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Development of digital comic media for improving student learning outcomes in collective lifestyle material

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ABSTRACT

Digital comics are now rapidly evolving as an innovative learning medium that captures students' interest through visual and interactive presentations, making comprehension easier and enhancing their engagement in the learning process. This study aims to develop a digital comic medium that is valid, practical, and effective in supporting learning and improving the learning outcomes of fourth-grade students at SDN 165733 Tebing Tinggi. The research method employed is development research, based on the ADDIE model, which encompasses the stages of analysis, design, development, implementation, and evaluation. During the development process, the digital comic was validated by experts in content, media, and language and tested on fourth-grade students (Class IV-2) using pre- and post-test questions to measure learning improvement. The study results indicate that the digital comic medium is highly feasible, as validated by experts. Additionally, it has proven effective in enhancing students' learning outcomes, as evidenced by a significant increase in pre-test and post-test scores. The digital comic, developed using Canva, is considered highly feasible, practical, and effective as a learning tool, particularly in Pancasila Education, due to its engaging and interactive presentation.

ABSTRAK

Komik digital kini berkembang pesat sebagai media pembelajaran inovatif yang menarik perhatian peserta didik melalui tampilan visual dan interaktif, sehingga mempermudah pemahaman serta meningkatkan keterlibatan mereka dalam proses belajar. Penelitian ini bertujuan untuk mengembangkan media komik digital yang valid, praktis, dan efektif guna mendukung pembelajaran serta meningkatkan hasil belajar peserta didik kelas IV di SDN 165733 Tebing Tinggi. Metode yang diterapkan adalah penelitian pengembangan dengan model ADDIE, yang mencakup tahap analisis, perancangan, pengembangan, implementasi, dan evaluasi. Dalam prosesnya, media komik ini divalidasi oleh para ahli di bidang materi, media, dan bahasa, serta diuji coba pada peserta didik kelas IV-2 menggunakan soal pretest dan posttest untuk mengukur peningkatan hasil belajar. Hasil penelitian menunjukkan bahwa media komik digital ini dinilai sangat layak berdasarkan validasi para ahli. Selain itu, media ini terbukti efektif dalam meningkatkan hasil belajar peserta didik, sebagaimana terlihat dari peningkatan signifikan antara nilai pretest dan posttest. Komik digital yang dikembangkan melalui Canva ini dinilai sangat layak, praktis, dan efektif sebagai alat bantu pembelajaran, terutama dalam mata pelajaran Pendidikan Pancasila, berkat penyajiannya yang menarik dan interaktif.

Kata Kunci: *gotong royong; hasil belajar; komik digital; media pembelajaran*

INTRODUCTION

Currently, the development of science and technology continues to undergo rapid changes, leading to improvements in the quality of human resources. This quality enhancement can begin through a more varied and innovative learning process, which provides students with a more enjoyable and memorable learning experience. Therefore, in the learning process, the role of teachers is essential in creating a pleasant learning atmosphere, making it easier for students to understand the material presented. As educators and instructors, teachers provide information and act as facilitators who help students better understand the learning material and experience a comfortable and enjoyable learning environment.

Following the Regulation of the Minister of National Education No. 16 of 2007 regarding the Standards of Academic Qualifications and Teacher Competencies, teachers in Indonesia must possess at least an S1 or D4 in a field relevant to their professional duties. Teacher competencies are categorized into four main areas: (1) pedagogical competence, which involves understanding student characteristics, implementing effective learning strategies, and evaluating learning outcomes; (2) personal competence, which emphasizes moral integrity, exemplary behavior, and a strong sense of professional responsibility; (3) professional competence, which refers to deep and comprehensive mastery of subject matter and the ability to apply effective teaching practices; and (4) social competence, which includes effective communication with students, colleagues, parents, and the wider community. Educators must exercise these four competencies with integrity (Masitoh & Cahyani, 2020). By fulfilling these standards, teachers are expected to foster an effective and high-quality learning environment, ultimately enhancing student learning outcomes.

One of the key competencies that can be highlighted for teachers is pedagogical competence. With strong pedagogical competence, teachers can create a more structured, engaging, and student-centered learning process. This implies that teachers are crucial in managing, implementing, and evaluating learning activities (Akbar, 2021). In the current digital era, pedagogical competence must also be supported by utilizing information and communication technology. Teachers as educators are expected to leverage technology to enhance learning efficiency and effectiveness, including providing digital-based learning media (Sulistyarini & Fatonah, 2022). However, a prevailing challenge is that some teachers have yet to fully optimize media use in the learning process, indicating that further innovation in teaching and learning remains necessary.

Instructional media is essential to the learning process, supporting both in-class and out-of-class activities (Junaidi, 2019). This supportive function derives from the media's capacity to incorporate didactic content actively stimulating student learning engagement. Empirical evidence suggests that the strategic implementation of instructional media enhances learner motivation, promotes academic enthusiasm, and stimulates intellectual curiosity regarding the subject matter studied (Angga et al., 2020; Danyanti et al., 2022; Ayuni et al., 2023).

