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The Effectiveness of Canva-Based Interactive Learning Media Integrated with the ARCS Instructional Design Model on Elementary Students' Learning Interest and Learning Outcomes

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Abstract: This study examined the effectiveness of Canva-based interactive learning media integrated with the ARCS (Attention, Relevance, Confidence, and Satisfaction) instructional design model in improving learning interest and learning outcomes in Natural and Social Sciences (IPAS) among elementary school students. A quantitative approach using a quasi-experimental pretest–posttest control group design was employed. The participants consisted of 34 third-grade students, including 17 students in the experimental group and 17 students in the control group. The experimental group learned using Canva-based interactive media integrated with the ARCS model, whereas the control group received instruction using conventional PowerPoint media. Data were collected using learning achievement tests and learning-interest questionnaires and analyzed using appropriate inferential statistical tests. The results showed that the experimental group achieved significantly higher learning outcomes ($M = 86.17$) than the control group ($M = 77.79$), $t(32) = 5.021$, $p < .001$. Learning interest was also significantly higher in the experimental group ($M = 117.59$) than in the control group ($M = 101.12$), $t(32) = 2.884$, $p < .05$. These findings indicate that Canva-based interactive learning media integrated with the ARCS instructional design model is effective in improving elementary students' learning interest and learning outcomes.

Keywords: ARCS model; Canva; Elementary school; Interactive learning media; Learning interest; Learning outcomes

Introduction

The Industrial Revolution 4.0 and Society 5.0 have accelerated educational transformation, requiring learning systems that develop twenty-first-century competencies, including critical thinking, creativity, collaboration, and communication, to prepare students for increasingly complex global challenges (Nuraini et al., 2023; OECD, 2024). In Indonesia, the Merdeka Curriculum responds to these demands by promoting student-centered, contextual, and competency-based learning while strengthening literacy, numeracy, and character development (Kemendikbudristek, 2022; OECD, 2024). Within this curriculum, Natural and Social Sciences (IPAS) plays a strategic role by integrating scientific and social concepts to develop scientific literacy and contextual problem-solving skills from the elementary level. However, Indonesia continues to face challenges in science education, as reflected in the PISA 2022 and TIMSS results, which indicate that students' scientific literacy and science achievement remain below international standards (Mullis et al., 2020; OECD, 2024). This condition limits students' ability to think critically, solve real-world problems, and apply scientific knowledge effectively, highlighting the need for more engaging and meaningful instructional approaches to improve IPAS learning in elementary schools.

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Despite the objectives of the Merdeka Curriculum, classroom observations conducted at SDN 04 IX Korong revealed that IPAS instruction remains predominantly teacher-centered. Learning activities are mainly delivered through lectures supported by PowerPoint presentations, limiting students' opportunities to actively explore, discuss, and construct knowledge. Consequently, many students tend to be passive during lessons, demonstrate low learning interest, and achieve learning outcomes below the school's Minimum Mastery Criteria. These classroom conditions indicate that instructional practices have not yet fully supported active and meaningful learning as expected in the Merdeka Curriculum.

Research conducted at SDN 1 Tanjungsari and SDN 02 Talang Anau shows similar challenges, including the limited use of interactive learning media, teachers' difficulties in adapting instructional media, and suboptimal utilization of available resources (Syah et al., 2026). Furthermore, previous studies have shown that teacher-centered instruction and conventional presentation media reduce student engagement, limit classroom interaction, and negatively affect students' interest and academic achievement (Bond et al., 2020; Hattie, 2023; Schindler et al., 2017). Therefore, improving instructional practices through more engaging and student-centered learning media has become essential to enhance both learning interest and learning outcomes in elementary IPAS education.

