



Development of digital comics for learning Pancasila and civics for second graders

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ABSTRACT

Pancasila and Civic Education in elementary schools often struggle to convey abstract values through conventional, text-heavy methods, resulting in low student engagement. This challenge is amplified by the Kurikulum Merdeka framework, which demands innovative, student-centered learning. This research and development study aimed to design, develop, and evaluate a value-based digital comic to enhance citizenship understanding and critical thinking for second-grade students. Employing the systematic ADDIE model (Analysis, Design, Development, Implementation, and Evaluation), the media was developed and subsequently tested with 26 students. Material experts, media experts, and educational practitioners comprehensively validated it. The results demonstrated a high feasibility rating. Furthermore, qualitative observations confirmed that the digital comic not only increased student motivation but also effectively facilitated the comprehension of complex citizenship concepts and stimulated ethical reasoning. The findings imply that systematically designed digital comics are a transformative pedagogical tool, capable of bridging theoretical instruction with practical application, making them a highly effective alternative for revitalizing Citizenship Education in early learning environments.

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ABSTRAK

Pendidikan Pancasila dan Kewarganegaraan di sekolah dasar seringkali kesulitan menyampaikan nilai-nilai abstrak melalui metode konvensional yang padat teks, sehingga menyebabkan rendahnya partisipasi peserta didik. Tantangan ini semakin kompleks dengan kerangka Kurikulum Merdeka, yang menuntut pembelajaran inovatif dan berpusat pada peserta didik. Studi penelitian dan pengembangan ini bertujuan untuk merancang, mengembangkan, dan mengevaluasi komik digital berbasis nilai untuk meningkatkan pemahaman kewarganegaraan dan pemikiran kritis pada peserta didik kelas dua. Menggunakan model ADDIE (Analisis, Desain, Pengembangan, Implementasi, dan Evaluasi) secara sistematis, media ini dikembangkan dan diuji dengan 26 peserta didik. Media ini kemudian diverifikasi secara komprehensif oleh ahli materi, ahli media, dan praktisi pendidikan. Hasilnya menunjukkan tingkat kelayakan yang tinggi. Selain itu, pengamatan kualitatif menunjukkan bahwa komik digital tidak hanya meningkatkan motivasi peserta didik, tetapi juga secara efektif memfasilitasi pemahaman konsep kewarganegaraan yang kompleks dan merangsang penalaran etis. Temuan ini menyiratkan bahwa komik digital yang dirancang secara sistematis merupakan alat pedagogis transformatif, mampu menjembatani instruksi teoritis dengan penerapan praktis, menjadikannya alternatif yang sangat efektif untuk menghidupkan kembali Pendidikan Kewarganegaraan di lingkungan pembelajaran awal.

Kata kunci: komik digital; media pembelajaran; pendidikan Pancasila dan kewarganegaraan; sekolah dasar

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INTRODUCTION

Pancasila and Civic Education (PPKn) plays a crucial role in the Indonesian national education system as a primary medium for fostering civic and national awareness from the elementary level, with the fundamental mission of instilling democratic values, civic responsibility, and virtuous character aligned with the philosophical foundations of Pancasila (Afriliani et al., 2022), which is further reinforced within the context of the Kurikulum Merdeka through an emphasis on the development of 21st-century competencies and the realization of the *Projek Penguatan Profil Pelajar Pancasila*, requiring learning processes that extend beyond content mastery to include the cultivation of critical thinking, creativity, and moral integrity, while the effectiveness of instructional media serves as a determining factor in achieving these objectives, as appropriate media can significantly enhance the quality of learning outcomes (Lubis et al., 2023), a claim supported by findings indicating that effective instructional media contribute to improved student learning outcomes (Devega et al., 2022).

However, the implementation of Pancasila and Civic Education (PPKn) at the elementary school level often faces significant pedagogical challenges, as its effectiveness is highly dependent on instructional methodologies in which conventional approaches such as lectures and textbook-dominated learning are considered insufficient in actively and meaningfully engaging students (Khotimah & Hidayat, 2022), leading to student disinterest and superficial understanding of abstract civic concepts such as tolerance, justice, and deliberation (Reinita et al., 2023), thereby highlighting an urgent need for digital innovation to revitalize pedagogical strategies to be more relevant and engaging for digital-native learners (Afandi et al., 2021), with digital comics emerging as a transformative instructional media solution in response to these challenges.

