

Development of Gamification Based Digital Comic Media for Pancasila Education in Elementary Schools

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Abstract: This study aimed to develop a gamification-based digital comic as a learning medium for Pancasila Education for third-grade elementary school students and to determine its feasibility for use in learning. The study employed a Research and Development (R&D) approach using the 4D model, which consists of the define, design, develop, and disseminate stages. However, this research was conducted only up to the develop stage. The study was carried out at SDN 6 Tahunan and involved media experts, content experts, teachers, and third-grade students. Data were collected through observations, interviews, and questionnaires and were analyzed using descriptive quantitative techniques. The results showed that the gamification-based digital comic achieved a feasibility score of 83% from media experts and 85% from content experts, both of which were categorized as highly feasible. Teacher responses reached 82% and were also categorized as highly feasible, while student responses reached 76.04% and were categorized as feasible. The developed medium integrates contextual stories, visual illustrations, and gamification elements, such as points, challenges, and rewards, to create a more engaging and interactive learning experience. These findings indicate that the gamification-based digital comic meets the criteria of content suitability, visual presentation, language appropriateness, and ease of use. Therefore, it can serve as an innovative alternative learning medium for Pancasila Education in elementary schools.

Keywords: digital comic media, elementary, gamification, learning media, Pancasila Education.

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INTRODUCTION

Pancasila Education is a subject that plays a crucial role in shaping students' character and instilling the nation's noble values from an early age, particularly at the elementary school level. Through Pancasila Education, students are expected not only to understand the concepts and meaning of Pancasila but also to be able to apply these values in their daily lives (Wibowo, Assyifa, & Amiarti, 2024). Therefore, the learning process needs to be designed in an engaging, contextual, and meaningful manner so that students can not only understand the values of Pancasila but also internalize and implement them effectively in their daily lives.

The implementation of Pancasila Education in elementary schools continues to face various challenges. Learning activities are often teacher-centered and predominantly rely on lecture-based methods, resulting in limited student engagement during the learning process. As a consequence, students tend to focus on memorizing the material rather than developing a meaningful understanding of Pancasila values and their application in everyday life (Musfiroh, Choirin Attalina, & Hamidaturrohman, 2024). In addition, the limited use of diverse instructional media reduces students' interest and participation in learning activities, which may hinder the achievement of the intended learning objectives (Amelia & Hamidaturrohman, 2025).

Preliminary observations conducted in the third-grade class at SDN 6 Tahunan revealed that Pancasila Education learning still predominantly relies on textbooks as the main source of instruction. The integration of digital learning media remains limited, leading to low student engagement during the learning process. Moreover, the topic of applying Pancasila values is often delivered in a theoretical manner, making it challenging for students to understand and relate these values to real life situations encountered in both school and community settings.

The development of digital technology in the 21st century requires teachers to effectively utilize innovative learning media that are aligned with students' characteristics and learning needs. The use of digital media in education serves not only as a means of delivering instructional content but also as an effort to create more interactive, engaging, and student-centered learning experiences (Dede & Saidah, 2024). In the context of Pancasila Education, the integration of digital media is particularly important because the

subject emphasizes not only the acquisition of knowledge but also the development of values, attitudes, and behaviors that need to be instilled contextually in students from an early age. Therefore, learning media are needed to bridge the delivery of instructional content with authentic experiences that are closely related to students' daily lives (Anam, Abidin, & Rasidi, 2024)

This issue highlights the need for innovative learning media that can present instructional content in an engaging and interactive manner while accommodating the developmental characteristics of elementary school students. According to Piaget's theory of cognitive development, elementary school students are in the concrete operational stage, during which they are better able to understand concepts through images, illustrations, stories, and experiences closely related to their daily lives (Dina, Jamila, Juariyah, Yulianti, & Syamsiah, 2025) Therefore, the use of learning media that integrates visual elements and interactive activities can facilitate students' conceptual understanding and create more meaningful learning experiences.

One instructional medium with considerable potential is the digital comic. Digital comics integrate images, text, and engaging storylines, enabling the presentation of learning materials in a more contextual and accessible manner. Through relatable characters, visual illustrations, and stories drawn from everyday life, students can develop a deeper understanding of how Pancasila values are applied in various real-life situations (Wiraguna, Valen, & Dwi Andita, 2025). Furthermore, the use of contextual narratives and relevant visual representations helps students connect these values to their daily experiences, making learning more meaningful and concrete.

