

# THE ROLE OF DIGITAL TECHNOLOGY IN STRENGTHENING CHARACTER EDUCATION: A PEDAGOGICAL AND PSYCHOLOGICAL ANALYSIS

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### Abstract

This study examines the role of digital technology in strengthening character education from psychological and pedagogical perspectives, particularly among Generation Z learners. The objective of this research is to analyze how digital platforms, including social media and online learning environments, influence character formation and learning behaviors. The study employs approach using literature review and conceptual analysis to explore key theories related to character development, digital literacy, and educational practices. The findings indicate that digital technology contributes positively by enhancing critical thinking, creativity, independence, and collaboration skills, while also facilitating flexible and accessible learning. However, challenges such as digital dependency, reduced face to face interaction, exposure to misinformation, and psychological issues like stress and anxiety were also identified. The novelty of this research lies in integrating psychological mechanisms such as modeling, reinforcement, and habit formation with pedagogical strategies in digital contexts to explain character development in Generation Z. The study implies that the effective use of digital technology in education requires balanced integration with ethical values, digital literacy, and character building strategies. This research contributes to the development of educational science by providing a comprehensive framework for optimizing digital technology to support both cognitive and character development in modern learners.

**Keywords:** Digital Technology, Character Education, Generation Z, Psychological Perspective, Pedagogical Approach



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## INTRODUCTION

The development of digital technology has brought significant changes to the lives of young people, particularly Generation Z. Growing up amid the rapid advancement of the internet, social media, and various digital platforms, this generation has become inseparable from technology (Wulan Kurnia et al., 2026). The presence of digital technology not only affects how individuals communicate and access information but also plays a role in shaping character and social values (Refania, Julianti, et al., 2026). On the one hand, digital technology provides easy access to knowledge and opens opportunities to develop creativity and collaboration. On the other hand, it also presents various challenges, such as declining communication ethics, increasing individualism, and the widespread phenomenon of cyberbullying. This condition indicates that the use of digital technology not only offers benefits but also poses challenges in strengthening character education (Hasyati et al., 2025).

Several studies have examined the role of digital technology in education and its connection to character development, but the focus and scope of these studies tend to vary (Amanda et al., 2026). Research in the field of educational technology generally highlights how digital tools such as e-learning systems, Learning Management Systems (LMS), and interactive platforms can improve learning effectiveness, accessibility, and student engagement (Maya Oktaviani, 2024). These studies often show that technology enables more flexible, personalized, and interactive learning experiences, allowing students to access materials anytime and participate actively through discussions, multimedia content, and collaborative tasks (Risqi & Levina, 2026). As a result, the primary emphasis is usually placed on cognitive outcomes, such as improved understanding, problem solving skills, and academic performance.

On the other hand, studies on character education tend to concentrate on the development of moral values, ethics, and positive attitudes through more traditional, classroom-based approaches. These include methods such as teacher role modeling, value integration into subjects, habituation practices, and school culture development (Marlion & Dardiri, 2019). The focus here is on shaping students' behavior, responsibility, discipline, empathy, and integrity through direct interaction and structured educational environments. However, these studies often give less attention to how digital environments influence or reshape these character building processes.

A significant limitation in the existing body of research is that these two domains technology in education and character education are frequently discussed in isolation. Few studies attempt to explore how digital technology can be intentionally integrated as a medium for character formation, rather than merely as a tool for delivering academic content (Hanif et al., 2022). Moreover, research that combines psychological perspectives (such as behavior formation, motivation, and emotional development) with pedagogical approaches (such as teaching strategies and curriculum design) is still relatively limited (Kamaluddin et al., 2022).

This gap suggests a need for more comprehensive and interdisciplinary studies that examine not only how students learn with technology, but also how their character, values, and behaviors are shaped within digital learning environments (Nuryani Dwi Astuti, Marzuki, Mami Hajaroh, Yuli Prihatni, Ratih Kusumawardhani, Arif Hartono, Ari Setiawan, 2025).