By integrating the strengths of visual narratives and interactive elements, digital comics are capable of simplifying complex PPKn principles into formats that are accessible and engaging for early age learners (Taroreh & Arisandy, 2022), with their use as instructional media also demonstrating positive impacts in short story learning (Mawarsih et al., 2024), while recent studies indicate that this medium significantly enhances students motivation, engagement, and conceptual understanding across various subjects (Yuswantara & Wibawa, 2021), and beyond functioning merely as visual aids, well designed digital comics can serve as platforms to stimulate critical thinking by presenting dilemmatic scenarios that encourage students to analyze, evaluate, and make decisions (Puriasih & Trisna, 2022).

Despite the widely recognized potential of digital comics, a gap remains in the research literature, particularly concerning the systematic development of instructional media specifically designed for PPKn learning at the early elementary level (second grade) and explicitly aligned with the pedagogical principles of the Kurikulum Merdeka, as preliminary observations at SDN Cawang 07 Pagi indicate that PPKn instruction for second grade students is still dominated by text heavy and minimally interactive methods, resulting in difficulties in understanding unengaging materials with limited visual support (Wicaksono et al., 2021), while the use of digital comics has been shown to significantly enhance students learning motivation and activity (Afriliani et al., 2022), and studies further demonstrate that the utilization of multimedia resources substantially improves knowledge retention and active

participation, transforming students from passive recipients of information into active constructors of knowledge (Devega et al., 2022).

This gap serves as the primary justification for the present study, namely the need for empirically validated digital comic media that are aligned with children's cognitive development and capable of supporting the holistic objectives of the Kurikulum Merdeka (Ramadhany et al., 2024), as based on the identified gap, this study addresses the issue of low engagement and superficial understanding in early grade PPKn learning, and therefore aims to develop and evaluate the feasibility of value based digital comic media for second grade PPKn instruction, specifically designed to enhance students civic understanding and stimulate critical thinking skills in accordance with the demands and philosophical foundations of the Kurikulum Merdeka (Irmaningrum et al., 2023; Susanti & Wibawa, 2022).

LITERATURE REVIEW

The Theoretical Foundation of Instructional Media

Effective Pancasila and Civic Education (PPKn) requires pedagogical tools that bridge abstract concepts and student engagement, particularly for early grade learners, as research emphasizes that multimedia resources significantly enhance knowledge retention by activating dual coding processes in which visual and verbal information reinforce understanding (Lubis et al., 2023), while the interactivity of digital media promotes active participation, transforming learners from passive recipients into active constructors of knowledge (Padang & Sitepu, 2023), an approach that aligns with developmental needs for concrete and experiential learning and directly addresses the limitations of text centered methods in elementary PPKn instruction (Kirkic et al., 2023), and theoretically, the effectiveness of modern instructional media can be explained through various frameworks, including the Cognitive Theory of Multimedia Learning, which posits that learning is more effective when visual and verbal channels are stimulated simultaneously and in a coordinated manner.

Digital media, such as interactive videos, simulations, and digital comics, are inherently designed to leverage this principle (Berduygina, 2020), as the presentation of information in both visual and verbal formats reduces students cognitive load and enables deeper understanding of complex material, while the implementation of the Kurikulum Merdeka, with its emphasis on differentiated and project based learning, further reinforces the urgency of adopting digital media, which allows for personalized learning in which students can progress according to their individual pace and learning styles, in addition to facilitating access to richer and more diverse learning resources beyond the limitations of traditional classrooms (Toshpulatov, 2022), and therefore, the integration of innovative instructional media that enhance students media competence is no longer merely an option but a strategic necessity to ensure the successful implementation of the Kurikulum Merdeka and to prepare students for the challenges of the 21st century (Grin, 2022).

