



REVIEW ARTICLE

Children in the Digital Age: Health, Behavioral, Learning Impacts, and Management Strategies

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Abstract: The growing reliance on digital technology among children and adolescents is becoming a noticeable global trend. While these technologies offer valuable opportunities to enhance learning and modernize educational practices, they also disrupt traditional methods and reshape how young people interact, think, and develop. Digital tools are not only embedded in everyday life—they are actively transforming social relationships, personal identities, and even our understanding of what it means to be human in a digitally connected world. As these technologies continue to influence behavior, health, and education, it is crucial to examine both their potential benefits and unintended consequences. This article explores how deeply digital technologies are impacting children's development, highlighting the complex and evolving role they play in shaping the future of society. The findings have important practical implications for parents, schools, teachers, and policymakers, emphasizing the need to promote balanced digital engagement, strengthen digital literacy, and develop evidence-informed policies that support children's healthy development and well-being.

Keywords: Children, digital technology, social disconnection, digital divide, children's behaviour

INTRODUCTION

In today's digital age, media is present in almost every part of life. It plays an important role in education, the workplace, and everyday communication with people from different age groups and social backgrounds. Children are also active participants in this digital world. They use digital devices for learning, entertainment, and staying in touch with others. However, they are often exposed to content or individuals that may not be appropriate for their age or level of understanding. This exposure can include harmful messages, disturbing images, or online strangers with bad intentions. As a result, many parents are deeply concerned about how these digital experiences might affect their children's mental and emotional development. They worry about the risks that come with constant internet access and how to protect their children in a world that is becoming more connected every day.

Digital technologies have already transformed the world. They keep evolving to handle more and more information, which helps them become a natural part of everyday life. The internet and modern technologies have revolutionized the way people connect with one another, making it easier than ever to communicate and collaborate

across vast distances (Hilbert, 2020). These advancements enable individuals to instantly share information, whether it's personal updates, professional insights, or important news. Moreover, they facilitate rapid communication through various platforms, allowing people to stay in touch in real time, regardless of geographical location. In addition, the internet provides seamless access to a wide range of services, from online banking and shopping to educational resources and healthcare. These technologies have also made it possible for people to engage with institutions—such as governments, businesses, and cultural organizations—in a more efficient and accessible way, breaking down barriers and fostering a more interconnected world (Frau-Meigs and Hibbard, 2016). Digital media helps people connect with others in different social spaces. Children and young people share their thoughts and opinions through blogs, videos, social media, cartoons, hashtags, podcasts, and more. They see digital tools as a way to get information and find solutions to problems in their communities. Young people aged 15 to 25 are the most active online, with about 80% of them using the internet, compared to 48% of the overall population (Livingstone et al., 2005). The increasing use of digital technology among children has transformed the way they learn, communicate, and engage with the world. Digital devices and online platforms provide significant benefits by enhancing access to educational resources, supporting interactive learning, fostering creativity, and facilitating communication with peers, teachers, and family members. However, the growing dependence on digital technology has also raised concerns about its potential adverse effects. Excessive or inappropriate digital media use has been associated with negative health outcomes, including reduced physical activity, sleep disturbances, eye strain, and

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mental health challenges. It may also contribute to behavioral problems such as increased impulsivity, emotional dysregulation, and problematic screen use, while reducing opportunities for face-to-face social interaction and potentially affecting the development of interpersonal skills. Furthermore, prolonged screen exposure and digital distractions may influence children's attention, academic performance, and overall learning outcomes. Although existing studies have examined individual aspects of digital technology use, most have focused on specific outcomes such as health, behavior, or academic performance in isolation, with limited integration of these interconnected domains and insufficient emphasis on comprehensive management strategies. This literature gap highlights the need for a holistic synthesis of current evidence. Therefore, the objective of this review is to comprehensively examine the positive and negative effects of digital technology on children's health, behavior, and learning, while identifying evidence-based management strategies that promote healthy, balanced, and developmentally appropriate digital technology use.