One form of instructional media that has been developing and increasingly utilized is digital comics. Digital comics present more transparent and more realistic images, which can enhance students' interest in learning and are easily accessible on electronic devices such as smartphones, laptops, and computers (Guntur et al., 2023). The combination of elements within digital comics—such as visuals, narratives, audio, and illustrations—can motivate students to engage more enthusiastically in the learning process, as these media incorporate both recreational and educational aspects (Daulay & Nurmnalina, 2021; Kusuma & Yudha, 2021; Ayuni et al., 2023). Therefore, digital comics can serve as an effective alternative to support teachers in delivering content, information, and messages to students more effectively (Ayuni et al., 2023).

In a nation founded on the values enshrined in Pancasila and the Constitution, education is vital in providing guidance, particularly in practicing those values. Pancasila Education thus becomes one of the essential subjects, functioning as a catalyst for shaping and transforming students' ways of thinking and character based on the principles of Pancasila. Integrating Pancasila into this subject is imperative, as it can positively impact students as the nation's future generation (Lestari & Kurnia, 2022).

In an increasingly complex society, Pancasila Education is essential in fostering awareness of the importance of human rights, pluralism, democracy, and social justice (Nur et al., 2023). This complexity has led to evolving dynamics in the understanding of Pancasila values. For instance, there are diverse interpretations of these values, along with challenges in ensuring that such understandings remain accurate, consistent, and aligned with the founding spirit of the nation's founders (Mihit, 2023). Therefore, greater attention must be given to the teaching and learning process of Pancasila Education. As educators and representatives of educational institutions, teachers are responsible for addressing these dynamics through thoughtfully designed instructional approaches.

Various innovations have been made in the teaching and learning Pancasila Education, including using appropriate instructional media, which has been found to enhance students' interest in learning Pancasila Education. The instructional media in question are interactive and engaging, as they help reduce student boredom and foster greater participation in the learning process (Anwar et al., 2024). For example, a study found that implementing instructional media in word-guessing games can stimulate students' enthusiasm for learning, contributing to improved learning outcomes (Sukmawati et al., 2022). Furthermore, another study indicated that the development of flashcard-based instructional media effectively supports cultivating students' religious character (Sutrami & Amrullah, 2024). In addition, research on instructional media has also been conducted in subjects beyond Pancasila Education. One type of media that has proven effective in addressing student boredom is video. A study reported that video-based instructional media used in online Mathematics instruction was considered adequate, as students responded positively and found the videos helpful in understanding the material (Dayutiani & Fitrianna, 2021).

Preliminary observations conducted at SDN 165733 Tebing Tinggi revealed that the teaching of Pancasila Education lacks the support of innovative instructional media, such as digital comics. Teachers generally rely on conventional methods, primarily textbooks, which do not support digital media. This has made students perceive the learning process as tedious and difficult to comprehend. The observation findings also indicated that comic-based instructional media had never been utilized, and the existing media were neither specific to Pancasila Education nor digitally based. According to the Grade IV teacher, Pancasila Education lessons typically involve reading stories from textbooks, which, in turn, contributes to students' low motivation and academic performance. The students were found to be more interested in digital-based media, suggesting a need for more engaging and technologically integrated learning tools.

Based on the explanation, this study aims to develop a feasible, practical, and effective digital comic medium to facilitate the learning process and improve students' learning outcomes in the Pancasila Education subject, particularly on the topic of *gotong royong* (cooperation) living patterns. Accordingly, the expected outcome of this study is to provide recommendations for using digital comics as an instructional medium to enhance learning outcomes in Pancasila Education.

LITERATURE REVIEW

Learning and Learning Outcomes

Learning is a behavioral change resulting from an individual's interaction with their environment (Pane & Dasopang, 2020). Behavioral changes as learning outcomes are continuous, functional, positive, active, and purposeful. According to educational and psychological experts, behavioral transformation can occur

under various conditions. Learning reflects changes in behavior due to the learning process itself (Huda et al., 2023). Additionally, learning is described as an effort undertaken by an individual to acquire new and holistic behavioral changes through personal experiences in interacting with their environment (Guntur et al., 2023). In other words, learning is not merely the accumulation of information but a profound transformation in how individuals think, act, and engage with the world around them. This process creates a continuous cycle in which experiences and reflections on environmental interactions consistently shape and modify behavior, resulting in more adaptive and responsive individuals to new life challenges.

Instructional Media

In broad terms, media can be understood as the people, materials, and events that create conditions allowing students to acquire knowledge, skills, or attitudes. Instructional media are tools that assist in the teaching and learning process. More specifically, instructional media can be defined as anything that can stimulate students' thoughts, feelings, attention, and learning abilities or skills, thereby encouraging the learning process and facilitating students' ability to receive and understand the learning material (Wulandari, 2020). For this process to be successful, teachers must integrate instructional media with effective teaching methods.

One example of instructional media that can enhance students' enthusiasm for learning is comics. A comic type of animation features specific characters and a narrative presented in a sequence connected through images (Nurhakim et al., 2024). Furthermore, comics are defined as a series of images arranged in segments, sequenced to present a story with engaging characters, to stimulate the reader's imagination (Nurdiansyah et al., 2024). With visually appealing images and a straightforward narrative, comics can simplify complex concepts in a fun and interactive way, making them easier for students to understand. Using comics, teachers can also create a more engaging learning environment that motivates students to participate more actively in the learning process.

