

Digital Transformation in Civic Education Learning: Integrating Technology to Strengthen Civic Literacy

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ABSTRACT

This study aims to analyze digital transformation in Civic Education (PPKn) learning and its implications for strengthening citizenship literacy in the digital era. This research employs a qualitative approach using a library research method, based on scientific literature published between 2020 and 2026. The data analysis technique used is content analysis, which involves reviewing and synthesizing relevant previous research findings. The results show that digital transformation significantly changes Civic Education learning in terms of approaches, methods, and instructional media. The integration of technology such as e-learning, interactive media, digital platforms, and artificial intelligence enhances learning effectiveness and promotes active student engagement. However, the implementation of technology also faces challenges such as infrastructure limitations, teachers' digital competence, and students' low digital literacy. Therefore, adaptive learning strategies are needed to optimize the use of technology in Civic Education learning to strengthen citizenship literacy in the digital era

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INTRODUCTION

The development of digital technology has significantly impacted the field of education, particularly in the learning process, which is now increasingly connected to information and communication technologies. This transformation has not only changed the way teachers deliver instructional materials but has also shifted the learning paradigm from conventional methods toward more innovative, interactive, and student-centered approaches. In this context, the utilization of technology has become a key factor in improving the quality of learning in the 21st century (Nugroho, Soepriyanto, and Wedi 2024). Furthermore, (Sugiyantoro and Apriliantoni 2025) argue that the integration of technology in learning is part of educational innovation aimed at enhancing the effectiveness and efficiency of the learning process. This aligns with the notion that the use of digital technology in education should not merely follow trends but must also provide a tangible contribution to improving learning quality.

Digital transformation has also triggered a paradigm shift from teacher-centered learning to student-centered learning. In this approach, learners are encouraged to actively construct knowledge by utilizing a variety of available digital learning resources (Anderson and Dron 2011). The use of

technology also creates opportunities for more flexible and collaborative learning processes, while simultaneously supporting the development of 21st-century skills, such as critical thinking, creativity, communication, and collaboration (Lisnawati et al. 2025). Therefore, the integration of technology becomes an essential component in realizing adaptive learning that aligns with the needs of learners in the digital era.

However, the implementation of digital transformation in learning has not yet been fully optimized, particularly in Civic Education (PPKn). As a subject that emphasizes character building and national awareness, Civic Education is still often delivered through conventional approaches with minimal active student engagement (Nima et al. 2025). This condition has implications for students' low learning interest and the suboptimal internalization of civic values in daily life.

On the other hand, advancements in the digital era have also introduced various social challenges, such as the increasing spread of misinformation, hate speech, and declining ethics in social media use. These conditions highlight the urgency of strengthening civic literacy, especially in the digital context (Sari, Sunarso, and Suyato 2025). Civic literacy is not only related to understanding national values but also encompasses critical thinking skills, tolerance, and responsibility in interacting within digital spaces.

The integration of technology in Civic Education learning can serve as an effective strategy to address these challenges. The use of various digital platforms, interactive media, and online learning systems can enhance student participation and engagement in the learning process (Hrastinski 2019). In addition, (Khasanah n.d.) states that the use of technology in learning can increase learning motivation while fostering higher-order thinking skills. This emphasizes that technology functions not only as a supporting tool but also as a transformative medium that can fundamentally reshape the learning process.

Moreover, the advancement of artificial intelligence (AI) has begun to be utilized in the field of education. This technology enables more personalized learning experiences by adapting to the needs and characteristics of individual learners (Jatmiko et al. 2025). In the context of Civic Education, the application of AI can support more adaptive content delivery and provide timely and accurate feedback to students. Thus, the utilization of this technology offers significant potential to improve the overall effectiveness of the learning process.

Nevertheless, the implementation of technology in Civic Education still faces several challenges, such as limited infrastructure, low digital competence among teachers, and suboptimal policy support (Siringoringo and Alfaridzi 2024). In addition, not all educators are able to maximize the use of technology in designing innovative and meaningful learning experiences. This condition indicates that digital transformation in education requires comprehensive readiness, including technological infrastructure, human resource quality, and adequate support systems.

Based on the above discussion, there is a clear gap between the demands of digital transformation in education and the actual practices of Civic Education learning in the field. Therefore, this article aims to examine digital transformation in Civic Education learning while analyzing the role of technology integration in strengthening students' civic literacy. This study is expected to contribute both theoretically and practically to the development of more innovative, adaptive, and contextually relevant Civic Education learning in the digital era.

METHOD

This study employs a library research method, which involves examining and analyzing various scientific literature relevant to the research topic. This method was selected because it provides a comprehensive understanding of the concept of digital transformation in learning without involving direct field data collection. The approach used is descriptive qualitative, emphasizing the process of interpreting meaning and understanding phenomena based on textual data from various scholarly sources. Through this approach, researchers are able to critically examine theories and previous research findings related to the integration of technology in education (Nastiti & Abdu, 2020; Yulianti et al., 2020).