The successful implementation of the Merdeka Curriculum requires learning media that actively engage students and support meaningful knowledge construction rather than passive information delivery. Digital learning media can facilitate interactive learning environments by integrating text, images, animations, videos, and multimedia resources that accommodate diverse learning needs and improve conceptual understanding (Almulla, 2020; Huang et al., 2020). In elementary science education, multimedia-based instruction is particularly important because many scientific concepts are abstract and difficult for young learners to understand through verbal explanations alone. Appropriate digital media can transform these abstract concepts into meaningful visual representations that encourage exploration, increase engagement, and support deeper conceptual understanding (Fiorella & Mayer, 2018; Mayer, 2021). However, for third-grade students who are transitioning to the concrete operational stage, digital media should complement rather than replace direct concrete experiences with physical objects (Piaget, 1970). Therefore, selecting digital media should not only emphasize technological features but also consider instructional design principles that foster active participation, learning interest, and improved learning outcomes while acknowledging students' developmental needs for both visual representation and concrete manipulation.

Canva for Education is primarily a visual design platform that enables educators to develop engaging learning materials through presentations, infographics, animations, embedded videos, hyperlinks, and clickable navigation buttons (Bich & Nguyễn, 2024; Hinchcliff & Mehmet, 2023). Recent developments have introduced AI-powered features such as Dream Lab for curriculum-aligned visual generation, interactive charts for data visualization, and the Teacher Work Kit with ready-made templates and sequenced lessons (Canva, 2024). These features allow teachers to create vibrant lessons that make classroom learning more engaging and inspiring (Hart, 2024).

However, it is important to clarify that Canva natively has limited advanced interactivity; features such as drag-and-drop activities for students during presentation mode, quiz creation with automatic scoring, or direct digital feedback are not available within Canva alone. In this study, the interactive nature of the learning media is achieved by utilizing Canva's hyperlink menu to create navigation between slides, embedding external formative quizzes through integrated platforms, and designing guided learning activities that encourage student exploration. This approach allows students to actively explore learning content and participate in structured learning activities while maintaining Canva's function as a visual learning environment rather than a learning management system. Consequently, the effectiveness of the media depends not only on Canva's visual capabilities but also on the instructional design that organizes interaction, engagement, and learning experiences to support meaningful IPAS learning.

The integration of Canva with a systematic instructional design model provides a pedagogically grounded approach to developing interactive learning media rather than relying solely on visual appeal. The ARCS (Attention, Relevance, Confidence, Satisfaction) model, developed by Keller, provides a systematic framework for designing instruction that enhances learners' motivation through four interconnected dimensions (Keller, 2010). Attention stimulates curiosity and captures learners' focus using engaging instructional stimuli, while Relevance connects learning content to students' needs and real-life experiences. Confidence promotes learners' belief in their ability to succeed through achievable learning tasks, whereas Satisfaction reinforces learning by providing positive feedback and meaningful learning experiences (Shahabani et al., 2022; Wong & Wong, 2021).

These motivational components encourage students to participate actively in the learning process and sustain their engagement throughout instruction. Although the

ARCS model primarily targets learning motivation, its Attention and Relevance components are closely associated with the development of situational learning interest, which emerges when instructional activities are perceived as engaging, meaningful, and relevant to learners' experiences. Attention-getting strategies, particularly perceptual arousal, are conceptually similar to triggered situational interest, while inquiry arousal corresponds to maintained situational interest (Drobisz, 2017; Keller, 2010).

Situational learning interest increases students' cognitive engagement and participation during classroom activities, ultimately contributing to improved academic achievement (Ainley, 2006; Raber et al., 2022). Therefore, integrating the ARCS instructional design model into Canva-based interactive learning media provides a strong theoretical foundation for enhancing students' learning interest while simultaneously improving learning outcomes in elementary IPAS education.