Objective of The Review

The primary objective of this review is to critically examine and synthesize the existing important and only related evidence from the past 18 years (2003–2025) on the impact of digital technology on children, the review aims to: identify the types of factors commonly touches children's life. Evaluate the effectiveness of these factors in reducing social disconnection, digital divide, children's behaviour, etc. Assess controversies surrounding measures to overcome and explore certain issues related with the survival of children in this digital age, along with their parents' satisfactions.

By achieving these objectives, the review seeks to support healthcare professionals, parents, children behavior, etc. in adopting holistic, parent-centered approaches to management that enhance maternal comfort and satisfaction while minimizing unnecessary digital interventions.

METHODS

This review adopted an integrative literature review design to explore and synthesize evidence on the use of digital technology during health, behavior and learning impacts, allowing for the inclusion of qualitative studies. The review focused on important literature, published mostly between January 2003 and August 2025.

An organized literature search was conducted using five major databases: PubMed, Scopus, ScienceDirect, Semantic Scholar, and Google Scholar (for supplementary sources). A combination of keywords was used to ensure a comprehensive search. Search terms included: "children," "parent's involvement," "children's behavior," "emotional distress," "physical and mental health," "digital divide," "social disconnection," "parent's role," "digitalization affects," "social isolation," and "educational impact." In addition, the reference lists of all included studies were hand-searched to identify any additional relevant articles.

Following the search, duplicate records were removed. Two independent reviewers screened the titles and abstracts of the remaining articles to assess their relevance based on the inclusion and exclusion criteria. Full-text

versions of potentially eligible articles were retrieved and reviewed for final inclusion. Any disagreements during the selection process were resolved through discussion until consensus was reached.

Data from the selected studies were extracted using a standardized form that captured details such as author (s), year of publication, outcome measures, and key findings. The findings of this review indicate that a variety of factors or issues have been shown to positively influence the behavior, health and education of the children during the use of digital technology.

DISCUSSION AND REVIEW OF LITERATURE

The Digital Divide and Parent's Role

The term "digital divide" refers to the disparity in access to modern digital technologies and the internet between different segments of the population. Originally coined to highlight unequal access to technology, the term has evolved to encompass not only access itself but also differences in the ability to effectively use digital tools (Van Dijk and Hacker, 2003). One of the most affected groups is the elderly, who often face significant barriers when it comes to technology. Compared to younger generations, older adults tend to have less access to digital devices and the internet, and even when they do have access, they frequently lack the digital literacy skills required to navigate modern technologies efficiently. As a result, their use of digital tools is often limited or hesitant. This ongoing issue has drawn increasing attention in recent years, especially as technology becomes more deeply integrated into everyday life - from healthcare and banking to communication and entertainment.

On the other end of the age spectrum, parental involvement plays a vital role in shaping how children engage with digital education. Research consistently shows that children benefit more from digital learning when their parents are actively involved. This involvement can take many forms-from helping children set schedules, monitoring their online activities, to discussing what they learn. Parents who are engaged can help ensure that children maintain a healthy balance between screen time and offline activities, promoting both academic success and overall well-being (Gonzalez-DeHass et al., 2022). Moreover, by guiding their children in the responsible use of technology, parents can reduce risks such as digital addiction, exposure to inappropriate content, and decreased attention spans. Thus, parental support is a key factor in maximizing the positive impacts of digital learning while minimizing potential drawbacks.

When parents are actively involved in their child's learning, they can help limit screen time, track progress, and offer support when needed. This helps children stay focused and uses digital tools appropriately. Without enough supervision, kids may get distracted, spend too much time on devices, or not learn as effectively. That's why parental guidance is so important for making the most of digital education and supporting a child's growth. Even though digital technologies have been studied for many years, one key factor that influences their success is how prepared teachers and students are to use them (Olofsson et al., 2011). To support school development in the municipality, the approach mentioned above may be more effective than focusing only on individual digital skills. This study explored how children use the Internet and how it affects their daily lives, aiming to understand whether Internet use influences their daily activities and impacts their social and

psychological well-being. The findings showed that children's Internet use was influenced by factors such as the number of Internet-capable computers at home, access to mobile phones, whether the child owned a computer with Internet access, and their level of Internet experience (Katz et al., 2019). Children who spent more time online also tended to engage more with other media like television, radio, video games, and books. However, higher Internet use was linked to a decrease in face-to-face interaction with siblings. Most children used the Internet to communicate with friends, often maintaining offline friendships through online platforms.

