

Development of Interactive Digital Teaching Materials Using Canva for Science (IPAS) in Grade V of Elementary School

Afrina Hayati¹, Zulkifli², Evrialiani Rosba³

^{1,2,3}Universitas PGRI Sumatera Barat

ABSTRACT: The advancement of technology in the era of the Fourth Industrial Revolution has brought significant changes to the education sector, including the need for innovative teaching materials that align with the characteristics of 21st-century learners. This study aims to develop interactive digital teaching materials based on Canva to improve students' learning outcomes in Science and Social Studies (IPAS) for Grade V of elementary school. The method used is Research and Development (R&D) with the ADDIE model (Analyze, Design, Develop, Implement, Evaluate). Validation results from subject matter experts, media experts, teachers, and field trials indicate that the developed teaching materials are categorized as "Very Feasible." Data analysis results also show a significant improvement in students' learning outcomes, with an N-gain value of 0.75 (high category) and T-test results with a significance of 0.00. This indicates that the use of interactive media based on Canva is effective in enhancing students' understanding of IPAS material.

KEYWORDS: digital teaching materials, interactive media, Canva, IPAS, 21st-century learning

A. INTRODUCTION

Background

The digital transformation has had a significant impact on various aspects of life, including education. The Fourth Industrial Revolution demands a paradigm shift in the learning process, moving from conventional methods to more interactive, adaptive, and technology-based approaches (Wulandari et al., 2022). Education today is not only tasked with transferring knowledge but also with developing 21st-century skills such as critical thinking, collaboration, communication, and creativity. Therefore, the use of technology is inevitable in supporting effective and meaningful teaching and learning activities.

Primary education, especially at the elementary school level, serves as the foundation for developing students' cognitive, affective, and psychomotor abilities. At this stage, students are in the concrete-operational development phase, where they learn through direct experience and activities involving their senses and motor skills (Piaget, as cited in Slavin, 2011). As a result, teaching approaches that are visual, interactive, and contextual are highly recommended to enhance students' understanding of basic concepts.

One subject that requires understanding abstract concepts and observation of natural and social phenomena is Science and Social Studies (IPAS). IPAS is a subject that integrates two fields of knowledge, namely Science (IPA) and Social Studies (IPS), and is designed to help students understand the world around them in a holistic and integrated manner. However, in practice, IPAS learning often faces challenges, especially in conveying complex and abstract material to Grade V students. This is exacerbated by the continued use of conventional teaching methods, such as lectures and repetitive worksheets (LKS), without engaging and varied media (Lubis & Simbolon, 2023).

Based on initial observations and interviews with Grade V teachers in several elementary schools, it was found that students' interest in learning IPAS is still low. Students tend to be passive, lack enthusiasm in following lessons, and have difficulty understanding the material presented by the teacher. One of the main causes is the lack of engaging digital teaching materials that align with the learning characteristics of students in the digital age. Textbooks used are still textual and lack visualization, making it difficult for students to imagine the concepts being explained.

As stated in the Republic of Indonesia Law Number 20 of 2003 on the National Education System, education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills required for themselves, society,

Development of Interactive Digital Teaching Materials Using Canva for Science (IPAS) in Grade V of Elementary School

nation, and state. To achieve this goal, it is necessary to intervene by providing teaching materials that are in line with the times and the needs of students.

The role of teachers is crucial in designing engaging and meaningful learning experiences. Teachers are not only information transmitters but also facilitators who create a pleasant learning environment and encourage active participation from students (Adip, 2022). This is where innovation in the use of teaching media becomes important. One relevant and practical solution for teaching IPAS is the development of digital teaching materials based on design applications such as Canva.

Canva is a digital platform that allows users to create visually appealing, interactive designs that are easy to use, even for users without a design background. In the context of education, Canva can be used to develop teaching materials in various forms, such as infographics, interactive presentations, animated videos, and e-modules. The flexible features and rich visual elements of Canva make it one of the potential digital learning media alternatives to increase students' interest in learning (Fazriyah et al., 2023).