Canva facilitates the creation of multimedia-rich learning materials through presentations, animations, infographics, embedded videos, hyperlinks, and interactive navigation, while the ARCS model guides the design of these elements to systematically enhance students' learning interest. Specifically, attractive visual layouts and multimedia features capture learners' Attention, contextual examples strengthen Relevance, structured learning activities promote Confidence, and formative feedback and meaningful learning experiences foster Satisfaction (Hart, 2024; Ma & Lee, 2021; Sari et al., 2023). Research has shown that Canva's AI-enhanced tools can support instructional design by dismantling barriers to effective visual design and providing tools for learning activities that boost motivation across all four ARCS domains (Hart, 2024). Consequently, Canva functions not merely as a presentation tool but as a medium through which motivational instructional strategies are implemented to support active learning.

The integration of Canva and ARCS also establishes a theoretical pathway linking instructional design with students' learning interest and achievement. Interactive visual elements stimulate situational learning interest, encouraging students to engage more actively with learning activities, while the motivational support provided by the ARCS components sustains engagement throughout the learning process. Increased engagement subsequently facilitates deeper conceptual understanding and contributes to improved learning outcomes (Su & Cheng, 2015; Tunur et al., 2021). A study by Hasanah et al. (2026), found that the inquiry model assisted by Canva was the most effective in increasing learning motivation compared to other digital tools, demonstrating the potential of Canva-based instruction when grounded in motivational design. Therefore, integrating Canva-based interactive media with the ARCS instructional design model offers a comprehensive instructional strategy that combines visual communication, learner motivation, and active participation to improve both learning interest and learning outcomes in elementary IPAS education.

Previous studies have consistently demonstrated the educational benefits of Canva as a digital learning medium. Canva has been reported to improve students' creativity, engagement, communication skills, and the quality of learning materials through its multimedia and visual design features (Nurmayuli, 2023; Zahri & Rahmawati, 2024). Other studies also indicate that Canva facilitates the development of interactive learning resources that support student-centered learning and increase learners' motivation and participation during classroom activities (Bich & Nguyễn, 2024; Triyono et al., 2023). Research by Nurjanah et al. (2025), found that AI-driven Canva learning tools significantly enhanced elementary students' learning interest with a very large effect size, demonstrating the potential of Canva-based instruction in primary education.

Meanwhile, studies on the ARCS instructional design model have confirmed its effectiveness in enhancing learners' motivation, engagement, and academic performance across various technology-enhanced learning environments (Ma & Lee, 2021; Tunur et al., 2021). These findings suggest that both Canva and the ARCS model positively contribute to improving learning quality through different yet complementary instructional functions. However, most previous studies have examined Canva primarily as a visual learning medium or investigated the ARCS model as an independent motivational framework. Limited research has integrated Canva-based interactive learning media with the ARCS instructional design model to simultaneously improve students' learning interest and learning outcomes, particularly in elementary IPAS learning.

Although previous studies have demonstrated that Canva enhances the quality of digital learning media, creativity, and student engagement, these studies have primarily focused on Canva as a visual design tool rather than as part of a pedagogically structured instructional model (Dewi & Setyasto, 2024; Nurmayuli, 2023). Similarly, research on the ARCS instructional design model has consistently reported its effectiveness in improving learners' motivation and academic achievement across various technology-enhanced learning environments (Shahabani et al., 2022). Furthermore, while studies have examined Canva's effectiveness in enhancing learning interest (Nurjanah et al., 2025) and the ARCS model's impact on motivation (Hasanah et al., 2026), limited studies have integrated

Canva-based interactive learning media with the ARCS instructional design model to examine their combined influence on both learning interest and learning outcomes simultaneously.

Moreover, existing research has predominantly been conducted in higher education or secondary education contexts for separate science or social subjects, while empirical evidence at the elementary school level, particularly for the integrated IPAS subject under the Merdeka Curriculum, remains limited. It is important to note that IPAS is a subject specifically available only at the elementary school level in the Merdeka Curriculum; at the secondary level, this subject has been divided into separate science and social studies subjects. Therefore, the integration of IPAS as a combined subject presents unique challenges that require specific instructional approaches (Syah et al., 2026). This study addresses this gap by integrating Canva-based interactive learning media with the ARCS instructional design model to investigate its effectiveness in simultaneously improving elementary students' learning interest and learning outcomes.