Specifically, there is a comic known as digital comics. A digital comic is published in digital format, consisting of single or multiple panels, featuring a regular reading flow, accompanied by speech balloons, and a writing style that communicates its visual meaning. Digital comics are created, distributed, and accessed through specific electronic media. Digital comics can be categorized as a medium that facilitates students in comprehensively understanding images and effectively articulating their ideas sequentially during the learning process (Narestuti et al., 2021). Digital comics offer additional advantages over traditional printed comics, particularly regarding interactivity and accessibility.

The specific advantages of digital comics as an instructional medium are as follows: 1) They can stimulate students' enthusiasm for learning and teach them that material derived from illustrated stories can be remembered for a more extended time; 2) The illustrative images can help students better grasp and understand the story and learning material; and 3) They can motivate students to enhance their reading interest and engage with other fields of study (Narestuti et al., 2021). However, digital comics also have certain limitations as an instructional medium that teachers need to consider (Kanti et al., 2018; Riwanto & Wulandari, 2018): 1) The visual learning style may not be suitable for all students; and 2) Adjustments in language style are necessary to ensure that the material is effectively conveyed.

Pancasila Education

The use of the term "Pancasila Education" in the context of subjects within the Kurikulum Merdeka reflects the government's commitment to shaping students who are rooted in the values and morals of Pancasila. The role of teachers in equipping and fostering values, attitudes, and moral development in elementary school students is essential. However, the development of values and moral character in students is

unlikely to be achieved if they do not understand the concepts of values and morality themselves. Rahayu, in her book "*Pendidikan Kewarganegaraan: Perjuangan Menghidupi Jati Diri Bangsa*", explains that the goal of Pancasila Education is to shape students into members of society, the nation, and the state who can be relied upon by themselves, their families, communities, society, the nation, and the state in the pursuit of shared ideals.

Pancasila Education within the Kurikulum Merdeka is intended not only to instill the fundamental values of Pancasila but also to prepare students to participate actively in various aspects of social, cultural, and national life. By understanding and applying values such as *gotong royong* (cooperation), students are expected to develop strong collaborative attitudes and a deep sense of social responsibility. This educational approach also aims to cultivate a generation that comprehends moral values and can embody them in daily actions—whether at school, within the family, or on the broader community (Lestari & Kurnia, 2022). Therefore, the ultimate goal of Pancasila Education is to shape individuals with integrity and a high level of social awareness who can make positive contributions to national development (Nur et al., 2023).

METHODS

The research employed the Research and Development (R&D) method, utilizing the ADDIE Model as its methodology. The ADDIE model—an acronym for Analysis, Design, Development, Implementation, and Evaluation—is also an instructional design model and represents a systematic approach to designing compelling learning experiences. The process begins with the Analysis stage, which involves identifying learning needs and understanding student characteristics. This is followed by the Design stage, during which appropriate strategies, materials, media, and assessment tools are planned in alignment with the learning objectives. The Development stage focuses on creating and refining learning products, such as instructional media or modules, which are subsequently tested. In the Implementation stage, the developed product is applied in a real learning environment to evaluate its effectiveness. Finally, the Evaluation stage assesses learning outcomes and identifies necessary improvements, both formatively throughout the process and summatively upon its completion. An overview of the ADDIE process is illustrated in the model diagram shown in **Picture 1**.
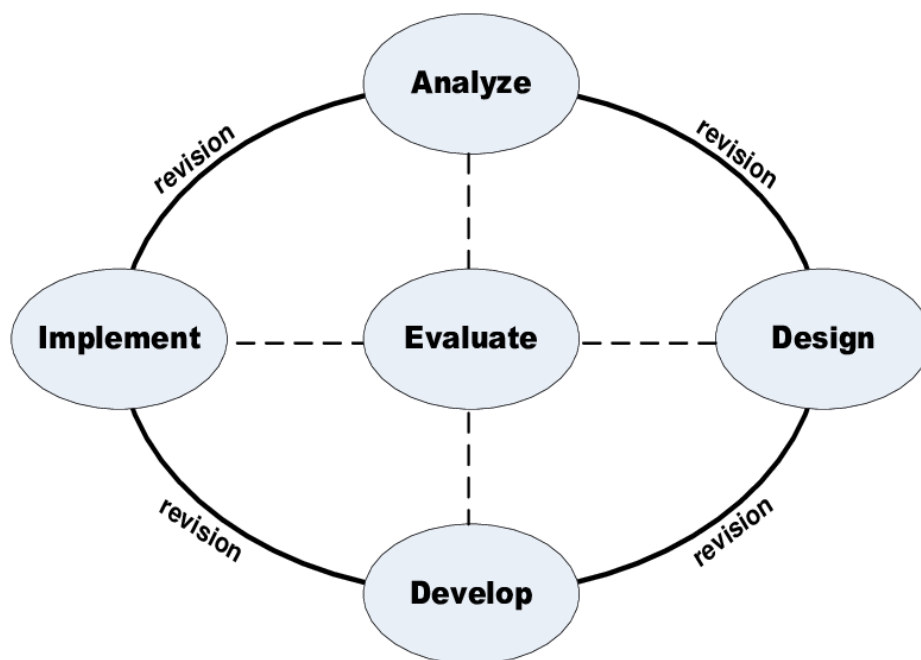
Picture 1. ADDIE Model Stages
Source*: Sugiyono in "Metode Penelitian Kuantitatif, Kualitatif, R&D" (2020)*

Each stage involved in the process of developing the digital comic in this study can be described in detail as follows:

1. Analyze (Analysis Stage)
   At the initial stage, an observation was conducted on the learning process of fourth-grade students at SDN 165733 Tebing Tinggi. This observation included a needs analysis and identifying problems that emerged during the learning process, which were obtained through interviews with the homeroom teacher.