These social conditions place Generation Z as the main focus. This generation has distinctive characteristics, such as high digital literacy, a preference for visual and interactive learning, and psychological dynamics influenced by social media exposure and the rapid flow of information (Kamaluddin, Ferki Ahmad Marlion, Nurlaila Nurlaila, Amelia Amelia, Lathifah Al Husna, Hamidah Fitri, 2023). Therefore, this study adopts an interdisciplinary approach by integrating perspectives from psychology (to understand cognitive, affective, and socio-emotional development), pedagogy (to design effective and contextual learning strategies), and technology (as both an ecosystem and a medium for learning) (Kamaluddin et al., 2024). Through this integration, the study aims to provide a more comprehensive and in depth analysis of how digital technology is not only used as a tool but also functions as a space for value and character formation. Thus, this article is expected to contribute both theoretically and practically in formulating a model for strengthening character education that is relevant, adaptive, and aligned with the needs of Generation Z in the digital era.

This study also seeks to understand the psychological dynamics of Generation Z in responding to the use of digital technology, considering that this generation grows up in an environment highly influenced by technological development and the rapid flow of information. Furthermore, this research is directed at exploring how effective and contextual pedagogical strategies can be designed by utilizing digital technology to support the strengthening of character education. Based on this explanation, it is necessary to conduct a deeper examination of psychological dynamics and digital interactions, focusing on character development based on digital literacy.

## LITERATURE REVIEW

### 1. Character Education

According to Aushop (2014: 7) in , character education is a process of guiding students to bring about changes in behavior, attitudes, and culture, which ultimately leads to the formation of a civilized society. Character education is an effort to guide early childhood learners in making wise decisions and applying them in daily life, both at school and in their environment, so they can contribute positively to society (Hanifah et al., 2025). Character education does not only focus on cognitive aspects but also includes affective and behavioral dimensions. This means that students are not only expected to understand moral values but also to implement them in their everyday lives. The values developed in character education include honesty, responsibility, discipline, cooperation, tolerance, and social awareness. The main goal of character education is to form individuals who are not only intellectually capable but also possess moral integrity and strong social skills. The foundations of character education in Indonesia include the ideological foundation (Pancasila), the juridical foundation (laws and regulations), and the sociological foundation (society).

In its implementation, character education is carried out through a systematic and continuous process that touches students' daily habits, learning experiences, and social interactions. One key aspect is habituation, where positive behaviors are practiced repeatedly until they become part of students' character. This can include simple routines such as being punctual, completing tasks on time, showing respect to others, and maintaining honesty in academic work. Over time, these repeated actions help internalize values so that they are not merely understood cognitively, but also practiced consistently in real life.

Another important aspect is role modeling, where teachers, parents, and even peers act as examples of good character. Students tend to imitate what they observe; therefore, consistent demonstration of values such as discipline, responsibility, and empathy by adults in their environment is crucial. In addition, reinforcement plays a significant role, where positive behaviors are acknowledged and appreciated through feedback, praise, or rewards. This creates a supportive and conducive learning environment that encourages students to maintain and repeat good actions.

In terms of methods, character education can be integrated across various educational activities. Within classroom learning, values can be embedded into subject content and teaching strategies, such as collaborative learning to promote teamwork and respect for diverse opinions. Outside the classroom, extracurricular activities provide opportunities for students to practice leadership, responsibility, and cooperation in real situations. Experiential learning, such as community service or project based activities, allows students to directly engage with social issues, thereby strengthening empathy and social awareness.

Concrete examples of implementation include group work, which helps students develop cooperation, communication, and tolerance; literacy programs, which build discipline, responsibility, and critical thinking through regular reading and reflection; and social activities such as community service, charity events, or environmental campaigns, which foster empathy, compassion, and a sense of responsibility toward others and the environment. Through these integrated and practical approaches, character education becomes more meaningful and impactful, shaping students into individuals who not only excel academically but also demonstrate strong moral values in their daily lives.

## 2. Digital Technology in Education

Digital technology in education refers to the use of various digital devices and platforms to support the learning process, such as internet-based learning media, online communication, and electronic learning systems (Fitri & Ridwan, 2024). Technology enables a more personalized learning experience and can engage students' affective dimensions, especially when learning materials are directly connected to their daily lives. The use of digital technology provides easier access to information, enhances interaction, and supports the effectiveness of learning in the modern era. However, technology also has a dual impact. While it can increase motivation and student engagement, it may also lead to negative effects such as distraction, dependency, and reduced social interaction if not used wisely.