The novelty of this study lies in several key contributions. First, it integrates Canva-based interactive learning media with the ARCS instructional design model into a unified instructional framework, positioning Canva not only as a visual presentation tool but also as a medium designed to support motivational learning strategies through careful instructional design (Hart, 2024; Hinchcliff & Mehmet, 2023; Shahabani et al., 2022). Second, the study develops interactive learning media by combining multimedia elements, structured navigation using Canva's hyperlink feature, embedded external quizzes, and motivational principles to promote active student engagement throughout the learning process, rather than relying on Canva's limited native interactive features (Triyono et al., 2023). Third, the study extends previous research by applying the integrated Canva-ARCS framework to Grade III elementary IPAS learning within the Merdeka Curriculum context, addressing an educational level and integrated subject area that have received limited attention in previous studies (Syah et al., 2026). Fourth, it simultaneously evaluates students' learning interest and learning outcomes, providing a more comprehensive understanding of how instructional design influences both affective and cognitive learning domains. These contributions offer a practical instructional model that can support the implementation of interactive and student-centered learning in elementary education (Dewi & Setyasto, 2024; Nuraini et al., 2023).

This study is important for several compelling reasons. Theoretically, it extends the application of the ARCS instructional design model by integrating it with Canva-based interactive learning media, providing a framework that connects visual media design with motivational learning strategies in elementary education (Hart, 2024; Hinchcliff & Mehmet, 2023; Ma & Lee, 2021). This integration enriches the understanding of how instructional media and motivational design can jointly foster students' learning interest and academic achievement, particularly in the context of integrated IPAS learning. Practically, the study provides teachers with an accessible and replicable instructional approach for implementing interactive, student-centered IPAS learning.

By combining Canva's multimedia capabilities with the motivational principles of ARCS, the proposed instructional design supports meaningful learning experiences that encourage active participation and improve learning outcomes without requiring advanced technical skills or expensive learning management systems. Furthermore, the findings can support the implementation of the Merdeka Curriculum by offering practical guidance for designing technology-enhanced learning that promotes both student engagement and academic success (Dewi & Setyasto, 2024; Nuraini et al., 2023). Given the persistent challenges in Indonesian students' scientific literacy and the need for innovative instructional approaches, this study provides evidence-based strategies that can inform teacher professional development and educational technology policy.

Based on the aforementioned rationale, this study aims to analyze the differences in learning outcomes between students who learn using Canva-based interactive learning media integrated with the ARCS instructional design model and those who learn using conventional media in Grade III IPAS learning. It also aims to analyze the differences in learning interest between the two groups and to evaluate the effectiveness of Canva-based interactive learning media integrated with the ARCS instructional design model in improving learning outcomes and learning interest in Grade III IPAS learning.

Method

This study employed a quantitative approach to objectively examine the effect of instructional treatment on students' learning outcomes and interest (Creswell, 2014). A quasi-experimental design was used, as full randomization was not feasible due to pre-existing class structures (Fraenkel et al., 2012; Sugiyono, 2017). The pretest-posttest control group design involved two groups, experimental and control, each receiving a pretest before treatment and a posttest after treatment (Fraenkel et al., 2012). This design controls extraneous variables by comparing initial and final conditions

between both groups, allowing changes to be attributed to the treatment rather than external factors (Ary et al., 2010). The research design is summarized in Table 1, and the overall procedure is illustrated in Figure 1.