2. Design (Design Stage)
   In the Design stage, instructional materials for Pancasila Education were planned based on the results of the student needs analysis. This process involved several steps: determining the comic story theme, designing the storyline and creating character profiles, exploring and selecting a template design in Canva by starting from a blank page, and then arranging the panel sketches, illustrations, and speech balloons. Subsequently, the outline of the illustrations was created and colored, followed by the insertion of speech balloons and the design of an engaging cover.

3. Development (Development Stage)
   At this stage, the comic-based instructional material was validated. The validation test was conducted to assess the feasibility of the developed product and was reviewed by subject matter experts and media experts. This validation process aimed to obtain supporting evidence regarding the appropriateness and quality of the developed instructional product.

4. Implementation (Implementation Stage)
   The Implementation stage was carried out during the learning process after the validators deemed the instructional material feasible. Assessment was conducted through pre-tests and post-tests, with the expectation that the researcher-facilitated learning activities would enhance students' creativity and learning outcomes.

5. Evaluation (Evaluation Stage)
   The Evaluation stage involved reviewing student feedback after using comic-based instructional materials in Pancasila Education. At this stage, the effectiveness of the comic-based instructional material in Indonesian was assessed based on the results of formative tests given to the students.

The data collection techniques in this study included questionnaires, interviews, and tests. Questionnaires were distributed to validators, consisting of media experts, subject matter experts, and users, to assess the flexibility of the draft instructional material developed. Interviews were conducted with the fourth-grade homeroom teacher at SDN 165733 Tebing Tinggi, while tests were administered before and after the study using evaluation sheets. Data analysis was performed qualitatively and quantitatively, with response statements using a four-point Likert scale. The evaluation sheet validation criteria were based on a modified Likert scale, as presented in **Table 1**.

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Table 1. Likert Scale Validation Sheet Criteria

Kriteria	Tingkat Validasi
Very Feasible	4
Feasible	3
Less Feasible	2
Not Feasible	1

Source: Research 2024

The expert validation instrument consists of statements and responses based on a Likert scale. The results of this test are used to determine the questionnaire's feasibility score in data analysis. The comic-based instructional material is evaluated through feedback from educators and students, which is then analyzed using the percentage formula for practicality testing (Aulia, 2023).

$$P = \frac{\Sigma x}{\Sigma xi} \times 100\%$$

Description:
P　　　　= Percentage of practicality score
Σx　　　= Sum of respondent answers' scores
Σxi　　　= Sum of ideal/maximal scores

RESULTS AND DISCUSSION

Analysis Stage

The initial stage of this study involved an analysis based on the findings of research conducted at Grade IV of SD Negeri 165733 Tebing Tinggi, which served as a reference and foundation for developing a digital comic. This stage included assessing teachers' needs, evaluating students' learning needs, analyzing the effectiveness of instructional tools, and reviewing the curriculum and available resources. The analysis revealed that teachers had not yet actively engaged students through the available teaching materials and tended to rely on lecture-based, teacher-centered instructional methods. Observations further indicated that students required an instructional medium such as a digital comic that is appropriate, practical, and effective in enhancing their critical thinking skills. The curriculum implemented in Grade IV of SD Negeri 165733 Tebing Tinggi is the "Kurikulum Merdeka".

Design Stage

The planning stage is divided into three components: the planning of the content to be presented, the planning of the product design, and the planning of the instruments used to assess the product's feasibility. Each component is explained below.