The appeal and effectiveness of educational media can be enhanced through the integration of digital comics with a gamification approach. Gamification refers to the application of game elements, such as points, levels, badges, challenges, and rewards, into the learning process to increase students' motivation and engagement (Sari, Pratami, Dhara, & Julia, 2025) The incorporation of gamification elements into learning media can create a more interactive and enjoyable learning environment, thereby encouraging students to participate actively in learning activities. Furthermore, gamification can enhance students' learning interest, concentration, and engagement in understanding the material being studied. Therefore, integrating digital comics with a gamification approach has the potential to become an effective educational innovation for supporting the

instillation of Pancasila values in elementary schools in a more engaging, contextual, and meaningful manner (Mulyawati et al., 2025).

Various previous studies have indicated that digital comics and gamification contribute to improving the quality of learning. (Dewi & Wulandari, 2024) report that digital comics are appropriate for use in Pancasila education and support students' understanding of learning materials through contextual and visual presentation. In addition, (Rajab, Huriawati, & Supadmiati, 2025). explain that gamification can be integrated into learning by applying various game elements that enhance the interactivity of instructional media. Furthermore, (Nur, 2025) states that gamification-based digital media fosters more engaging learning experiences and increases student participation during the learning process. These findings collectively suggest that the combination of digital comics and gamification has strong potential to create more interactive and meaningful learning environments for elementary school students (Hairil, n.d.).

Previous studies have generally focused on either the development of digital comics or the application of gamification separately. Research that integrates digital comics with gamification elements in Pancasila education, particularly for third-grade elementary school students, remains limited (Nur Aini, Yanti, & Farisia, 2024). Furthermore, few studies have developed learning media that combine contextual storytelling, visual illustrations, and game elements into a single integrated product, thereby supporting a more engaging and meaningful understanding of Pancasila values.

Based on this research gap, the novelty of this study lies in the development of a gamification-based digital comic that integrates contextual narratives in Pancasila Education with game elements such as points, badges, levels, and challenges into a single digital medium designed to suit the characteristics of third-grade elementary school students. This integration is expected to provide a more interactive, engaging, and meaningful learning experience, thereby enhancing students' understanding and internalization of Pancasila values. Accordingly, this study aims to develop a gamification-based digital comic as a learning medium for Pancasila Education for third-grade elementary school students, as well as to examine the feasibility of the medium based on expert validation (content and media experts) and user feedback (teachers and students).

METHODS

This study employed a Research and Development (R&D) approach. According to (Sugiyono, 2019) research and development is a method used to develop specific products and evaluate their feasibility. The development model applied in this study was the 4D model proposed by (Thiagarajan, 1974) which consists of four stages: define, design, develop, and disseminate. However, this study was limited to the develop stage, as its primary objective was to produce learning media that are suitable for classroom implementation.

The study was conducted in a third-grade classroom at SDN 6 Tahunan during the second semester of the 2025/2026 academic year. The research participants consisted of media experts, content experts, third-grade teachers, and third-grade students from SDN 6 Tahunan. The media and content experts were responsible for evaluating the feasibility and appropriateness of the developed gamification-based digital comic media, while the teachers and students provided feedback on its use in the learning process.

The media development process was conducted using the 4D model, which consists of four phases: Define, Design, Develop, and Disseminate. The stages of the 4D model are illustrated in figure:

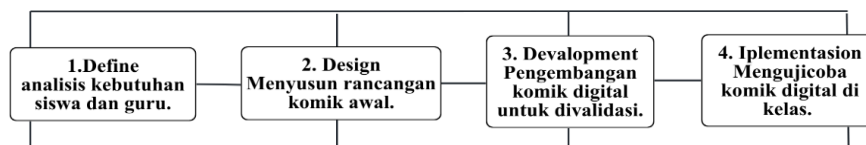


Figure 1. Stages of the 4D Model

The definition phase was conducted through classroom observations and a needs analysis to identify challenges in Pancasila education at the elementary school level. During this phase, student characteristics, instructional materials, media requirements, and the curriculum implemented at the school were analyzed. The findings revealed that students need learning materials that are more engaging, interactive, and aligned with the characteristics of elementary school learners.

The design phase involved the development of a gamified digital comic. Activities carried out during this phase included developing the storyline, designing the characters and visual layout, creating Pancasila education content, integrating gamification

elements, and developing research instruments. The gamification elements incorporated into the media included points, challenges, and rewards aimed at enhancing students' learning motivation.

The develop stage involved developing the gamification-based digital comic media according to the previously designed framework. The developed media were subsequently validated by media and subject matter experts to determine the feasibility of the product. Following revisions based on the validators' recommendations, a limited trial was conducted with third-grade students at SDN 6 Tahunan to examine users' responses to the developed media.

The dissemination stage involves distributing the developed product for broader implementation and use. At this stage, the learning media is generally introduced to teachers or other schools through dissemination activities or classroom implementation. However, in this study, the dissemination stage was not fully conducted because the research focused primarily on the development and feasibility evaluation of the gamification-based digital comic media. Therefore, the study was carried out only up to the development stage, which included expert validation, product revision, and limited-scale testing.