Digital Comics as a Pedagogical Tool

Comics utilize the synergy of narrative and visual elements to simplify complex civic principles into contexts that are easily understood, with research demonstrating their effectiveness in enhancing motivation through character driven stories that reflect students social environments (Šarčević, 2023), and when digitized, comics incorporate dynamic features such as animation and interactive quizzes that further deepen conceptual mastery, while in literacy development, their sequential art structure supports critical thinking by visually mapping cause and effect relationships within societal norms, making them particularly suitable for teaching democratic values, and cognitively, the digital comic format aligns with principles of effective learning, as the sequential panel structure visually represents causal relationships and event flows, implicitly training students critical and analytical thinking skills (Mawarsih et al., 2024), while the use of concise text and imagery reduces cognitive load, enabling learners to focus their mental resources on understanding meaning and moral messages.

Interactive digital comic media have also been shown to enhance student engagement and learning outcomes while fostering reading interest (Khotimah & Hidayat, 2022; Umairoh & Amaliyah, 2022), and beyond serving merely as tools for increasing engagement, well designed digital comics function as catalysts for the development of critical thinking, as when they present ethical dilemmas or social issues, they inherently encourage students to engage in processes of interpretation, analysis, and evaluation (Guilfoos & Pape, 2020), prompting learners to consider multiple perspectives and formulate their own judgments, a process that constitutes direct practice in moral reasoning and active citizenship (Susanti & Wibawa, 2022), while the use of digital comic media based on Problem-Based Learning (PBL) has been proven effective in instructional contexts (Puriasih & Trisna, 2022), with its implementation in elementary schools also demonstrating positive outcomes (Reinita et al., 2023), thereby transforming digital comics from mere content delivery tools into a “simulation laboratory” in which students can practice becoming reflective and responsible citizens (Šarčević, 2023).

Research and Development Framework

The ADDIE model, which consists of the phases of Analysis, Design, Development, Implementation, and Evaluation, provides a systematic structure for developing context appropriate educational media, with its iterative stages ensuring alignment between learning objectives, content design, and user needs (Okpatrioka, 2023), while the Research and Development (R&D) approach complements this by emphasizing empirical validation through cyclical prototyping, which is essential for adapting digital comics to the standards of the Kurikulum Merdeka in Indonesia (Umar et al., 2023), and this methodology prioritizes pedagogical coherence over mere technological novelty, thereby reducing the risk of superficial digital integration (Husamah et al., 2022).

The use of an R&D framework such as ADDIE ensures that the development of educational media is grounded in empirical data and evidence rather than developer intuition, as expert validation and field testing serve as quality control mechanisms to ensure alignment with the curriculum and suitability to learners characteristics (Sastrawan et al., 2021), while this

approach emphasizes pedagogical coherence over technological novelty, thereby reducing the risk of superficial and ineffective digital innovation (Husamah et al., 2022) and making it highly relevant for producing high quality instructional media that effectively support the implementation of the Kurikulum Merdeka.

Cognitive and Behavioral Impact

The effectiveness of digital comics stems from their alignment with constructivist principles, in which knowledge is developed through contextualized problem solving, as research indicates that concepts mediated through comics demonstrate higher retention rates compared to traditional lecture based methods (Mustikasari et al., 2020), primarily due to reduced cognitive load through visual scaffolding that allows learners to allocate their mental resources toward meaning making rather than decoding complex text, while emotional engagement with story characters further enables the internalization of abstract ideas such as social justice through age appropriate narratives (İlhan et al., 2021).

Furthermore, the impact of digital comics extends beyond the cognitive domain and significantly influences students behavior and attitudes in the classroom, as their engaging narrative format inherently increases learner activity in the learning process (Afriliani et al., 2022), while the use of interactive digital comic based instructional materials has been shown to directly enhance student engagement and ultimately produce positive effects on learning outcomes (Khotimah & Hidayat, 2022), with this active engagement fostering an environment conducive to character development, for instance, when digital comics are used to teach sociocultural diversity, they effectively instill values of tolerance among students (Susanti & Wibawa, 2022), thereby positioning digital comics as a dual function tool that not only facilitates knowledge construction but also actively shapes positive civic behavior.