The data sources in this study consist of secondary data obtained from various scientific literatures, such as research articles, conference proceedings, and academic books relevant to the topic under investigation. The selection of sources was conducted selectively by considering their credibility, relevance to the research topic, and contribution to the discussion of digital transformation in learning.

This approach enables researchers to establish a strong theoretical foundation while supporting a more comprehensive analysis (Aziz, Usman, and Damopolii 2025).

The data analysis technique used in this study is content analysis, which involves systematically examining the content of the collected literature. The analysis process was carried out through several stages, including data reduction, categorization, interpretation, and conclusion drawing. The classified data were then analyzed based on key themes, such as digital transformation, technology integration in learning, and civic literacy. Through content analysis, researchers are able to produce a comprehensive and in-depth synthesis of the phenomenon under study (Ash-shiddiqi, Sinaga, and Audina 2025).

RESULTS AND DISCUSSION

The Concept of Digital Transformation in Education

Digital transformation in education refers to a fundamental shift in the learning system that utilizes digital technologies to enhance the effectiveness and quality of education (Dadang and Karep 2025). This transformation is not limited to the use of technological devices but also encompasses changes in pedagogical approaches, instructional design, and interaction patterns between teachers and students. In this context, technology acts as a catalyst that drives the realization of more adaptive and innovative learning environments (Sugiyantoro and Apriliantoni 2025).

Furthermore, digital transformation requires a well-aligned integration between technology and the curriculum to ensure that the learning process operates optimally and meets the needs of learners in the modern era. The paradigm shift in learning, as a consequence of digital transformation, is characterized by a transition from teacher-centered learning to student-centered learning. In this context, students are no longer positioned as passive recipients but as active agents who construct knowledge through various digital learning resources. This condition enables the creation of more flexible, collaborative, and experience-based learning environments (Suweta 2023).

The utilization of digital technologies, such as online learning platforms and interactive media, plays a crucial role in supporting this transformation (Fitri 2024). Therefore, digital transformation significantly contributes to the development of a more dynamic and responsive educational system in accordance with contemporary developments.

Characteristics of Civic Education Learning in the Digital Era

Civic Education (PPKn) learning in the digital era has undergone significant changes, particularly in terms of its objectives and instructional approaches. It is no longer solely focused on knowledge transfer but also emphasizes character building, the development of democratic attitudes, and critical thinking skills in responding to social dynamics (Siallagan et al. 2025). This shift requires the implementation of more contextual and experience-based learning approaches, enabling students to relate learning materials to real-life situations. In addition, the integration of civic values within digital contexts is essential for fostering adaptive and responsible citizens (Afra, Mahdalena, and Alwi 2025).

Another characteristic of Civic Education in the digital era is the emphasis on strengthening 21st-century competencies, including critical thinking, communication, collaboration, and creativity. The learning process is no longer unidirectional but emphasizes active interaction between teachers and students through various digital media. This condition encourages the adoption of more innovative learning methods, such as online discussions, project-based learning, and the utilization of diverse digital learning resources (Whindayati, Fauziah, and Fatimah 2025). Consequently, Civic Education learning becomes more dynamic and capable of developing skills relevant to contemporary needs.

However, the digital era also presents several challenges in Civic Education learning, particularly related to the increasing spread of misinformation, hate speech, and declining ethics in social media usage. Students are often exposed to unverified information, which may lead to misconceptions regarding civic issues (Yulyatuzzahra, Junaedi, and Slam 2026).

(Nisa et al. 2025), emphasize that Civic Education plays a strategic role in equipping students with adequate digital literacy skills, particularly in selecting, analyzing, and critically evaluating information.

Moreover, Civic Education in the digital era also requires the integration of ethical and moral values in the use of technology. Students need to develop awareness of responsible digital behavior, such as respecting differing opinions, maintaining politeness, and avoiding negative behaviors like cyberbullying (Pertiwi et al. 2025). Therefore, teachers play a crucial role in guiding the use of

technology as a learning tool that is not only effective but also capable of shaping students' character and integrity.

Based on the above discussion, it can be concluded that Civic Education learning in the digital era requires continuous innovation to address contemporary challenges. The integration of technology in learning is not only intended to improve the quality of the learning process but also to strengthen students' civic literacy. Thus, effective learning strategies must integrate cognitive, affective, and psychomotor aspects in a balanced manner to produce learners who are not only intellectually competent but also possess strong character and civic awareness.