Table 1. Research design

Group	Pretest	Treatment	Posttest
Experimental (E)	O_1	X	O_2
Control (C)	O_1	–	O_2

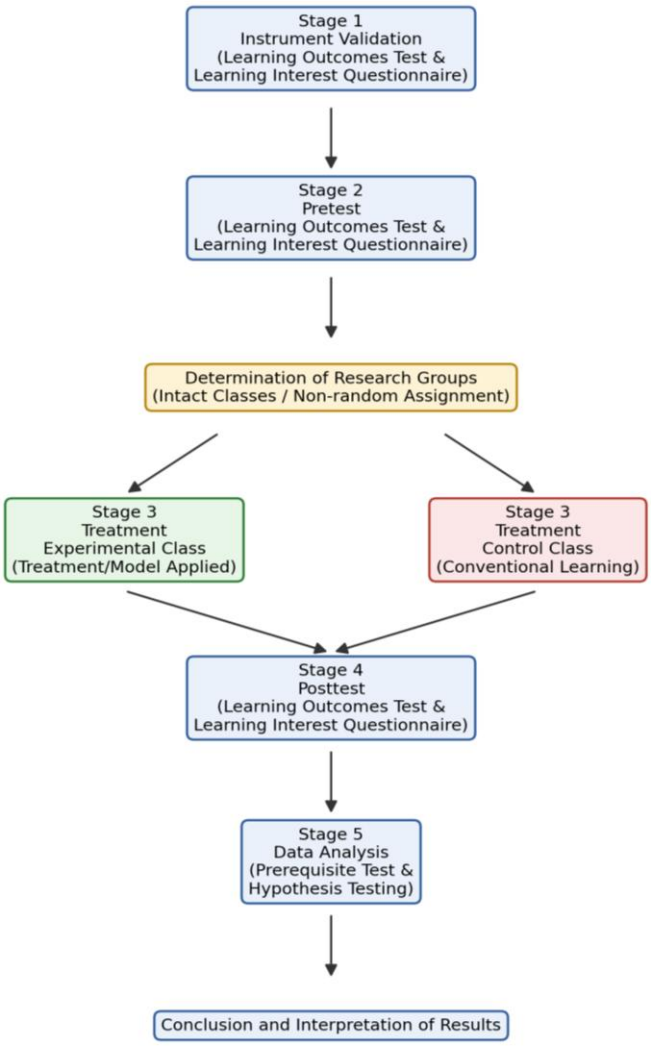


Figure 1. Research procedure (flowchart)

The study was conducted at a secondary school during the even semester of the current academic year. The population comprised all students at the target grade level. The sample was selected using intact class or non-random assignment, based on naturally formed classes without rearranging students due to administrative and scheduling considerations (Cohen et al., 2018). This technique is common in quasi-experimental research where class compositions cannot be altered (Fraenkel et al., 2012). The sample consisted of two classes with relatively equal student numbers between the experimental and control groups. The experimental class received the tested instructional treatment, while the control class continued with conventional instruction. Both classes had similar initial characteristics in terms of student numbers, academic background, and learning schedules, ensuring that post-treatment differences could be attributed to the treatment.

Two instruments were used: a learning outcomes test and a learning interest questionnaire. The learning outcomes test consisted of twenty multiple-choice items measuring cognitive achievement across remembering, understanding, applying, analyzing, and evaluating levels (Anderson & Krathwohl, 2001). Its purpose was to measure differences in learning outcomes between groups before and after treatment. The test blueprint is presented in Table 2.

Table 2. Learning outcomes test blueprint

Indicator	Cognitive Level	Item Number
Recalling and explaining basic concepts	C1-C2	1-8
Applying concepts to solve problems	C3	9-16
Analyzing and evaluating information/data	C4-C5	17-20

The learning interest questionnaire was developed based on Keller (2010) ARCS model (Attention, Relevance, Confidence, Satisfaction) as a framework for measuring motivation and interest. The four dimensions served as indicator bases: attention to learning, relevance of material, self-confidence, and satisfaction with outcomes. The questionnaire used a five-point Likert scale (Strongly Agree to Strongly Disagree) with twenty items distributed across the four ARCS dimensions (Keller, 2010; Sugiyono, 2017). The questionnaire blueprint is presented in Table 3, and the Likert scoring guide in Table 4.