1. Material Design
   The content on *gotong royong* is presented following the Kurikulum Merdeka. In addition, the developed media includes a video that supports the material. The following outlines the content featured in the developed media: (1) the causes and benefits of *gotong royong*; and (2) the importance of *gotong royong* in everyday life. **Picture 2** displays the overview of the content delivered during the learning process.
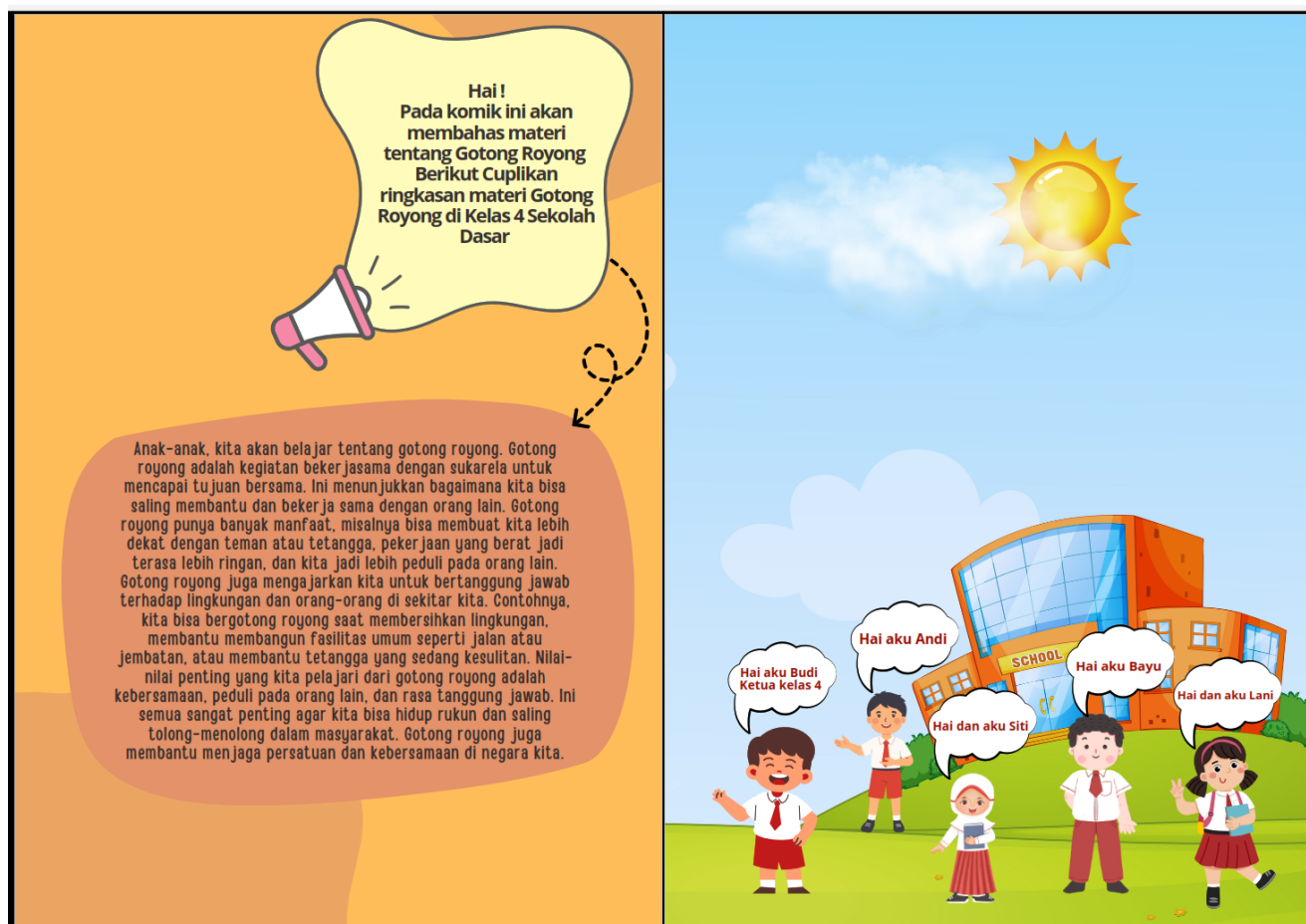
Picture 2. Outline of the Material Conveyed in the Designed Product
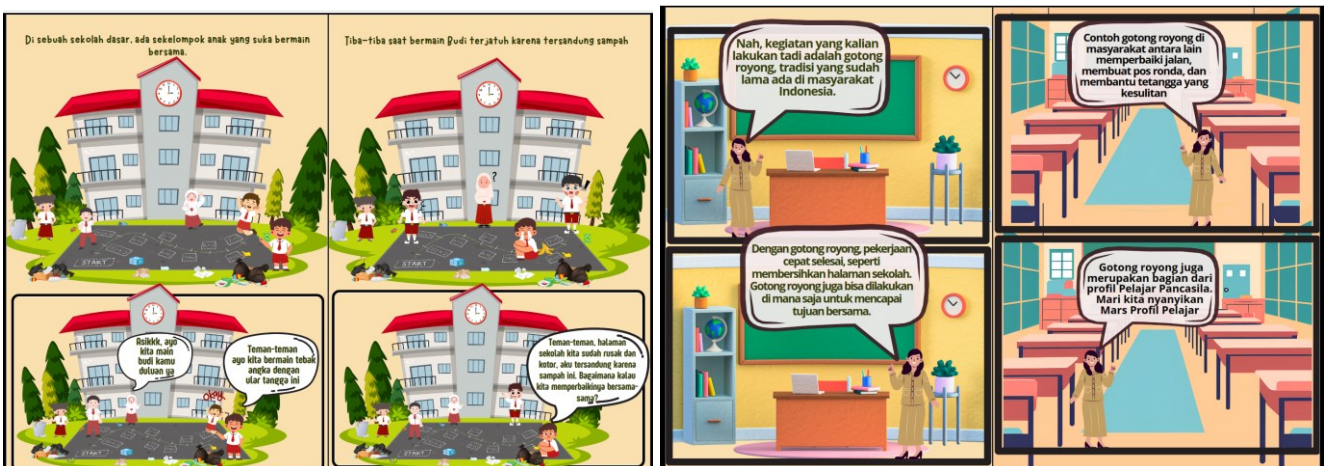*Source: Research 2024*

2. Product Design Plan

   Based on the analysis of the characteristics of the students or research subjects, the developed product takes the form of interactive media. This interactive format allows students to experience engaging learning through digital devices. The media includes several instructional videos to support the learning material. Additionally, it features various colorful illustrations that are relevant to the content of the material or textbook. For example, the topic of *Gotong Royong* is accompanied by illustrative images. On the first page of the product, there is a user guide for the digital comic, as shown in **Picture 3**.