During childhood, parents play a crucial role in guiding their children's use of digital media. They provide essential cognitive and emotional support, both in early years and as children grow older. Many parents recognize the serious challenges posed by digital media, particularly the harmful content and behaviors it can promote. As children age and begin attending school, parents find it increasingly difficult to monitor and influence their media choices. In this context, the school environment also plays a significant role in shaping children's digital habits. Moreover, the use of digital devices can deepen social divides and inequalities among children, making it harder to evaluate and understand their experiences of childhood (Grusec and Hastings, 2014). The basic elements of media socialization are the parents, along with the extent to which media messages challenge group norms and rules in the relationship between an individual and society (Peicheva et al., 2018).

The family plays a key role in socializing children through media. Parents teach their children about the world, including how to use media. They introduce kids to different sources of information and provide access to devices like computers, tablets, phones, and the Internet. Parents also set rules on what TV programs or websites their children can use, and how much time they spend on these activities (Greenfield and Yan, 2006; Upadhyay, 2026). This way, children can be shielded from the negative impacts of aggression, high anxiety, uncertainty, and emotional distress linked to these issues. Parents play a crucial role, offering a safe space for children to talk about characters, events, shows, or movies they encounter in the media, as well as any topics that may need further explanation, information, or support (Upadhyay, 2025). The impact of technology, particularly on children and adolescents, has significantly influenced the field of education. It can be argued that students often fail to engage as expected in class due to gaming addiction. They struggle to focus because of physical and mental fatigue, and instead of prioritizing their lessons or homework, they are more inclined to immediately turn to their computers and immerse themselves in online games. Students affected by these circumstances often prioritize fulfilling their daily needs online rather than focusing on their lessons and responsibilities.

The advancement of the internet and technology is seen as a key factor contributing to the digital divide (James, 2007). However, this divide is not solely determined by internet access; it is also influenced by a family's economic resources and the surrounding social environment. The digital divide mirrors existing economic inequalities, benefiting children from wealthier families while leaving those from poorer, disadvantaged backgrounds with fewer opportunities. As a result, the digital divide extends beyond mere access to computers and the internet. Key factors contributing to this divide include digital skills, access to resources, literacy, training, and lifestyle (Peicheva and Milenkova, 2017).

Children's experiences in the digital age are influenced not only by access to digital technologies but also by the quality of internet connectivity, digital literacy, family support, and their ability to critically evaluate online information. Stable and high-quality internet access enables equitable participation in online learning, communication, and educational activities, whereas poor connectivity may widen existing educational and social inequalities. Digital literacy extends beyond technical competence to include information evaluation skills, enabling children to distinguish credible information from misinformation, critically assess digital content, and make informed decisions in online environments. Family support further strengthens these competencies by providing opportunities for shared learning, guidance, and positive digital engagement. When used appropriately, digital technologies can enhance children's cognitive, linguistic, social, and emotional development while promoting creativity, problem-solving, collaboration, and access to diverse educational resources (Soyoof et al., 2024).

However, these benefits are optimized through effective parental mediation, which refers to parents' intentional strategies for managing and supporting children's technology use. Parental mediation includes establishing appropriate screen time limits, actively guiding children's online activities, discussing digital content to promote critical thinking, monitoring online safety and privacy, and modeling healthy and balanced technology use. Evidence suggests that active mediation and collaborative engagement are associated with stronger digital literacy, greater digital resilience, and more responsible online behavior than restrictive strategies alone. Consequently, parental mediation should be viewed as a developmental approach that empowers children to use digital technologies safely, critically, and productively while minimizing potential risks associated with excessive or inappropriate media use (Valkenburg et al., 2013; Soyoof et al., 2024).