Table 3. Learning interest questionnaire blueprint

ARCS Dimension	Indicator	Item Number
Attention	Curiosity and focus of attention	1-5
Relevance	Connection to needs and goals	6-10
Confidence	Belief in ability to succeed	11-15
Satisfaction	Sense of accomplishment	16-20

Table 4. Likert scale scoring

Response Category	Score (Favorable)	Score (Unfavorable)
Strongly Agree (SA)	5	1
Agree (A)	4	2
Neutral (N)	3	3
Disagree (D)	2	4
Strongly Disagree (SD)	1	5

Both instruments underwent validity and reliability testing before data collection. Content validity was

established through expert judgment to ensure item alignment with indicators and measurement objectives (Ary et al., 2010). Item validity was empirically analyzed using Pearson Product Moment correlation; items were declared valid if r calculated was greater than r table at α = 0.05 (Sugiyono, 2017). The formula is:

$$r_{xy} = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{[n\sum X^2 - (\sum X)^2][n\sum Y^2 - (\sum Y)^2]}} \quad (1)$$

All twenty test items were declared valid. Reliability of the learning outcomes test was calculated using the Kuder-Richardson 20 (KR-20) formula, appropriate for dichotomous instruments (Ary et al., 2010):

$$\text{KR-20} = \frac{k}{k-1} \times \frac{S^2 - \sum p\,q}{S^2} \quad (2)$$

The reliability coefficient was 0.84, indicating high reliability (Ary et al., 2010). All twenty questionnaire items were also declared valid. Reliability of the questionnaire was analyzed using Cronbach's Alpha, appropriate for Likert-scale instruments (Cohen et al., 2018):

$$\alpha = \frac{k}{k-1} \times \left(1 - \frac{\sum \sigma_i^2}{\sigma_t^2}\right) \quad (3)$$

The Cronbach's Alpha value was 0.89, classified as very reliable (Cohen et al., 2018). The research procedure comprised five stages (see Figure 1). Stage 1: instrument validation, testing validity and reliability of both instruments. Stage 2: pretest administration, learning outcomes test and questionnaire to both groups to establish baseline conditions. Stage 3: treatment implementation, experimental class received the tested instructional model or strategy, while control class continued with conventional instruction during the same period. Stage 4: posttest administration, both instruments to both groups after treatment completion to measure changes. Stage 5: data analysis, prerequisite tests and hypothesis testing of collected data.

Before hypothesis testing, prerequisite tests were conducted: normality using Shapiro-Wilk Test and homogeneity of variance using Levene's Test (Field, 2013). These determined the appropriate parametric test. Once data were confirmed as normally distributed and homogeneous, hypothesis testing used Independent Samples t-test to compare mean learning outcomes and mean learning interest between groups at posttest (Field, 2013):

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} \quad (4)$$

A significance value (p) less than 0.05 indicates a significant difference between groups (Field, 2013). Learning Outcome Scores (LOS) were calculated as:

$$\text{LOS} = \frac{\text{Number of Correct Answers}}{\text{Total Number of Items}} \times 100 \quad (5)$$

Learning interest scores were calculated by summing all item scores according to Table 4.

$$\text{Learning Interest Score} = \sum(\text{Score of Each Item}) \quad (6)$$

A summary of statistical analyses is presented in Table 5.

Table 5. Summary of statistical analysis

Research Objective	Statistical Analysis
Test normality	Shapiro-Wilk Test
Test homogeneity	Levene's Test
Compare learning outcomes	Independent Samples t-test
Compare learning interest	Independent Samples t-test

Result and Discussion

Learning Outcomes

The comparison of students' learning outcomes between the experimental and control groups is presented in Table 6. The table summarizes the pretest and posttest mean scores to describe students' initial abilities and learning achievement after the implementation of the instructional intervention.