Picture 3. Instructions for Using Designed Digital Comics
Source: Research 2024

For example, illustrations depicting the digital comic's material can be seen in **Picture 4** below.

Picture 4. Outline of the Material Conveyed in the Designed Product
Source: Research 2024

3. Planning of Instruments for Assessing Product Feasibility

The instruments designed in this study are intended to assess the feasibility of the product. These instruments will be utilized by subject matter experts, media experts, language experts, and practitioners (teachers). Each instrument employs different indicators based on the theoretical

frameworks referenced by the researcher. The aspects used to evaluate the content include: 1) the material content; 2) the presentation of the material; and 3) the language used. In delivering the content, it is important to ensure alignment between the learning material's Core Competencies (*Kompetensi Inti*/KI) and Basic Competencies (*Kompetensi Dasar*/KD). Additionally, attention must be given to the appropriateness of the presentation method and the suitability of the language used.

The media expert evaluates the following aspects: 1) size; 2) book cover layout; 3) illustrations; 4) content layout; and 5) color contrast. The media serves as a bridge between the learning material and the students. It is essential to consider these aspects in its presentation to ensure students feel comfortable and understand the material conveyed through the designed media.

The instrument for assessing the feasibility of the product from a linguistic perspective includes the following aspects: 1) clarity; 2) communicative and interactive quality; 3) linguistic accuracy; 4) use of symbols, terms, or icons; and 5) learners' developmental stage. Their developmental age strongly influences an individual's language proficiency. Therefore, the language must be clear and easily understood by students, appropriate to both the content and their age level.

Finally, the instrument used by practitioners (teachers) includes the following aspects: 1) operation or usability of the media; 2) user response; and 3) application. As the implementers of classroom instruction, teachers can assess the appropriateness of using specific media. They are also in a position to evaluate the effectiveness of the media in the classroom, based on the ease of operation and the enthusiasm shown by the students.

Development Stage (Development)

This stage involves product development activities based on the design established in the previous design phase. The development of the digital comic media was conducted after expert validators had evaluated the product. The assessment by experienced validators determined that the digital comic product was acceptable for field testing.
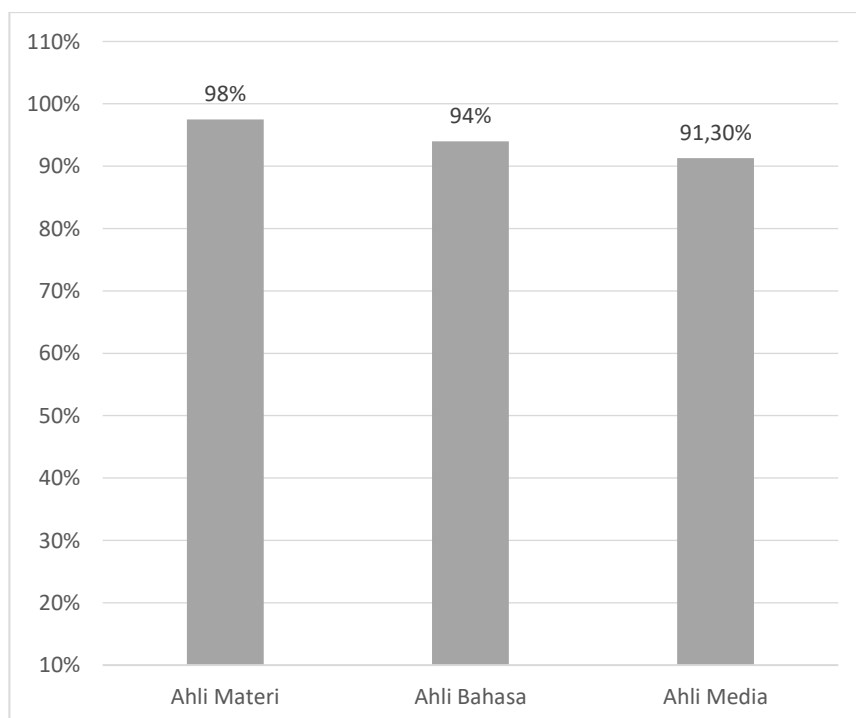
Picture 5. Percentage of Expert Assessment
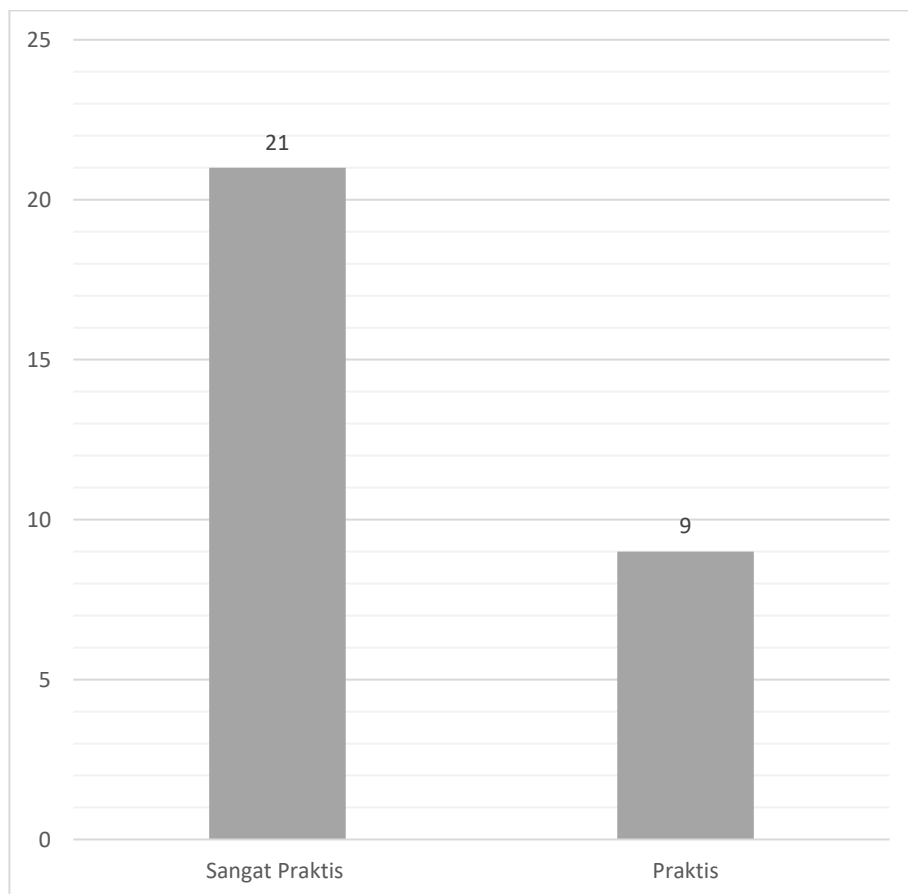*Source: Research 2024*