The data collection methods employed in this study included observations, interviews, and questionnaires. Observations and interviews were conducted to gather information regarding learning conditions and the need for instructional media in schools. Questionnaires were administered to collect data on the validation of the gamification-based digital comic media by media and content experts, as well as teachers' and students' responses to the developed media (Fitri, Aeni, & Nugraha, 2023).

The research instruments employed in this study included observation sheets, interview guidelines, and questionnaires. The validation questionnaires administered to media experts and subject-matter experts utilized a five-point Likert scale ranging from 1 to 5. The collected data were analyzed using quantitative descriptive analysis. Validation results and user response data were calculated using the following percentage formula:

$$P : \sum x/xi \times 100\%$$

Where:

P = Percentage of eligibility



Σx = Total score obtained

Σx_i = Maximum possible score

The validation results and user response percentages were subsequently interpreted according to the eligibility criteria presented in Table :

Table 1. Criteria for Assessing Media Suitability

Persentase	Kategori
81%–100%	Sangat Layak
61%–80%	Layak
41%–60%	Cukup Layak
21%–40%	Kurang Layak
0%–20%	Tidak Layak

Based on Table 1, the validation results and user responses were interpreted according to the feasibility criteria to determine the feasibility level of the developed media.

RESULTS

This study developed a gamification-based digital comic as a learning resource for Pancasila Education for third-grade elementary school students. The product was developed using the 4D model, comprising the define, design, and develop stages (Qoiruni & Wicaksono, 2022) The learning content is presented through a pictorial story supported by colorful illustrations and gamification elements, including points, challenges, and rewards, to enhance students' engagement and participation in the learning process (Paingningsih, 2025).



Figure 2. Gamification-Based Digital Comic Display

The gamification-based digital comic was designed to suit the characteristics of elementary school students, who generally prefer visual learning media and interactive activities. The Pancasila education content was presented through simple and contextual storylines, enabling students to better understand the values and concepts being taught (Rande & Amaliyah, 2024). After the development process was completed, the product was validated by media experts and subject matter experts to assess its feasibility and suitability for learning. Subsequently, the media was pilot-tested with teachers and students to obtain feedback regarding its use in the learning process (Dwanda Putra, Hidayat, Izzati, & Ramadhan, 2024).

The results of the validation and pilot testing demonstrate that the developed educational media are appropriate for use in Pancasila Education learning (Jamal & Dwidarti, 2025). The evaluation involved media experts, subject matter experts, teachers, and students and focused on visual design, content quality, language, and ease of use. The detailed evaluation results are presented in Table:

The results of the validation and pilot testing indicate that the developed media is appropriate for use in Pancasila Education learning. The evaluation encompassed several aspects, namely visual presentation, content appropriateness, language quality, and ease of use. The results are summarized in Table:

Table 2. Validation Results and User Responses to the Gamification Based Digital Comic

Evaluation Criteria	Percentage	Category
Media Expert Validation	83%	Highly Satisfactory
Content Expert Validation	85%	Highly Satisfactory
Teacher Feedback	82%	Highly Satisfactory
Student Feedback	76,04%	Satisfactory

Based on these findings, the developed media was rated as highly satisfactory by both media experts and subject-matter experts. Teachers also expressed positive perceptions of its implementation in the learning process. Furthermore, students demonstrated a high level of enthusiasm when interacting with the gamified digital comics. These findings suggest that the developed media has the potential to facilitate

more engaging, diverse, and meaningful learning experiences while enhancing students' understanding of the learning material (Verdikasari & Yustitia, 2026).

DISCUSSION

The validation results indicated that the gamification-based digital comic obtained an approval rating of 83% from media experts and 85% from subject matter experts, both categorized as “highly suitable.” Furthermore, teacher responses yielded an approval rating of 82%, which was also classified as “highly suitable,” while student responses resulted in an approval rating of 76.04%, categorized as “suitable.” These findings suggest that the developed media fulfilled the criteria of visual presentation, content appropriateness, language quality, and ease of use in the learning process (Setiawan et al., 2025). The presentation of learning materials through illustrated stories enabled students to understand Pancasila Education concepts more easily and meaningfully. In addition, the colorful illustrations enhanced students' engagement during learning activities. The integration of gamification elements, such as points and challenges, also encouraged more active and enjoyable participation in the learning process. Therefore, the developed media is considered suitable for use in Pancasila Education learning at the elementary school level (Ramadhani & Sukartono, 2026).