This condition highlights that the role of parents and teachers is not merely supervisory, but also formative in shaping how students interact with technology. In practice, guidance involves more than setting rules; it includes modeling responsible behavior, fostering open communication, and consistently reinforcing values such as honesty, respect, responsibility, and self-discipline. Parents can create a supportive home environment by setting reasonable screen-time boundaries, encouraging meaningful digital activities, and discussing the content that children consume. Meanwhile, teachers play a strategic role in integrating technology into learning in ways that promote critical thinking, ethical awareness, and active participation, rather than passive consumption.

Furthermore, students need to be positioned not only as users of technology but as responsible digital citizens. This means they should be equipped with digital literacy skills, including the ability to evaluate information critically, avoid misinformation, respect online ethics, and understand the consequences of their digital actions. Strong character is reflected in how they manage their time, interact with others online, and use technology productively for learning and self-development.

Therefore, balancing the use of technology with the strengthening of character values is essential. Technology should function as a tool that supports educational objectives, not as a distraction or a dominant influence that shapes behavior negatively. Through a combination of proper guidance, value reinforcement, and conscious usage, technology can become a

meaningful medium for both academic growth and character development, ensuring that students remain purposeful, ethical, and responsible in the digital era.

### 3. Generation Z

Generation Z refers to individuals born between 1995 and 2010. This generation is often called the “internet generation” because they grew up during a period of rapid technological development, especially with the emergence of devices such as smartphones. Unlike the millennial generation, which was born between 1977 and 1994, Generation Z has a stronger connection to technological innovation and is considered a highly creative generation.

As digital natives, Generation Z possesses strong skills in utilizing technology and digital devices. Technological advancements greatly influence their lifestyle, as they tend to prioritize flexibility, convenience, and time efficiency in various activities such as communicating through social media, working, studying, and online shopping. Psychologically, this generation tends to have the ability to access information quickly, is accustomed to multitasking, and is highly influenced by the digital environment in shaping self-identity and patterns of social interaction.

On the other hand, the high intensity of technology use in education also creates complex challenges in students’ social and emotional development. One of the most noticeable impacts is the reduction of face to face interaction, which plays a crucial role in building empathy, communication skills, and emotional understanding. When students interact more frequently through screens than in real-life situations, they may become less sensitive to social cues such as tone of voice, facial expressions, and body language. Over time, this can weaken their ability to build meaningful relationships, resolve conflicts, and collaborate effectively in direct social settings.

In addition, the increasing dependence on digital media can affect students’ autonomy and emotional stability. Many students become accustomed to instant access to information, entertainment, and social validation, which may reduce their patience, persistence, and ability to cope with challenges. This dependency can also lead to compulsive behaviors, such as constantly checking devices or feeling uneasy without internet access. As a result, technology is no longer just a learning tool but can become a psychological need that influences daily behavior and decision-making.

These conditions highlight the importance of comprehensive training and guidance that go beyond technical digital skills. Students need to be equipped with an awareness of both the benefits and risks of technology use. This includes fostering digital responsibility, self-control, and ethical awareness, so they can consciously manage their interaction with technology. Training programs should also emphasize social-emotional learning, helping students develop empathy, resilience, and interpersonal skills that are often underdeveloped in highly digital environments.

From a pedagogical perspective, this situation calls for an adaptive and balanced learning approach (Tri Yulia Wijayanti et al., 2022). Technology based learning should remain interactive, engaging, and relevant to students’ needs, but it must also be intentionally designed to support character development. For example, teachers can incorporate collaborative projects, reflective activities, and discussions that encourage critical thinking and ethical consideration. Blended learning models combining digital tools with direct interaction can help maintain social connections while still benefiting from technological advancements.

Ultimately, the goal is to ensure that students’ development remains holistic, encompassing not only cognitive growth but also social competence and moral integrity. By integrating technology with strong character education and mindful pedagogical strategies, education can produce individuals who are not only digitally skilled but also emotionally intelligent, socially responsible, and ethically grounded.