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Based on the graph shown in **Picture 5**, the product underwent content adjustments, resulting in a success rate of 98%, which meets the "Very Feasible" criteria. The language expert validator assessed the likelihood of success at 91.3%, with the "Very Feasible" criteria, while the design expert validation indicated a success rate of 94%, based on the "Good" criteria.

Implementation Stage (Implementation)
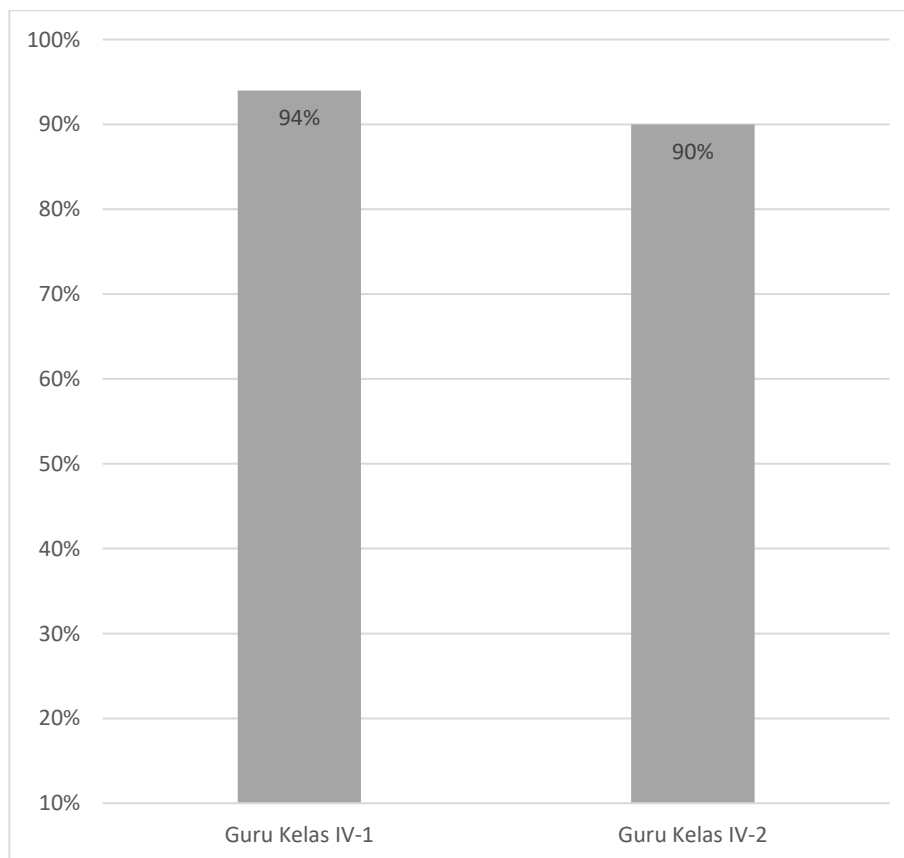
Practicality Test

Practicality for Students

The practicality test was conducted with fourth-grade students as product users. One of the students who participated in the product trial was identified by the initials A.P. The individual's practicality score from the trial was 94%, which falls into the "Highly Feasible" category. Using digital comic media in learning makes information easier to understand and increases students' motivation. Learning becomes more flexible and enjoyable, with various features such as graphics, audio, and video enhancing the learning experience. It also fosters creative and critical thinking, is suitable for educational use, supports distance learning, provides broader access to information, and improves learning outcomes. The overall practicality test was conducted with fourth-grade students as the end users. The assessment covered aspects such as ease of use, usefulness, and product presentation. The results of the practicality test are presented in the graph shown in **Picture 6**.