Forms of Technology Integration in Civic Education Learning

The integration of technology in Civic Education learning can be implemented in various ways, one of which is through the use of e-learning systems or Learning Management Systems (LMS). LMS platforms facilitate teachers in managing the learning process more systematically, including delivering materials, assigning tasks, and conducting assessments. Moreover, LMS allows students to learn more flexibly without being constrained by time and space limitations (Armianti et al. 2024). Therefore, the use of LMS can enhance both the effectiveness and efficiency of the learning process.

In addition to LMS, the use of interactive learning media such as videos, animations, and simulations can increase student engagement in the learning process. These media present content in a more attractive and understandable manner, thereby contributing to increased learning motivation. Furthermore, interactive media provide opportunities for students to engage in independent and exploratory learning, making the learning process more meaningful (Mega et al. 2026).

Technology integration can also be realized through the use of various digital platforms, such as online quiz applications and discussion forums. These platforms enable broader interaction between teachers and students while encouraging active student participation in the learning process (Armianti et al. 2024). In addition, digital platforms can be utilized as innovative and varied tools for learning assessment.

Furthermore, the use of artificial intelligence (AI) in learning processes is increasingly prominent. AI can be utilized to provide personalized learning recommendations based on students' needs and characteristics, as well as to deliver timely and accurate feedback (Lestari, Zakir, and Gusli 2024). This utilization not only enhances learning effectiveness but also assists teachers in managing the learning process more optimally.

Strengthening Civic Literacy through Technology

Civic literacy is an essential competency that students must possess in the digital era. This competency encompasses not only an understanding of rights and responsibilities as citizens but also the ability to actively participate in social and political life. In the digital context, civic literacy also includes the ability to use technology wisely, critically, and responsibly (Laili, Muslih, and Hasyim 2025).

Digital technology can serve as an effective tool for developing civic literacy, particularly in enhancing students' critical thinking skills and social awareness. Through various digital media, students can explore social and political issues in a more contextual and up-to-date manner (Warastuti, Prayitno, and Rahmawati 2025). In addition, technology provides opportunities for students to engage in public discussions through digital platforms, thereby increasing their participation in democratic life.

However, the use of technology must be balanced with the strengthening of ethical awareness in social media usage to ensure responsible behavior. Therefore, Civic Education learning should integrate ethical and moral values in the use of technology to foster students with strong integrity.

Analysis of Advantages and Challenges

The integration of technology in Civic Education learning offers several advantages, including increased student motivation, expanded access to learning resources, and the creation of more interactive and engaging learning environments (Rahmadila, Janah, and Anggara 2024). Technology also enables students to learn both independently and collaboratively, thereby enhancing critical and creative thinking skills. Furthermore, it supports the development of flexible and adaptive learning processes that align with students' needs and characteristics.

However, the implementation of technology in Civic Education also faces various challenges. Limited infrastructure, such as internet access and the availability of digital devices, remains a major obstacle in certain regions (Ginanjari et al. 2025). In addition, low levels of teachers' digital competence hinder the optimal utilization of technology in the learning process (Sholikhah, Suryani, and Ainiyah

2025). There is also a risk of technology misuse by students, which may negatively affect their character development.

Therefore, comprehensive efforts are required to address these challenges, including improving teachers' digital competencies, providing adequate infrastructure, and strengthening character education in the use of technology. Through these efforts, the integration of technology in Civic Education learning is expected to provide optimal benefits in enhancing the overall quality of education.

CONCLUSION

Based on the findings of this study, it can be concluded that digital transformation in Civic Education (PPKn) learning is an inevitable necessity in the modern educational era. The integration of technology in the learning process functions not only as a supporting tool but also as a medium for transforming learning into a more interactive, flexible, and student-centered process. This transformation has contributed to a paradigm shift from teacher-centered learning toward student-centered learning that is more relevant and adaptive to contemporary developments.

Civic Education learning in the digital era is characterized by an emphasis on strengthening civic literacy, developing critical thinking skills, and fostering student character aligned with the values of Pancasila. However, this learning context also faces significant challenges, including the widespread dissemination of misinformation, low levels of digital ethics, and limited technological literacy among students. Therefore, innovative learning approaches are required to address these challenges in a comprehensive manner.

Furthermore, various forms of technology integration such as e-learning, interactive learning media, digital platforms, and artificial intelligence (AI) have proven to enhance the effectiveness of Civic Education learning. Technology provides opportunities to create more engaging, participatory, and contextual learning experiences. Nevertheless, the successful implementation of technology is highly dependent on teachers' readiness, the availability of adequate infrastructure, and strong educational policy support.

Overall, the integration of technology in Civic Education learning contributes significantly to strengthening students' civic literacy. This literacy is essential for shaping citizens who are critical, responsible, and capable of adapting to the dynamics of digital life. Therefore, digital transformation in Civic Education learning must be continuously developed in a sustainable manner.

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