## RESEARCH METHOD

This study employs a literature review method (library research), which aims to provide an in-depth analysis of psychological dynamics and digital interactions centered on character development based on digital literacy. This approach allows researchers to examine various written sources such as scientific journals published online and findings from previous studies (Wijayanti et al., 2022). The analysis is conducted using content analysis techniques by identifying key themes related to the concept of character education, digital technology in education, and their implementation in shaping the character of Generation Z.

Data collection methods are carried out through reading, note-taking, and processing research materials. The data sources used in this study are secondary data. The researcher then compiles a literature synthesis, connects the findings, and presents them in a structured manner within the study.

## RESULTS

### A. Social Media as a Medium for Character Formation

Social media has now evolved into a new public sphere that significantly influences how individuals think, behave, and interact. As a medium for character formation, social media operates through the continuous internalization of values that users repeatedly see and absorb. Character is not formed instantly but develops within a digital ecosystem involving several key processes. First, through observation and imitation (modeling), users observe the behavior of role models such as influencers or peers, gradually adopting their way of speaking, dressing, and even thinking patterns. Second, through social reinforcement, features such as likes, comments, and shares provide instant validation; when positive behavior receives appreciation, it is more likely to be repeated and strengthened. Third, through digital ethics literacy, users are indirectly trained to understand boundaries related to privacy, respect for intellectual property, and the ability to distinguish truthful information from misinformation, thereby fostering integrity and honesty (Nurhaswinda et al., 2025).

Furthermore, social media affects various dimensions of individual character. In the religious dimension, it provides easy access to spiritual content and religious teachings. In the social dimension, it can enhance empathy, for example through online fundraising activities, but it may also reduce direct concern for the immediate physical environment (Fitriana, 2025). In terms of independence, social media encourages individuals to be creative and produce original content as a form of self-actualization. Meanwhile, in the discipline dimension, it requires effective time management skills to balance activities between the real world and the digital environment.

To optimize social media as a positive tool for character development, several strategic efforts are necessary (Futri et al., 2026). One important strategy is self-filtering, which refers to the ability to select and consume content that has a positive psychological impact. In addition, practicing communication ethics (netiquette) is essential, including maintaining politeness in interactions and respecting differing opinions (Kamaluddin, Ferki Ahmad Marlion, Nurlaila, Amelia, 2023). Equally important is the shift from being merely content consumers to becoming content creators who produce meaningful and inspirational messages. In this way, social media can function not only as a source of entertainment but also as an effective medium for fostering positive and well-integrated character development (Munifatullah, 2010).

### B. Digital Learning Platforms

Digital learning platforms are one of the main forms of technology utilization in supporting character education for Generation Z. Technological advancements have revolutionized learning methods in education, offering a level of flexibility that was

previously difficult to achieve (Reva Risky Ramadhani, 2026). Digital platforms, such as websites, mobile applications, and social media, facilitate access to educational content anytime and anywhere (Hayati, 2024). Users can download learning materials, such as e-books or modules, directly to their devices. In addition, these platforms enable direct interaction with educators through features like video calls or online discussion forums. This not only expands access to education but also transforms learning approaches into more interactive and responsive experiences tailored to individual needs.

Platforms such as e-learning systems, Learning Management Systems (LMS), and educational applications allow the learning process to take place in a flexible, interactive, and technology-based manner. Through features like online discussions, digital assignments, and virtual collaboration, students can develop character values such as responsibility, independence, discipline, and teamwork (Oktavia Ramadhani & Khoirunisa Khoirunisa, 2025). Furthermore, the integration of digital media in learning encourages critical thinking skills and digital literacy, which are essential components of 21<sup>st</sup> century character. The use of technology in education also creates opportunities for educators to present materials in more creative and interactive ways (Luthfi et al., 2024).

However, the use of digital platforms also presents challenges, such as the increased risk of exposure to negative content that may harm students' understanding. It also raises concerns about how to effectively integrate technology with educational goals, the lack of control over distractions, and the potential decline in direct social interaction. Another challenge is the risk of irresponsible or inappropriate use of technology (Marlion, 2017). Therefore, the use of digital learning platforms must be accompanied by appropriate pedagogical strategies to ensure that it not only focuses on cognitive aspects but also effectively internalizes character values.