Previous studies have shown that the use of Canva-based learning media is effective in improving students' learning outcomes. A study by Miftahul Jannah et al. (2023) revealed that Canva-based learning media positively influenced mathematics learning in elementary schools, increased learning motivation, and made it easier for students to understand the material. Similarly, Lubis and Simbolon (2023) stated that Canva-based learning media could create a more enjoyable learning atmosphere, making students more active and enthusiastic in following lessons.

The advantages of Canva-based digital teaching materials are not only in terms of visuals and interactivity but also in their accessibility. Materials developed through Canva can be accessed anytime and anywhere, by both teachers and students, through digital devices such as laptops, tablets, or smartphones. This aligns with the principle of flexible learning, which is a characteristic of 21st-century education.

Furthermore, digital teaching materials allow for the integration of various learning elements, such as text, images, videos, audio, and even three-dimensional objects. This multimedia integration can help students better understand concepts in a more comprehensive and in-depth manner. For example, in teaching the concept of phase changes, a teacher can include a video experiment of water changing states, an animation of the condensation process, and an interactive quiz to test students' understanding directly.

In addition to improving conceptual understanding, the use of digital teaching materials can also increase student engagement in the learning process. In traditional learning, students tend to be passive and only listen to the teacher's explanation. However, with interactive media, students can directly engage with the material, answer questions, choose answers, and even create their own creations. This is in line with the constructivist theory, which emphasizes the importance of students' active role in building understanding through direct experience (Bruner, 1966).

However, the development of digital teaching materials also presents its own challenges, especially regarding teachers' competence in operating design applications and managing digital content. Therefore, training and continuous guidance for teachers need to be conducted to ensure they can optimally utilize technology in teaching activities. Teachers are required to continuously learn and adapt to changes to create quality and relevant learning (Rosmana et al., 2022).

Based on the above description, it can be concluded that the development of Canva-based digital teaching materials is a promising innovation in improving the quality of IPAS learning in elementary schools. By combining technology, attractive visualization, and interactivity, digital teaching materials can serve as a solution to the low interest and learning outcomes of students. Therefore, this research is important to develop, implement, and evaluate the effectiveness of Canva-based digital teaching materials in Grade V IPAS learning in elementary schools

B. RESEARCH METHOD

This study uses the Research and Development (R&D) approach aimed at developing Canva-based digital teaching materials and testing their effectiveness in teaching Science and Social Studies (IPAS) for Grade V of elementary school. The development model used is the ADDIE model, which consists of five main stages: Analysis, Design, Development, Implementation, and Evaluation. This model was chosen because it provides a systematic framework from planning to evaluating the learning product.

The research was conducted over three months, from October to December 2024, at one of the public elementary schools in Indonesia. The subjects of the study were 20 Grade V students, selected purposively, considering the availability, curriculum alignment, and the willingness of the school to participate in the development and trial of the teaching materials.

ADDIE Model Stages

1. Analysis

In this stage, the learning needs were identified through interviews with IPAS teachers and observation of teaching activities in the classroom. The main focus of the analysis was to assess the alignment of the teaching methods used with

Development of Interactive Digital Teaching Materials Using Canva for Science (IPAS) in Grade V of Elementary School

the characteristics of the students, as well as the challenges faced by both teachers and students in understanding IPAS material.

2. Design

After identifying the needs, the next stage was to design the structure of the Canva-based digital teaching materials. The design included selecting the teaching content, organizing the presentation flow, choosing multimedia elements (images, text, animations, and videos), and designing evaluation instruments such as questionnaires and tests for assessing student learning outcomes.

3. Development

In this stage, the digital teaching materials were developed using the Canva platform, integrating the results of the analysis and design stages. The resulting product was then validated by subject matter experts, media experts, and IPAS teachers to test the feasibility of its content, appearance, and presentation.

4. Implementation

The validated digital teaching materials were then tested with Grade V students in IPAS lessons. The implementation process took place over several sessions, with students using the digital teaching materials directly under the guidance of the teacher.

5. Evaluation

Evaluation was conducted to assess the effectiveness of the digital teaching materials in improving students' learning outcomes. The evaluation included assessments from experts, teachers' and students' responses, as well as pretest and posttest results from the students.