Table 6. Comparison of learning outcomes between experimental and control groups

Variable	Experimental (n = 17)	Control (n = 17)	Result
Pretest Mean	69.29	66.71	Initial ability relatively equivalent
Posttest Mean	86.17	77.79	Experimental class higher

The descriptive analysis presented in Table 6 indicates that the experimental and control groups had relatively comparable initial abilities, as reflected by the similar pretest mean scores of 69.29 and 66.71, respectively. Following the intervention, the experimental group achieved a substantially higher posttest mean score (86.17) than the control group (77.79). The assumptions of normality and homogeneity were satisfied ($p > 0.05$), and the Independent Samples t-test confirmed a statistically significant difference between the two groups ($t = 5.021$, $p < 0.001$). These findings indicate that Canva-based interactive learning media integrated with the ARCS instructional design model was significantly more effective than

conventional PowerPoint-based instruction in improving elementary students' learning outcomes.

The improvement in learning outcomes can be explained by the integration of interactive multimedia and motivational instructional design. Canva provides a multimedia environment that combines text, images, animations, videos, and interactive learning activities, enabling students to process information through both visual and verbal channels. According to the Cognitive Theory of Multimedia Learning (CTML), meaningful learning occurs when learners actively select, organize, and integrate information from these dual channels while minimizing extraneous cognitive load (Mayer, 2017). Interactive multimedia developed according to CTML principles facilitates conceptual understanding by helping learners establish meaningful connections between verbal explanations and visual representations, ultimately leading to improved academic achievement (Almasseri & AlHojailan, 2019).

In addition to multimedia design, the motivational dimension of learning also contributed to students' academic improvement. The ARCS instructional design model systematically promotes learning motivation by attracting students' attention, increasing the relevance of learning content, strengthening learners' confidence, and providing satisfaction through meaningful learning experiences. These motivational components encourage active participation throughout the learning process, resulting in greater engagement, sustained learning effort, and higher academic performance (Herianto & Wilujeng, 2021; Keller, 2010). Furthermore, interactive multimedia that effectively manages learners' cognitive load while providing engaging learning experiences has been shown to support deeper understanding and better learning performance (Refat et al., 2019).

The present findings are consistent with previous studies demonstrating that interactive multimedia enhances conceptual understanding, student engagement, and academic achievement across various educational settings (Sasan & Rabillas, 2022; Siregar et al., 2024). However, this study contributes to the existing literature by demonstrating that the effectiveness of Canva-based learning media is strengthened when combined with a systematic motivational instructional design. Rather than functioning merely as a digital presentation tool, Canva becomes an instructional medium that simultaneously supports cognitive processing and learning motivation through the integration of CTML principles and the ARCS model. This integrated approach provides a more comprehensive explanation of how interactive multimedia improves learning outcomes than studies focusing solely on multimedia features.

From a practical perspective, these findings suggest that Canva-based interactive learning media can serve as an effective instructional alternative for elementary IPAS learning. The integration of multimedia principles and motivational instructional design supports student-centered learning, promotes digital literacy, and creates meaningful learning experiences aligned with the objectives of the Merdeka Curriculum.

Learning Interest

Students' learning interest was analyzed to examine the effect of the Canva-based interactive learning media on students' motivation toward science learning. The analysis followed the same procedures as those used for learning outcomes.

Table 7. Summary of learning interest results

Indicator	Experimental Class	Control Class
Pretest Mean	93.18	94.42
Posttest Mean	117.59	101.12
Score Increase	24.41	6.70
Normality	Normal	Normal
Homogeneity	Homogeneous	Homogeneous
t-test Result	Significant	-

The results presented in Table 7 indicate that both groups had relatively similar learning interest before the intervention, with pretest mean scores of 93.18 for the experimental group and 94.42 for the control group. After the implementation of Canva-based interactive learning media integrated with the ARCS instructional design model, the experimental group achieved a higher posttest mean (117.59) than the control group (101.12), with a greater increase in learning interest (24.41 vs. 6.70). The data met the assumptions of normality and homogeneity ($p > 0.05$), and the Independent Samples t-test revealed a significant difference between the groups ($t = 2.884$, $p < 0.05$), indicating that the intervention effectively improved students' learning interest.