The presence of moral education is essential not only to create morally grounded individuals but also to build students' capacity to critically respond to the flow of information. In the digital context, the ability to distinguish accurate information from misleading or false content is a crucial skill. Students who possess strong moral principles are better able to maintain their integrity and are less likely to be influenced by unreliable information. Effective character education also equips young people with analytical thinking skills, enabling them to verify the accuracy of information before sharing it with others. In an era filled with hoaxes and misinformation, this ability is vital to prevent broader negative impacts.

### C. The Positive and Negative Impacts of Technology In Education

The use of technology in education brings various significant positive impacts. Technology can enhance critical, creative, and collaborative thinking skills, as shown in various systematic review studies stating that educational technology plays a role in developing 21<sup>st</sup> century skills, including problem-solving abilities (Nofrizal & Ferki Ahmad Marlion, 2025). Generation Z demonstrates the need for adaptation and innovation in learning approaches to meet their unique needs and learning styles. They grow up with different learning preferences, including a tendency to learn independently. One example is using YouTube as an online learning medium, which offers engaging, interactive visuals that are easier to understand. In addition, flexibility, adaptability, and direct involvement in teamwork must also be considered (Tamaulina Br. Sembiring et al., 2024).

Access to information has become easier and broader, supporting distance learning through e-learning. The use of digital media also provides high flexibility, as learning materials can be accessed anytime and anywhere. Generation Z is more open to trying new things and learning from their experiences. Although they are accustomed to online interaction, they still show a need for direct collaboration and social interaction in learning

environments. Technology also makes it easier to find entertainment and relaxation (Fajri et al., 2024).

However, behind these advantages, there are also negative impacts that need attention. One of them is the digital divide, where not all students have equal access to technological facilities, which can create inequality in education (Ferki Ahmad Marlion et al., 2021). In addition, dependence on technology is also a challenge, as excessive use can reduce students' independence in learning. Digital-based learning also tends to reduce direct social interaction between students and teachers, which may affect social development. Furthermore, the improper use of technology can lead to changes in behavior and morality, especially regarding norms and ethics (Alfiyyah & Mastoah, 2025).

From a psychological perspective, the negative impacts of technology use in education are closely related to how individuals process information, manage emotions, and regulate behavior in digital environments (Tri Yulia Wijayanti & Ferki Ahmad Marlion, 2019). Excessive exposure to digital content especially from social media and online platforms can trigger anxiety and stress, often caused by information overload, academic pressure, and constant comparison with others (Rehna Ginting et al., 2025). Students may feel overwhelmed by the need to keep up with trends, respond quickly, or achieve perfection, which over time can lead to depression and self-dissatisfaction, particularly when they develop unrealistic expectations about themselves based on what they see online (Tigor, 2024).

In addition, the widespread circulation of misinformation (hoaxes) presents serious cognitive challenges. Students who lack strong critical thinking and digital literacy skills may struggle to distinguish between accurate and false information, which can shape incorrect beliefs and influence their attitudes and decision-making. This is further compounded by the ease of distraction in digital learning environments, where notifications, entertainment content, and multitasking habits reduce focus, lower learning efficiency, and weaken deep comprehension.

Moreover, the overconsumption of unproductive content such as excessive entertainment or passive scrolling can reduce motivation for meaningful learning activities. This habit is often linked to poor self regulation, where students prioritize instant gratification over long term goals. Physically, excessive screen time can disrupt sleep patterns due to prolonged exposure to blue light, especially at night, and decrease physical activity, leading to fatigue and reduced overall well being. These physical effects, in turn, also influence psychological health and academic performance.

Therefore, it is essential to balance the use of technology in education with proper supervision and responsible usage. Parents and educators need to guide students in managing screen time, selecting beneficial content, and developing self-control. Equally important is strengthening digital literacy, emotional regulation, and time management skills, so students can use technology consciously and productively. By creating a balanced approach, technology can remain a supportive tool that enhances learning without compromising students' mental health, character development, and over all well being.