Picture 6. Results of Media Practicality on Students
Source: Research 2024

Practicality by Teacher

The classroom teacher in this research and development study also assessed the practicality of the digital comic media. Several items evaluated were related to the content, media, and language used in the digital comic. The results of the practicality analysis conducted by the teacher indicated that the developed digital comic media is efficient.

Picture 7. Results of Media Practicality on Students
Source: Research 2024

Picture 7 shows the practicality results obtained from Teacher IV-1, who scored 94%, and Teacher IV-2, who scored 90%, falling into the "Highly Practical" category. The practicality assessment was based on the alignment of the media with the learning material, the learning objectives, and the consistency of each instructional step with those objectives.

Effectiveness Test

The effectiveness assessment was conducted to determine the impact of the developed digital comic media. An improvement in learning outcomes indicates the successful utilization of the comic media. To evaluate the effectiveness of the digital comic, both a pre-test and a post-test were administered. Before using the Canva-based digital comic media, the researcher administered a pre-test to the students. Upon completing the pre-test, the researcher delivered the *gotong royong* material as part of the Pancasila Education subject. In addition, students were provided with the digital comic media. After the students were ready to engage with the media, the session concluded with administering the post-test. The researcher found a noticeable gap in student learning outcomes between the pre-test and post-test results, indicating the effectiveness of the digital comic media.

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$$\text{Gain (g)} = \frac{84,16 - 39,66}{100 - 39,66} = 0,73$$

Based on the test results, it can be concluded that students' learning outcomes increased by 0.73 following the implementation of the Canva-based digital comic media in the individual trial. This gain is categorized as "high."

Discussion

The development of digital learning media is an effort to adapt to the evolving era and the increasing modernization of education. In this study, a digital comic learning medium was developed using the Canva application. The digital comic was highly suitable for learning based on expert evaluations, various testing procedures, and subsequent data analysis. These findings are consistent with previous research on using comics as instructional media (Guntur, 2023; Simanjuntak et al., 2024; Sipa & Nasution, 2024). Digital learning media in comics and flipbooks have enhanced learning effectiveness (Hadiapurwa et al., 2021).

This study also revealed that digital comics are considered practical for use as instructional media. As shown in Picture 6, 21 out of 30 students who participated as users in the trial phase rated the media as highly practical. The remaining nine students did not express otherwise, indicating that the media was practical. In addition, the practicality test conducted with teachers also yielded results indicating that the digital comic media falls into the "efficient" category. Furthermore, the effectiveness of the instructional media was assessed by comparing students' pre-test and post-test results. The findings showed an improvement in students' scores between the two tests. This data was then analyzed using the Gain Test, which yielded a score of 0.73, categorized as high. Thus, it can be concluded that digital comic media developed through Canva effectively improves students' learning outcomes.

The findings of this study further emphasize that digital comics are highly suitable as both a primary and alternative medium for classroom instruction. As a visually based learning tool, digital comics provide students with opportunities to enhance memory retention, develop interpretative skills, articulate knowledge, make comparisons, and engage in decision-making (Pujilestari & Susila, 2020). The integration of illustrated storytelling with Pancasila values in digital comics fulfills three key practicality criteria: 1) it increases students' learning motivation by combining narrative elements, visuals, and the Pancasila Student Profile; 2) it supports project-based learning approaches; and 3) it enhances students' literacy skills (Candrayani et al., 2024). Given these advantages, digital comics are a valuable instructional medium and should be considered more frequently in teaching and learning.

Instructional media serve as supportive instruments that can enhance the learning process. Appropriately using learning media is part of a teacher's strategy to teach students effectively. The primary goal of utilizing instructional media is to create a learning environment that motivates students to develop a willingness to learn, fosters positive character, and supports the achievement of academic success. Therefore, teachers are encouraged to design learning media as effectively as possible.

CONCLUSION

The results of the product feasibility assessment by material, media, and language experts indicated that the product is highly feasible. Therefore, it can be concluded that developing digital comic media using Canva is suitable for teaching and learning activities. The practicality of the product, tested in two classes, also demonstrated that digital comic media created with Canva is highly practical. The effectiveness of the developed product was evaluated through pre-tests and post-tests conducted on students' learning material on cooperation using the digital comic media. Based on the test results, it can be concluded that digital comic media developed through Canva effectively improves learning outcomes.

AUTHOR'S NOTE

The author declares that there is no conflict of interest regarding the publication of this article and confirms that the data and content of the article are free from plagiarism.

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