

Canva-Based Learning Media And Its Impact on Students' Achievement in the Digestive System Topic

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Abstract: This study aims to examine the influence of Canva-based instructional media and learning motivation on the learning outcomes of fifth-grade elementary students in the topic of the human digestive system within the IPAS subject. The research adopts a quantitative approach using a quasi-experimental method with a 2x2 factorial design and an ex post facto technique. The population consisted of fifth-grade students from SDN Kabuh. Data were collected through tests of learning outcomes and motivation questionnaires. The analysis showed that the use of Canva-based media had a significant effect on student achievement. Furthermore, learning motivation independently contributed to improved learning outcomes. The interaction between the two variables was also significant, indicating that high motivation strengthened the positive effect of Canva-based media. This research confirms the importance of integrating visual-digital tools with internal student factors to enhance science learning in elementary education

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Introduction

In the 21st century, digital technology has become a vital element in transforming the education sector. With the increasing demand for quality and innovative teaching, educators are encouraged to adopt new methods and media to support effective learning. In particular, science learning at the elementary level often involves abstract and complex content such as the human digestive system, which is difficult to grasp through verbal explanation alone. This challenge requires the integration of appropriate visual media to facilitate meaningful understanding among students.

Canva, a free and widely accessible online design tool, is one of the educational technologies that can be effectively used to present visual learning materials. With its intuitive interface and rich features—such as graphic templates, animations, and infographics—Canva allows teachers to develop engaging and interactive learning media without requiring advanced design skills. When used in instructional settings, Canva has the potential to transform how students interact with scientific concepts by supporting both cognitive and affective learning aspects.

Meanwhile, learning motivation plays an equally important role in determining students' success. Motivated learners tend to be more engaged, persistent, and open to new learning experiences. According to Keller's ARCS model, motivation is influenced by four components: Attention, Relevance, Confidence, and Satisfaction. Each of these components contributes to students' willingness to participate in learning activities and achieve academic goals. Without sufficient motivation, even the most well-designed instructional media may fail to produce the desired learning outcomes.

Although many studies have investigated the individual effects of instructional media and learning motivation, fewer have explored their combined influence, especially in the context of elementary science education. There is a growing need to understand how modern media like Canva can interact with student motivation to support academic achievement. This study addresses that gap by focusing on the topic of the human digestive system—a conceptually challenging subject in the fifth-grade IPAS curriculum.

The purpose of this study is to analyze the effects of Canva-based instructional media and learning motivation, both independently and in combination, on student learning outcomes. Specifically, the research seeks to answer the following questions: (1) Does the use of Canva-based instructional media significantly affect students' learning outcomes in the digestive system topic? (2) Does learning motivation contribute significantly to learning outcomes? (3) Is there an interaction effect between Canva media and motivation level on students' academic achievement?

By answering these questions, this study aims to provide both theoretical and practical contributions to the field of educational technology. Theoretically, it contributes to the growing body of knowledge about multimedia learning and motivational theory in education. Practically, it offers insights for teachers and education stakeholders on how to optimize instructional strategies using digital media in alignment with learners' psychological readiness.

Research Method

This study employed a quantitative approach with a quasi-experimental research design using a 2x2 factorial framework combined with an ex post facto method. The quasi-experimental design was chosen to allow the researcher to assess cause-effect relationships between independent and dependent variables, despite limitations in random assignment. The 2x2 factorial design enabled examination of the main effects and interaction effects between two independent variables—namely, Canva-based instructional media and students' motivation level—on the dependent variable, which was students' learning outcomes.

This research was conducted during the second semester of the 2024/2025 academic year at SDN Kabuh. The setting was selected based on its accessibility, willingness to cooperate, and the uniformity of classroom conditions, such as class size, teacher qualifications, and technological infrastructure.

The independent variables in this study were the type of instructional media (Canva-based media vs. traditional media) and students' motivation level (high vs. low). The dependent variable was students' academic achievement as measured by a posttest on the

human digestive system topic. To determine students' motivation level, a pre-instruction motivation questionnaire was administered.