#### D. Comparison of The Positive and Negative Impacts of Technology in Education

The integration of technology in education has fundamentally transformed the way teaching and learning take place in modern classrooms (Refania, Ahmad Marlion, et al., 2026). With the rapid development of digital tools and platforms, technology has become an essential component in supporting more interactive, flexible, and student-centered learning environments (Nofrizal et al., 2022). It enables students to access a vast range of information, engage in collaborative activities, and develop important 21st-century skills such as critical thinking, creativity, communication, and problem-solving. In addition, technology supports various learning styles, particularly for Generation Z learners who tend

to prefer visual, interactive, and self-directed forms of learning. As a result, the use of technology has the potential to significantly enhance the quality and effectiveness of education.

However, despite its many benefits, the use of technology in education also presents several challenges that cannot be overlooked. Issues such as digital inequality highlight the gap between students who have adequate access to technological resources and those who do not, potentially leading to disparities in learning opportunities (Malay et al., 2025). Moreover, excessive reliance on technology may reduce students’ independence and critical engagement if not properly guided. The increasing use of digital platforms can also limit face-to-face interaction, which plays an important role in developing social and emotional skills. Furthermore, exposure to misinformation, distractions from non educational content, and the negative psychological effects of prolonged screen time such as stress, anxiety, and decreased well being are additional concerns that educators and stakeholders must address.

Considering both the opportunities and challenges, it is clear that technology in education functions as a double edged sword that requires careful and balanced use. Educators, students, and policymakers must work together to maximize its benefits while minimizing its risks through proper guidance, digital literacy, and ethical use. Therefore, a comprehensive comparison of the positive and negative impacts of technology in education is necessary to provide a clearer understanding of its overall influence. The following table outlines these impacts across several important aspects.

Table1. Comparison of the positive and negative impacts of technology in education

| Aspects                     | Positive Impacts                                                                                        | Negative Impacts                                                        |
|-----------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Students’ Skills            | Enhances critical thinking, creativity, collaboration, and problem-solving skills (21st-century skills) | Overdependence on technology may reduce students’ learning independence |
| Generation Z Learning Style | Supports independent, interactive, and visual learning (e.g., through YouTube)                          | Easily distracted by unproductive or entertainment content              |
| Access to Information       | Information becomes more accessible, faster, and broader                                                | Risk of exposure to misinformation or fake news (hoaxes)                |
| Learning Flexibility        | Learning can take place anytime and anywhere (e-learning)                                               | Lack of time control may lead to excessive usage                        |
| Social Interaction          | Enables collaboration both online and offline                                                           | Reduces direct interaction between students and teachers                |
| Learning Opportunities      | Expands learning opportunities and encourages innovation                                                | Digital divide (unequal access to technology)                           |
| Psychological Impact        | Provides entertainment and relaxation                                                                   | Increases anxiety, stress, depression, and self-dissatisfaction         |
| Behavior and Ethics         | Encourages exploration and new learning experiences                                                     | Risk of negative behavioral and moral changes due to misuse             |

|                 |  |                                                                               |
|-----------------|--|-------------------------------------------------------------------------------|
| Physical Health |  | Excessive screen time can disrupt sleep patterns and reduce physical activity |
|-----------------|--|-------------------------------------------------------------------------------|

Based on the comparison presented in the table above, it can be understood that the use of technology in education brings both substantial benefits and significant challenges. The positive impacts highlight how technology can enhance learning effectiveness, promote the development of essential skills, and provide broader access to knowledge. At the same time, the negative impacts reveal important concerns such as digital inequality, overdependence, reduced social interaction, and potential psychological and behavioral issues among students.

Therefore, the key to optimizing the role of technology in education lies in maintaining a balanced and responsible approach. Technology should not replace the fundamental role of teachers and direct human interaction, but rather complement and enrich the learning process. Educators play a crucial role in guiding students to use technology wisely, while students must develop self-regulation and digital literacy skills to navigate the digital environment effectively. Technology in education should be viewed as a supportive tool that requires thoughtful implementation. By maximizing its advantages and minimizing its drawbacks through proper management, supervision, and ethical use, technology can significantly contribute to improving the quality of education and fostering well-rounded learners in the digital era.