Data Collection Techniques

To support the research stages, data was collected through several techniques as follows:

1. Interviews

Interviews were conducted with IPAS teachers to explore problems in conventional IPAS teaching, the need for developing teaching materials, and expectations for the digital learning media to be developed.

2. Observations

Observations were made during IPAS lessons before and after the use of digital teaching materials. The observations focused on student engagement, teaching strategies, and the learning atmosphere.

3. Validation Questionnaires

Questionnaires were used to obtain evaluations from subject matter experts, media experts, and IPAS teachers regarding the quality of the digital teaching materials. Additionally, questionnaires were distributed to students to assess their responses and interest in the media used.

4. Learning Outcome Tests

Tests were used to measure improvements in students' learning outcomes through pretest (before using digital teaching materials) and posttest (after using the media). The test materials were aligned with the competency achievement indicators for the IPAS topics taught.

Data Analysis Techniques

The data obtained were analyzed using both quantitative and qualitative approaches:

- **Quantitative data**, namely the results of pretest and posttest, were analyzed using a paired sample t-test to determine whether there were significant differences in learning outcomes before and after using the digital teaching materials. This t-test was performed using statistical software such as SPSS.
- **Qualitative data**, which came from the results of interviews, observations, and open-ended questionnaires, were analyzed descriptively by reducing the data, identifying themes, and organizing interpretations based on emerging patterns. This analysis aimed to provide a comprehensive overview of users' perceptions, responses, and experiences with the digital teaching materials.

By combining the R&D method, the ADDIE model, and comprehensive data analysis, it is expected that the development of Canva-based digital teaching materials can make a significant contribution to improving the quality of IPAS teaching in elementary schools.

Development of Interactive Digital Teaching Materials Using Canva for Science (IPAS) in Grade V of Elementary School

C. RESULTS AND DISCUSSION

1. Media Validation

The validation of Canva-based digital learning media was conducted by three parties: subject matter experts, media experts, and IPAS teachers, as well as through field trials. The goal of this validation was to ensure that the developed media met the criteria of content feasibility, presentation, visual appearance, and its usefulness in learning.

Here are the results of the validation:

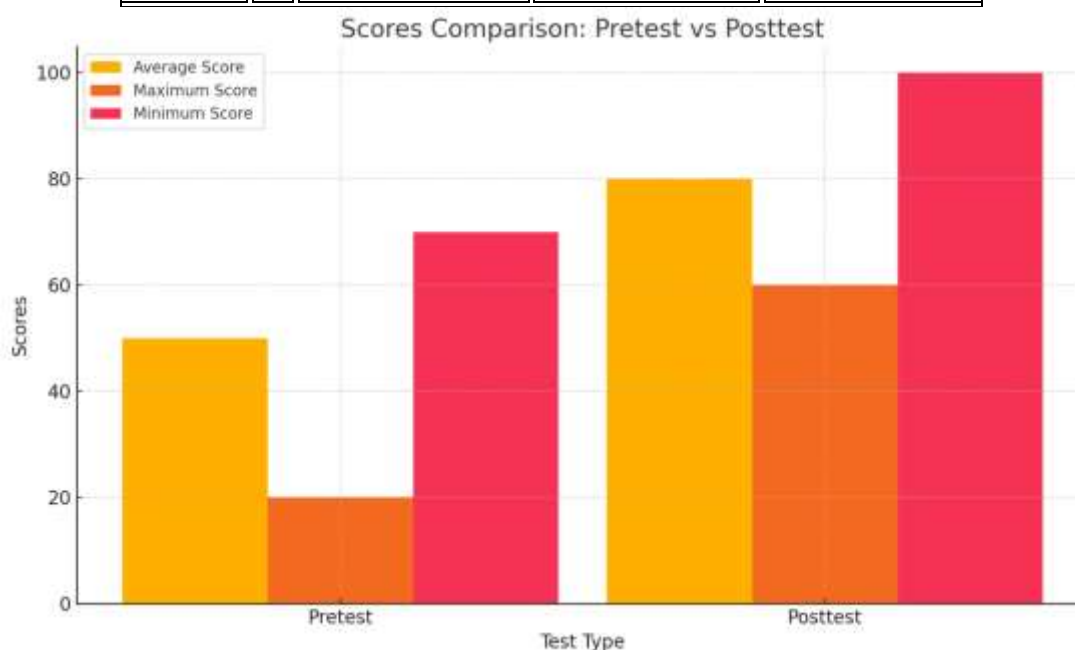
- Subject Matter Expert:** A score of 96.43%, categorized as "Very Feasible." This evaluation included aspects such as content alignment with basic competencies, concept accuracy, material completeness, and the relevance of examples to everyday life.
- Media Expert:** A score of 100%, also categorized as "Very Feasible," with emphasis on aspects like visual design, the integration of multimedia elements (text, images, video, and animation), and ease of navigation and use of the media.
- IPAS Teacher:** A score of 92.85%, indicating that the media was highly helpful in the teaching process and suitable for Grade V students.
- Field Trial:** A score of 93.02%, showing that students responded positively to the media. They appeared more active, enthusiastic, and engaged in the learning process.