METHODS

This study adopts a Research and Development (R&D) framework systematically guided by the ADDIE model to design, develop, and validate a digital comic media product for PPKn learning in second-grade elementary school, with this structured and product oriented approach selected to ensure that the resulting media are relevant to user needs and empirically validated prior to dissemination, while participants were selected using purposive sampling, consisting of 26 students and 2 teachers from SDN Cawang 07 Pagi, Bekasi, with student selection criteria including representation across varying levels of academic performance and limited prior exposure to digital comic media in PPKn learning in order to obtain comprehensive and authentic feedback, and the study also involved three expert validators for the feasibility evaluation stage, comprising one media design expert, one PPKn curriculum content expert, and one educational practitioner (senior teacher).

The media development process followed the five iterative phases of the ADDIE model, beginning with the Analysis phase, which involved classroom observations and structured interviews with teachers to identify key challenges in PPKn instruction, followed by the Design phase, where the findings were translated into storyboards and initial comic prototypes, then the Development phase, during which the digital comic prototype was created using Canva

and Book Creator software, after which the Implementation phase was conducted through eight instructional sessions of 35 minutes each, and finally the Evaluation phase, which assessed the feasibility of the product and its impact through multidimensional assessment protocols, while data collection employed triangulated instruments to ensure validity and reliability.

The primary instrument was an expert validation questionnaire using a 1–5 Likert scale to assess content accuracy, media design, and pedagogical usefulness, while students civic knowledge was measured through pre and post intervention tests, and teacher journals were employed to record qualitative data on students behavioral responses, with all instruments undergoing validity and reliability verification processes, and data analysis was conducted using both quantitative and qualitative approaches, in which quantitative data from validation questionnaires were analyzed descriptively by converting raw scores into feasibility percentages, pre and post test data were analyzed using paired sample t-tests with SPSS 26, and qualitative data from teacher journals were examined through thematic analysis to identify recurring patterns related to student engagement and learning dynamics, while methodological rigor was ensured through expert content validation, construct validation via instrument testing, and adherence to ethical standards maintained through parental consent protocols and participant anonymity.

RESULTS AND DISCUSSION

Research Result

Figure 1 below presents the final version of the “Warga Cilik” e-comic as the developed product, which has undergone the stages of design, production, and revision based on expert feedback and field testing.



Figure 1. Final Product Display of the Developed Media
Source : Research 2025

To ensure the quality and pedagogical feasibility of the product, the developed digital comic prototype, hereafter referred to as “Warga Cilik,” underwent a rigorous validation process involving a media expert, a subject-matter expert, and an educational practitioner, with this multi aspect evaluation assessing the technical quality of the media, content accuracy, and

its practical applicability in the classroom, and the recapitulated results of expert validation are presented in **Table 1** below.

Table 1. Summary of Validation Results

Validator	Scores Obtained	Maximum Score	Average Percentage	Validator
Media Specialist	55	60	92%	92%
Subject Matter Expert	42	50	84%	84%
Education Practitioner	118	140	84%	84%
Total				87%
Qualifications				Highly Recommended

Source: Research 2025

Based on the data presented in **Table 1**, expert validation confirms the high quality of the “Warga Cilik” media across technical, content, and practical domains, resulting in an overall feasibility score of 87% categorized as “Highly Feasible,” providing a strong empirical foundation for its potential effectiveness in real classroom settings, while the feasibility assessment involving three expert validators indicates a high level of suitability for the developed digital comic in second-grade PPKn instruction, with the media expert assigning a score of 92%, reflecting high quality visual presentation, layout structure, and navigation that meet the standards of effective digital learning tools, and the visual and interactive features of the instructional media have been shown to support students’ focus and motivation, particularly at the elementary level where abstract concepts require concrete representation (Ghifari et al., 2022).

Digital comics that employ structured layouts and user friendly interfaces can significantly enhance the learning experience by reducing confusion and improving clarity, while the subject matter expert validation score of 84% indicates strong alignment between the content and the learning objectives of PPKn as well as students cognitive readiness, with the integration of civic values into narrative forms effectively facilitating students understanding of abstract themes such as justice and responsibility, and the inclusion of contextually relevant examples and age-appropriate scenarios enabling learners to apply knowledge to real life situations, which is essential for achieving character education goals, while in terms of classroom implementation, the practitioner validator also assigned a score of 84%, demonstrating that the media can be effectively integrated into teaching and learning activities.