**DISCUSSION**

The use of technology in education, including social media and digital learning platforms, not only transforms the way students learn but also significantly influences the process of character development, particularly among Generation Z. Social media functions as a new public sphere where individuals are continuously exposed to various values, norms, and behaviors. Through processes such as observation and imitation, students tend to model figures they find appealing or relevant, such as influencers or peers. In addition, social reinforcement through features like likes, comments, and shares encourages individuals to repeat certain behaviors, especially those that receive positive feedback (Marlion et al., 2025). At the same time, interactions on social media indirectly foster digital ethics literacy, including understanding privacy boundaries, respecting differing opinions, and distinguishing between accurate information and misinformation.

Meanwhile, digital learning platforms contribute significantly to improving the quality of the learning process (Kamaluddin, Marlion, et al., 2023). The flexibility they offer allows students to access materials anytime and anywhere, supporting self-paced and independent learning. Interactive features such as educational videos, online discussions, and digital assignments promote active engagement and help develop essential 21st-century skills, including critical thinking, creativity, communication, and collaboration. Furthermore, technology provides opportunities for students to express themselves through digital creations, which strengthens values such as independence, responsibility, and self-confidence.

However, despite these advantages, there are several challenges that must be addressed. One of the major issues is the digital divide, as not all students have equal access to devices and internet connectivity, leading to unequal learning opportunities. Additionally, excessive use of technology can result in dependency, where students become less independent and overly reliant on digital tools. Reduced face-to-face interaction is also a concern, as direct social interaction plays a crucial role in developing social and emotional skills (Muhammed et al., 2026).

From a psychological perspective, uncontrolled exposure to technology may lead to negative effects such as increased stress, anxiety, and disrupted sleep patterns due to excessive screen time. Students are also vulnerable to distractions from non-educational content and exposure to misleading or false information. Therefore, active involvement from educators and parents is essential in providing guidance, as well as in fostering digital literacy and ethical awareness in technology use. The use of technology in education must be balanced and well-directed. Technology should not replace the role of teachers but should serve as a supportive tool that enhances the learning process. With proper management, supervision, and the integration of strong character values, technology can become an effective means of developing learners who are not only academically competent but also emotionally and morally well developed.

Technology, particularly social media and digital platforms, has a strong influence on character because it has become part of a new social environment where individuals learn and interact (Kurnia & Silvia, 2026). From a psychological perspective, character is formed through processes such as habit formation, reinforcement, and modeling. Technology accelerates and amplifies these processes. Repeated exposure to certain content gradually shapes an individual's mindset and values, while features such as likes and comments act as reinforcement that encourages the repetition of specific behaviors. In this sense, technology is not merely a tool, but also a "socialization space" that shapes how individuals perceive the world and behave within it.

Generation Z is a digital native generation that has been exposed to technology since early childhood, resulting in distinct psychological characteristics compared to previous generations (Kamaluddin, Ferki Ahmad Marlion, et al., 2023). They tend to prefer fast, visual, interactive, and instant forms of information and learning. This makes them more easily influenced by digital content, both positively and negatively. On the one hand, they demonstrate high adaptability, creativity, and independence in learning. On the other hand, they are also more vulnerable to distractions, a strong need for social validation, and psychological pressures due to intense exposure to social media. In addition, Generation Z tends to seek and construct their identity through the digital world. Social media becomes a space where they express themselves while simultaneously shaping their self-image. Without adequate digital literacy and self-control, this process may negatively affect character development. Therefore, appropriate educational approaches for Generation Z should integrate technology with the reinforcement of values, ethics, and critical thinking skills, enabling them to use technology in a healthy and productive way.

Based on the discussion of the role of technology and the characteristics of Generation Z, several important implications emerge in the field of education. First, educators are required not only to master subject content but also to integrate technology effectively into their pedagogical practices. Teachers should act as facilitators and mentors who guide students in developing digital literacy, critical thinking, and ethical awareness in using technology. Second, the curriculum needs to be more adaptive by incorporating digital-based character education.

This includes strengthening values such as responsibility, honesty, discipline, and self-regulation in the use of social media and digital platforms. In this way, education does not focus solely on cognitive development but also on balanced character formation. Third, collaboration between schools, families, and communities is essential in supervising and guiding students' use of technology. Parents play a crucial role in providing control and modeling appropriate technology use at home, while the broader social environment also influences students' behavior. Fourth, educational policies should address the issue of equal access to technology in order to reduce the digital divide. Adequate facilities and infrastructure must be provided so that all students have equal opportunities to benefit from technology in learning. Finally, it is important to instill awareness in students that technology

is a tool that must be used responsibly. With the right approach, technology can serve not only as a means to enhance learning quality but also as an effective medium for developing a resilient, critical, and ethical generation in the digital era.