Overall, the validation results indicate that the Canva-based learning media is feasible and effective for use in IPAS teaching in elementary schools.

2. Student Learning Outcomes

The impact of the learning media on improving students' learning outcomes was analyzed through pretest and posttest results. Below is a summary of students' learning outcomes:

Tes type	N	Maximum score	Minimum score	Average score
Pretest	20	20	70	50.00
Posttest	20	60	100	80.00



3. Discussion

The results of this study strengthen previous findings regarding the importance of using technology in learning. The increase in students' learning outcomes by 30 points and the N-Gain score of 0.75 indicate that the Canva-based learning media was able to provide a more interactive, engaging, and meaningful learning experience compared to conventional methods such as worksheets (LKS) or lectures.

Development of Interactive Digital Teaching Materials Using Canva for Science (IPAS) in Grade V of Elementary School

These findings align with research by Soeharyono et al. (2023), which states that technology-based media can enhance student engagement, assist in concept understanding, and encourage active participation in learning activities. In the context of IPAS learning, which often involves abstract or integrated concepts, the visual and multimedia presentation in Canva is very helpful in concretizing the material.

Furthermore, according to Fauhah & Rosy (2020), optimal learning results involve mastery of three domains: cognitive, affective, and psychomotor. Interactive digital media allows all three to develop synergistically:

- a) **Cognitive:** Media presents information systematically and attractively, reinforcing conceptual understanding.
- b) **Affective:** Engaging and interactive visual design increases interest, attention, and a positive attitude toward learning.
- c) **Psychomotor:** Interactive activities encourage students to take actual steps, such as answering quizzes, dragging objects, or exploring information independently.

Moreover, Canva-based learning encourages the formation of both independent and collaborative learning, as students can access materials flexibly and work together to understand the content. This aligns with the demands of the **Profil Pelajar Pancasila** in the **Kurikulum Merdeka**, which emphasizes independent learning, creativity, and collaboration.

Therefore, it can be concluded that Canva-based learning media is not only statistically effective but also pedagogically and contextually relevant in enhancing the quality of IPAS learning in elementary schools.

D. CONCLUSION

Based on the results of the research conducted, it can be concluded that the development of interactive digital learning materials based on Canva has proven effective in improving student learning outcomes in the subject of Science and Social Studies (IPAS) for Grade V elementary school students. This is evidenced by:

1. Validation by experts showing that the developed learning media received very high scores: 96.43% from subject experts, 100% from media experts, 92.85% from teachers, and 93.02% from field trials. All assessments fall into the "Very Feasible" category, indicating that this media meets the standards for use in the learning process.
2. The results of the trial with students showed a significant improvement in learning outcomes. The average pretest score of 50 increased to 80 in the posttest, with an N-Gain score of 0.75, which is categorized as high. The t-test result with a significance of 0.00 (< 0.05) also shows that the improvement did not occur by chance, but as a result of using the Canva-based learning media.
3. This interactive media has proven capable of creating a more engaging and meaningful learning experience. By combining visual, audio, and interaction elements, students become more motivated and actively engaged in the learning process. This supports the theory that learning that accommodates various learning styles will be more effective in helping students understand the material.