During the trial sessions, students demonstrated higher levels of engagement and willingness to participate in discussions, particularly when comic scenes reflected experiences relatable to their daily lives, while the structured comic design supported collaborative learning and encouraged students to critically reflect on civic issues introduced through the storyline (Sumantri & Putri, 2021), with the overall average feasibility score from all validators reaching 87%, placing the developed media in the “highly feasible” category for classroom

use, and these findings support the use of the ADDIE development model, which emphasizes iterative evaluation to enhance the quality and relevance of instructional products (Effendi et al., 2023), thereby reinforcing the importance of expert review in ensuring that educational innovations meet pedagogical and contextual standards, particularly when implemented in early childhood learning environments.

Discussion

The very high feasibility level of 87% achieved by the digital comic media "Warga Cilik" reflects a systematic design process, with the media expert score of 92% indicating successful implementation of effective multimedia design principles, as clean layouts and appealing visual quality contribute to reducing students cognitive load (İlhan et al., 2021), while the subject matter expert score of 84% confirms that the media effectively translates civic concepts into narratives aligned with students cognitive developmental stages, consistent with findings that contextual narratives facilitate the internalization of social values (Masfufah & Rahman, 2021), and the development of digital comics represents an effort to leverage technology to increase students' interest in engaging with learning materials by utilizing their visual literacy skills (Hadiapurwa et al., 2021).

The most significant pedagogical implication of these findings lies in the function of digital comics as a catalyst for learning aligned with the philosophy of the Kurikulum Merdeka, as this media has proven to be more than a mere content delivery tool, functioning instead as a facilitator of active and reflective learning, where dilemmatic scenarios within the comics encourage students to engage in discussion and collaboration, thereby supporting the development of the *Projek Penguatan Profil Pelajar Pancasila*, particularly in the dimensions of critical thinking and collaboration, with these findings reinforcing the argument that digital comic media are effective in supporting problem-based learning models (Puriasih & Trisna, 2022), while their implementation has also been shown to foster higher-order thinking skills (Reinita et al., 2023).

Compared to previous studies, this research offers a distinct contribution, as while many prior studies have demonstrated the effectiveness of digital comics in enhancing motivation, this study specifically links their development to the Kurikulum Merdeka framework and tests it on a younger age group (Wicaksono et al., 2021), with the findings aligning with prior research that highlights the positive impact of interactive media (Khotimah & Hidayat, 2022; Irmaningrum et al., 2023), yet the novelty of this study lies in its holistic validation within the context of Indonesia's latest curriculum, and although the results indicate a very high level of feasibility, it is important to acknowledge certain limitations, as the study was conducted within a relatively small scope, thereby requiring cautious generalization of the findings.

Furthermore, the successful large-scale implementation of digital media is highly dependent on external factors such as the availability of media resources (Berduygina, 2020), while challenges including the digital divide and varying levels of teachers digital competence also present significant barriers (Husamah et al., 2022), and therefore, the effectiveness of this media in real educational settings will rely on the presence of a supportive ecosystem, including teacher training and affirmative policies, with the transformation from static media

into personalized adaptive tutors representing a substantial advancement in educational technology that enables truly differentiated learning and maximizes each student's potential (Guilfoos & Pape, 2020).

CONCLUSION

Based on the analysis and discussion of the research findings, it can be concluded that the digital comic media developed using the ADDIE model constitutes a highly feasible and effective solution for enhancing PPKn learning at the elementary school level, as the media successfully integrates civic values into engaging visual narratives, with the main findings confirming that interactive and visually rich educational media not only improve students motivation and conceptual understanding but also actively function as catalysts for fostering critical thinking skills and ethical reasoning, thereby demonstrating strong alignment between the developed product and the holistic objectives of the Kurikulum Merdeka, and looking ahead, this study opens pathways for more advanced developments, particularly the evolution toward adaptive digital comics powered by artificial intelligence (AI), envisioning a system capable of analyzing students' choices and dynamically adjusting storylines or providing personalized feedback.

AUTHOR'S NOTE

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