Gamification-based digital comics are designed to align with the developmental characteristics of elementary school students, who generally prefer visual media and interactive learning activities. Learning materials are presented systematically to facilitate students' understanding of the content (Yusa et al., 2024). The stories incorporated into the media are closely related to students' daily lives, making the material more relevant and meaningful to their experiences. In addition, relevant illustrations help students visualize abstract concepts more concretely (Sahara & Adistana, 2023). The integration of gamification elements also enriches the learning process and helps reduce students' boredom during instructional activities. Features such as points, challenges, and rewards can increase students' engagement and motivation to complete learning tasks. Therefore, gamification-based digital comics have the potential to support the creation of more engaging, interactive, and meaningful learning experiences (Lestari, Ulin, & Kholidin, 2025).

The validation results indicated that the gamification-based digital comic obtained an approval rating of 83% from media experts and 85% from subject matter experts, both categorized as “highly suitable.” Furthermore, teacher responses yielded an approval rating of 82%, which was also classified as “highly suitable,” while student responses resulted in an approval rating of 76.04%, categorized as “suitable.” These findings suggest that the developed media fulfilled the criteria of visual presentation, content appropriateness, language quality, and ease of use in the learning process (Sulastiani & Rusdiyani, 2023). The presentation of learning materials through illustrated stories enabled students to understand Pancasila Education concepts more easily and meaningfully. In addition, the colorful illustrations enhanced students’ engagement during learning activities. The integration of gamification elements, such as points and challenges, also encouraged more active and enjoyable participation in the learning process. Therefore, the developed media is considered suitable for use in Pancasila Education learning at the elementary school level.

The findings of this study are consistent with Piaget’s theory of cognitive development, which states that elementary school students are in the concrete operational stage. At this stage, students can more easily understand information presented through images, illustrations, and experiences closely related to their daily lives (Babullah, 2022). Presenting learning materials in the form of digital comics helps students visualize Pancasila Education concepts more clearly and concretely. The use of visual-based media also makes the learning process more meaningful and engaging for students. In addition, the gamification elements embedded in the media can enhance students’ motivation to participate in learning activities. These findings indicate that gamification-based digital comics are well aligned with the learning characteristics of elementary school students. Therefore, the developed media can support the creation of a more effective, engaging, and enjoyable learning experience (Karimah, Prayogo, Adila, & Syafa’ah, 2025).

The findings of this study are supported by previous research indicating that digital media is appropriate for use in elementary school education. However, previous studies have primarily focused on the separate implementation of digital comics or gamification in the learning process (Dewi & Wulandari, 2024). In addition, research on gamification-based media in Pancasila Education for third-grade elementary school students remains limited (Silvian & Wicaksono, 2024). In response to this gap, the present

study introduces an innovative approach by integrating digital comics and gamification elements into a single learning medium. The developed media combines illustrations, contextual stories, points, challenges, and rewards that are tailored to the developmental characteristics of elementary school students. This integration of visual elements and learning activities can create a more engaging and interactive learning experience. Therefore, gamification-based digital comics have the potential to serve as an innovative alternative learning medium for elementary school students ([Leyn & Yugopuspito, 2025](#)).

However, this study was limited to the development and feasibility evaluation stages of the media; therefore, its effectiveness has not yet been examined on a broader scale. In addition, the trial was conducted with a limited number of participants, which restricts the generalizability of the findings. Future studies should involve a larger and more diverse sample to obtain more comprehensive results. Furthermore, the development of more interactive features is recommended to enhance the quality and effectiveness of learning ([Saqujuddin & Saputra, 2025](#)). Subsequent research may also investigate the impact of gamification-based digital comics on students' learning outcomes and engagement. Evaluating the effectiveness of the media across various learning contexts is essential to determine its applicability and effectiveness in broader educational settings. Therefore, gamification-based digital comics are expected to serve as an innovative and effective learning medium for Pancasila education in elementary schools ([Fadilah, Salfadilah, & Anggelina, 2025](#)).

CONCLUSION

This study successfully developed a gamification-based digital comic as a learning medium for Pancasila Education for third-grade elementary school students using the 4D development model up to the develop stage. The feasibility evaluation showed that the media obtained validation scores of 83% from media experts and 85% from content experts, both categorized as highly satisfactory, while teacher responses reached 82% (highly satisfactory) and student responses reached 76.04% (satisfactory), indicating that the media meets the criteria of content suitability, visual presentation, language appropriateness, and ease of use. The main finding of this study is that the integration of contextual digital comic narratives with gamification elements such as points, challenges, and rewards can enhance student engagement and create a more interactive and

meaningful learning experience in Pancasila Education. The implication of these findings is that gamification-based digital comics can serve as an innovative alternative learning medium to support the internalization of Pancasila values and improve student participation in elementary classrooms. However, since this study was limited to the development and feasibility testing stages, future research is recommended to examine the effectiveness of this media on students' learning outcomes, motivation, and character development using larger and more diverse samples, as well as to further enhance its interactive features for broader educational applications.

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