Overall, Canva-based learning media is a viable and innovative alternative for teaching IPAS in elementary schools, especially in addressing the challenges of 21st-century learning that demand digital skills, collaboration, and critical thinking. This media also has the potential to be further developed for other subjects as part of efforts to create adaptive and relevant learning for students in the digital age.

REFERENCES

- 1) Adip, A. (2022). Peran Guru dalam Penguatan Karakter Siswa di Era Digital. *Jurnal Pendidikan Karakter*, 12(2), 145–156.
- 2) Annisa, N. (2022). Pendidikan Karakter dalam Undang-Undang Sistem Pendidikan Nasional. *Jurnal Ilmiah Pendidikan*, 3(1), 45–53.
- 3) Arsyad, A. (2019). *Media Pembelajaran*. Jakarta: Rajawali Pers.
- 4) Azhar, F. (2021). Pemanfaatan Media Interaktif dalam Pembelajaran Tematik SD. *Jurnal Ilmu Pendidikan Dasar*, 6(2), 112–120.
- 5) Fajriana, N., & Suryana, E. (2021). Pengembangan Media Pembelajaran Interaktif Menggunakan Canva. *Jurnal Teknologi Pendidikan*, 10(1), 55–65.
- 6) Fazriyah, N., dkk. (2023). Penggunaan Media Canva untuk Meningkatkan Hasil Belajar Siswa SD. *Jurnal Inovasi Pendidikan Dasar*, 8(2), 130–140.
- 7) Fauhah, N., & Rosy, B. (2020). Ranah Kognitif, Afektif, dan Psikomotorik dalam Penilaian Hasil Belajar. *Jurnal Evaluasi Pendidikan*, 4(1), 1–10.
- 8) Hamalik, O. (2018). *Proses Belajar Mengajar*. Jakarta: Bumi Aksara.

Development of Interactive Digital Teaching Materials Using Canva for Science (IPAS) in Grade V of Elementary School

- 9) Hidayat, R., & Sulastri, N. (2023). Perancangan Bahan Ajar Digital untuk Siswa Sekolah Dasar. *Jurnal Inovasi Media Pembelajaran*, 5(1), 88–96.
- 10) Juniati, D. (2020). Peran Multimedia dalam Pembelajaran IPA di Sekolah Dasar. *Jurnal Teknologi Pendidikan Dasar*, 6(1), 25–35.
- 11) Lubis, R., & Simbolon, D. (2023). Efektivitas Media Canva dalam Meningkatkan Semangat Belajar Siswa SD. *Jurnal EduTech*, 11(1), 88–95.
- 12) Munir. (2020). *Pembelajaran Digital: Strategi Pembelajaran di Era Industri 4.0*. Bandung: Alfabeta.
- 13) Pratiwi, R. (2021). Pengembangan Media Pembelajaran Visual untuk Materi IPAS SD. *Jurnal Pendidikan Dasar Nusantara*, 4(2), 70–78.
- 14) Putri, D. K., & Marlina, S. (2021). Peran Guru dalam Mengintegrasikan Teknologi di Kelas. *Jurnal Teknologi dan Pembelajaran*, 9(2), 55–63.
- 15) Rahmawati, T., & Lestari, A. (2020). Pengaruh Media Pembelajaran Digital terhadap Minat Belajar Siswa. *Jurnal Pendidikan Modern*, 7(1), 44–52.
- 16) Sanjaya, W. (2020). *Strategi Pembelajaran: Berorientasi Standar Proses Pendidikan*. Jakarta: Kencana.
- 17) Soeharyono, dkk. (2023). Implementasi Problem Based Learning dengan Bantuan Canva terhadap Keaktifan Belajar. *Jurnal Pendidikan Inovatif*, 9(1), 50–60.
- 18) Sugiyono. (2022). *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
- 19) Sutrisno, S., & Puspitasari, R. (2021). Analisis Data Kuantitatif dalam Penelitian Pendidikan. *Jurnal Penelitian Pendidikan*, 6(1), 77–86.
- 20) Wulandari, R., dkk. (2022). Pengaruh Teknologi dalam Proses Pembelajaran Abad 21. *Jurnal Pendidikan Digital*, 5(1), 22–30.



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.