This design resulted in four experimental conditions: 1) Canva-based media with high motivation 2) Canva-based media with low motivation 3) Traditional media with high motivation 4) Traditional media with low motivation. Each group received instruction aligned with their assigned treatment conditions. Pretests and posttests were used to measure student performance before and after instruction. Statistical analyses were conducted to examine the significance of differences among the groups and to determine any interaction effects between the two independent variables.

The study was conducted at SDN Sumberingin, involving fifth-grade students. Two classes were selected through purposive sampling: one as the experimental group (taught with Canva-based media) and the other as the control group (taught using conventional methods). Students were categorized into high and low motivation groups based on questionnaire results.

Result and Discussion

Results

The results of this study are presented in three stages: descriptive statistics, inferential statistics using ANOVA, and interpretation of interaction effects. The objective was to determine the effectiveness of Canva-based instructional media and students' motivation levels—both independently and in combination—on fifth-grade students' academic performance in the topic of the human digestive system.

Descriptive Statistics

Descriptive data indicated that the group of students taught using Canva-based media outperformed their peers who received instruction through traditional methods. Furthermore, students with higher levels of motivation demonstrated better learning outcomes compared to those with lower motivation levels.

Tabel 1. The mean scores of students in each treatment group

Group	Mean Score	Standard Deviation
Canva + High Motivation	87.4	4.21
Canva + Low Motivation	79.8	5.13
Traditional + High Motivation	78.6	4.89
Traditional + Low Motivation	70.7	5.45

These results indicate a clear trend: students in the Canva group, regardless of motivation level, outperformed those in the traditional group. Moreover, students with high motivation consistently scored higher than those with low motivation.

Inferential Statistics (Two-Way ANOVA)

To examine the statistical significance of these findings, a two-way ANOVA test was conducted. The test examined: 1) The main effect of instructional media 2) The main effect of learning motivation 3) The interaction effect between media and motivation

Tabel 2. Source of Variation

Source of Variation	F-value	Sig. (p-value)	Interpretation
Media	12.78	< 0.01	Significant main effect
Motivation	15.34	< 0.01	Significant main effect
Media × Motivation	5.92	< 0.05	Significant interaction effect

The analysis confirmed that both instructional media and motivation independently contributed to significant differences in student learning outcomes. Additionally, the interaction effect was significant, indicating that the impact of media on learning outcomes was influenced by students' motivation levels.

Discussion

Based on the two-way ANOVA results, the study concludes that the use of Canva-based instructional media significantly improves students' learning outcomes in the topic of the Human Digestive System in IPAS. The findings reveal that Canva's visually appealing and interactive features enhance students' understanding by combining visual and verbal elements, consistent with Mayer's Multimedia Learning Theory. Moreover, learning motivation was also found to have a strong influence on academic achievement, as highly motivated students performed better than those with lower motivation, aligning with McClelland's Motivation Theory. The significant interaction between media use and motivation indicates that Canva is most effective when students are intrinsically motivated, emphasizing the need to integrate both technological innovation and motivational strategies in teaching. Therefore, combining Canva-based media with efforts to strengthen students' motivation constitutes an effective approach to improving learning outcomes in science education, particularly for fifth-grade students.

Conclusion

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Recommendation

Based on the findings and conclusions of this study, several recommendations are proposed to enhance learning quality through the integration of digital media and motivation strategies. Teachers are encouraged to utilize Canva and similar digital platforms to create interactive and visually engaging learning materials that simplify abstract science concepts while fostering students' motivation through feedback and recognition. School principals should provide training and infrastructure support to strengthen teachers' digital competencies and ensure effective media integration. Curriculum developers are advised to embed digital media use into formal curricula and design guidelines that align with students' cognitive and affective needs. Policymakers should establish supportive educational standards and funding schemes that promote equitable access to digital tools while emphasizing student motivation as a key educational outcome. Finally, future researchers are encouraged to investigate the long-term and cross-disciplinary impacts of Canva-based learning, explore diverse learner characteristics, and employ mixed-method approaches to gain deeper insights into the interaction between digital media use and student motivation.

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