The increase in learning interest can be explained by the integration of interactive multimedia and the ARCS motivational model. Canva combines text, images, animations, videos, and interactive activities that attract students' attention and encourage active participation. At the same time, contextual learning activities enhance the relevance of the learning materials, making learning more meaningful and increasing students' intrinsic motivation (Herianto & Wilujeng, 2021; Keller, 2010). This finding is further supported by the ARCS model, Self-Determination Theory, and the Cognitive Theory of Multimedia Learning, which suggest that multimedia-rich and autonomy-supportive learning environments enhance motivation, cognitive processing, and student engagement (Keller, 2010; Mayer, 2017; Ryan & Deci, 2020).

These findings are consistent with previous studies showing that interactive multimedia enhances students'

motivation, engagement, and learning interest. However, this study extends previous research by demonstrating that the effectiveness of Canva is strengthened when integrated with the ARCS instructional design model, enabling the media to support both cognitive learning processes and students' intrinsic motivation simultaneously.

Practically, Canva-based interactive learning media can serve as an effective alternative for improving elementary students' learning interest in IPAS. By integrating multimedia features with motivational instructional strategies, teachers can create more engaging, contextual, and student-centered learning environments that support the implementation of the Merdeka Curriculum.

Educational Implications of Canva-Based Interactive Learning Media

To examine the simultaneous effect of the Canva-The findings of this study demonstrate that Canva-based interactive learning media integrated with the ARCS instructional design model significantly improved both students' learning outcomes and learning interest compared with conventional PowerPoint-based instruction. The integration of interactive multimedia with motivational instructional strategies created a more engaging, meaningful, and student-centered learning environment, enabling students to participate actively and achieve better academic performance. These results indicate that the effectiveness of digital learning media depends not only on multimedia features but also on instructional design that systematically supports students' motivation and engagement.

From a theoretical perspective, these findings reinforce the ARCS Motivation Model, which emphasizes the roles of attention, relevance, confidence, and satisfaction in enhancing learning motivation (Keller, 2010). They also support the Cognitive Theory of Multimedia Learning, which explains that combining visual and verbal information facilitates cognitive processing and conceptual understanding (Mayer, 2017). Furthermore, the results are consistent with the principles of constructivist learning, suggesting that meaningful learning occurs when students actively interact with learning resources, construct knowledge, and relate new concepts to prior experiences.

Practically, this study suggests that elementary school teachers can use Canva-based interactive learning media as an effective alternative for improving students' learning interest and academic achievement in IPAS. Schools should support its implementation through adequate digital infrastructure and teacher professional development in multimedia instructional design. In addition, learning media developers should integrate interactive multimedia with motivational design principles to maximize learning effectiveness. These findings also support the implementation of the Merdeka Curriculum, which promotes student-centered learning, digital literacy, active participation, and meaningful learning experiences.

Conclusion

This study demonstrated that Canva-based interactive learning media integrated with the ARCS instructional design model significantly improved elementary students' learning outcomes and learning interest compared with conventional PowerPoint-based instruction. The findings indicate that combining interactive multimedia with motivational instructional design creates more engaging, meaningful, and student-centered learning experiences that enhance both cognitive and affective learning. These results support the effectiveness of integrating the ARCS Motivation Model with multimedia learning principles and suggest that Canva-based interactive learning media can serve as an effective instructional alternative for IPAS in elementary schools while supporting the implementation of the Kurikulum Merdeka. Future research is recommended to examine the effectiveness of this instructional approach in different educational levels, subject areas, and larger samples, as well as to investigate its long-term impact on students' learning outcomes and learning interest.

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Author Contributions

Conceptualization, validation, writing—review and editing, Z.Z. and R.; methodology, software, formal analysis, investigation, resources, data curation, writing—original draft preparation, visualization, project administration, L.R.; supervision, D.; funding acquisition, not applicable. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

There is no conflict of interest.

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