Overall, the application of Canva media has proven to be effective and feasible as an

innovative alternative learning media, especially in improving the mathematics learning outcomes of grade I elementary school students.

From a practical standpoint, these findings offer clear guidance for grade I teachers in selecting and implementing digital instructional media. Canva's intuitive interface and extensive template library enable teachers to design interactive slides containing number representations, story problems, and visual feedback without requiring advanced design skills. Within the Merdeka Curriculum, this flexibility supports content differentiation without placing excessive demands on teacher preparation time. The fact that Canva presentations can be displayed via projector or smart TV also facilitates whole-class interactive engagement, as demonstrated in the learning sessions at UPT SD Negeri Sembungin 2.

## CONCLUSION

Based on the results of this research, it can be concluded that the application of Canva media has a significant and positive influence on improving mathematics learning outcomes of grade I students at UPT SD Negeri Sembungin 2. This is evidenced by the increase in mean scores from 58.05 (pretest) to 75.68 (post-test), with an average difference of 17.63 points. The Paired Sample t-Test significance value of 0.000 < 0.05 confirms that the improvement is statistically significant. Classical completeness increased from 31.6% to 73.7%, and the average N-Gain score of 0.55 was classified in the moderate category.

These findings provide practical implications that Canva media deserves to be recommended as an innovative learning media option for primary school teachers, particularly in mathematics learning within the framework of Merdeka Curriculum. Canva not only contributes to improve cognitive learning outcomes, but also has the potential to drive student engagement and motivation to learn. This research has several limitations. First, the study was only carried out in one school with one class without a control group, so the findings could not be generalized widely. Second, the limited number of samples (19 students) could potentially affect the statistical strength of the test. Third, the long-term impact of Canva's use on students' retention of mathematical knowledge has not been studied in this study.

Based on these limitations, further research is recommended to: (1) use a quasi-experimental design with a control group to strengthen internal validity; (2) expand the scope of the location and the number of samples; (3) comparing Canva media with other types of digital learning media; (4) examine the effectiveness of Canva in different subjects and grade levels; and (5) examine the long-term impact of Canva's use on

students' retention and transfer of mathematical knowledge.

More broadly, this study contributes to ongoing discussions about technology integration in rural elementary schools. The successful implementation of Canva at UPT SD Negeri Sembungin 2 demonstrates that the technology gap between urban and rural schools can be meaningfully reduced through the selection of low-barrier digital tools and adequate teacher training. Since Canva presentations can be used offline once downloaded, internet access constraints do not prevent effective implementation. School administrators may consider including Canva training within teacher professional development programs, as its cross-subject template library makes it applicable to Bahasa Indonesia, Science, and Social Studies as well.

From a theoretical standpoint, these findings contribute to the growing body of evidence on the role of digital visual media in early mathematics education. The effectiveness of Canva-based instruction is consistent with research on concrete-to-abstract learning progressions, wherein visual media serves as the critical intermediate step between physical manipulatives and abstract symbolic reasoning (Clements & Sarama, 2021). When grade I students engage directly with visual media pointing at number illustrations, tracking animations, and discussing visual problems together they consolidate number concepts in ways that purely verbal instruction cannot achieve (Wahyuni et al., 2023). Future studies that combine Canva with cooperative learning strategies or gamification elements are expected to yield even higher N-Gain scores, particularly when implemented over longer intervention periods.

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