The findings regarding the use of technology in education and the character development of Generation Z are generally consistent with various previous studies. A number of studies indicate that Generation Z is a group of digital natives who grow up in a technology-based environment, making technology an integral part of both their daily lives and learning processes. Research also shows that technology supports the development of 21st-century skills, such as critical thinking, creativity, collaboration, and easy access to information. In addition, digital platforms are considered effective in creating more flexible, interactive, and personalized learning experiences that align with Generation Z's preference for visual and self-directed learning. These findings reinforce the analysis that technology can serve as an effective tool for improving learning quality while fostering positive character values among students. However, other studies provide a more critical perspective on the impact of technology use (Chang & Chang, 2023). Technology not only affects behavioral aspects but also influences students' cognitive and social development. Several studies reveal that excessive use of technology may reduce attention span, weaken focus, and limit the quality of direct social interaction. Furthermore, exposure to negative content, misinformation, and issues such as cyberbullying pose serious challenges in the use of technology. This indicates that the negative impacts of technology are more complex and extend beyond simple distractions, affecting psychological and social development.

Therefore, when synthesized, technology can be understood as a powerful factor in shaping both the character and learning patterns of Generation Z, with dual impacts both positive and negative. Technology can be a highly effective tool for optimizing students' potential when used appropriately; however, it may also create various problems if not accompanied by proper supervision and adequate digital literacy. Thus, a balanced approach is necessary in utilizing technology, emphasizing self-regulation, digital ethics, and critical thinking skills to maximize its benefits while minimizing its risks.

The use of technology in education requires concrete and comprehensive solutions that involve multiple stakeholders. From the perspective of educators, it is essential to integrate technology appropriately in alignment with learning objectives and to implement blended learning approaches that combine online and face to face instruction to maintain social interaction. In addition, teachers need to promote digital literacy and ethics among students, including the ability to evaluate information, understand communication boundaries, and use technology responsibly. From the students' perspective, it is important to develop digital time management, self-filtering skills in selecting content, and critical thinking abilities to avoid being influenced by unreliable information. Students should also balance digital activities with direct social interaction and physical activities.

The role of parents is equally important, particularly through active supervision, modeling healthy technology use, and maintaining open communication about the benefits and risks of technology. At the institutional level, schools and policymakers must ensure equal access to technology to reduce the digital divide, while also providing training for teachers to optimize the use of digital tools. The curriculum should incorporate digital based character education that emphasizes ethical values, responsibility, and online safety. Furthermore, the psychological well being of Generation Z must be addressed through programs that promote digital well being, strengthen self identity, and support stress management related to technology use. With an integrated and balanced approach, technology can be utilized effectively as a tool for both learning enhancement and positive character development.

## CONCLUSION

In conclusion, digital technology plays a significant and transformative role in strengthening character education, particularly among Generation Z learners. The integration of social media and digital learning platforms has proven to support the development of essential values such as independence, responsibility, creativity, and collaboration, while also enhancing critical thinking and digital literacy skills. From a psychological perspective, character formation is influenced by processes such as modeling, reinforcement, and habit formation, all of which are accelerated within digital environments. From a pedagogical perspective, technology enables more flexible, interactive, and student-centered learning approaches that align with the characteristics of Generation Z.

However, the benefits of technology are accompanied by notable challenges, including digital inequality, overdependence, reduced direct social interaction, and potential psychological impacts such as stress and anxiety. These issues highlight that technology is not inherently positive or negative, but rather depends on how it is used and managed. Therefore, the effective integration of technology in education requires a balanced approach that combines technological innovation with strong character education, ethical guidance, and digital literacy. Ultimately, educators, students, and policymakers must collaborate to ensure that technology serves as a supportive tool rather than a dominating force. By fostering responsible use and integrating moral and critical thinking values, digital technology can contribute significantly to the development of well-rounded individuals who are not only academically competent but also possess strong character in the digital era.

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