Educational Effects

Digitalization has greatly transformed children education by providing access to a wide range of online learning tools, educational apps, and resources that enhance the learning experience. It enables personalized learning, allowing students to learn at their own pace and explore subjects of interest more deeply. However, excessive reliance on digital devices can also lead to challenges, such as decreased face-to-face interaction, reduced physical activity, and increased screen time, which may affect children's social skills and overall well-being. While digital tools offer numerous educational benefits, it is important to strike a balance to ensure healthy, well-rounded development.

As technology advances, it brings changes to many areas of our lives, including how we think and behave each day. Children, adolescents, and even adults are increasingly connected to digital devices, which can lead to overdependence and reduce their ability to act independently. This widespread use of technology affects social life and has both positive and negative effects on education (Kurniawan et al., 2021; Kucuk, 2023). Digital learning can improve outcomes by offering personalized and flexible learning that fits each student's needs, allowing them to learn at their own pace and encouraging problem-solving and creativity. However, these benefits depend on factors like managing screen time, avoiding cognitive overload, and having support from parents. Without proper balance, digital learning may harm

academic performance and overall development (Berei and Pusztai, 2022).

Children are not passive viewers—they are active users. They don't just watch; they engage. They ask questions, discuss, argue, play, shop, critique, explore, joke, imagine, search for information, and share it. This active participation is also reflected in the digital transformation of education (Haugsbakk, 2020). Over recent decades, digitalization has featured prominently in policy discourse, with widespread expectations that digital technologies will simultaneously disrupt and enhance educational practices and outcomes. (Shanks, 2020). Digital platforms facilitate communication between the home and the school (Gu, 2017), tablets support students in producing and submitting schoolwork (Bergström, 2019), and digital whiteboards, animations, and so on are incorporated in classrooms to illustrate knowledge and information in new, innovative ways (Hapsari et al., 2019). Many people today tend to accept and believe the information they encounter on the Internet without questioning it. This is especially true for children and adults who are heavily influenced by the perceptions and images created on social media platforms. These users often carry these perceptions into their real lives, where they can significantly affect their behavior. As a result, their sense of responsibility may be compromised, and their moral values may be undermined. One area where this impact is particularly noticeable is in educational environments. Social media's influence can subtly affect students and educators alike, shaping their attitudes, behaviors, and even their approach to learning, often leading to a disruption of the traditional educational dynamics. (Uzunboyly et al., 2017).

Social media can have a complex impact on children's education, offering both opportunities and challenges. On one hand, it provides access to a wealth of educational resources, online tutorials, and collaborative platforms that can enhance learning and encourage creativity. Children can connect with peers and educators around the world, participate in virtual study groups, and gain exposure to new ideas and knowledge. However, the negative side of social media is equally significant. It can lead to distractions that interfere with study time, making it harder for children to focus on their academic responsibilities. Information literacy and critical thinking have become essential competencies for children navigating digital environments, enabling them to evaluate the credibility of online information and make informed decisions despite the abundance of digital content. Moreover, cognitive overload resulting from constant multitasking and digital distractions can impair attention, learning, and memory, underscoring the importance of fostering mindful technology use and digital self-regulation among children (Kirschner & De Bruyckere, 2017).

The constant flow of notifications, games, and entertainment often competes for their attention, reducing their ability to concentrate during schoolwork. Additionally, social media can expose children to misinformation or inappropriate content that may hinder their understanding of certain topics. As a result, while social media has the potential to enrich education, it must be managed carefully to prevent its negative influence on children's academic performance and overall development. Social media addiction is recognized as an official medical condition (Korkmaz, 2020). Research has consistently shown that digital addiction leads to a range of negative behavioral changes in individuals, impacting their physical, mental, and social well-being. This is particularly noticeable in users who have been exposed to digital games from an early age, spanning from primary school to university. The excessive

time devoted to gaming often results in significant academic challenges. These individuals struggle to perform well in their studies, as their focus is diverted by their addiction to screens. As a consequence, they may experience difficulties in completing homework assignments, staying engaged in class activities, and maintaining interest in their education. The prolonged hours spent in front of screens not only disrupt their ability to concentrate but also diminish their overall enthusiasm for academic responsibilities. This creates a vicious cycle, where their academic performance deteriorates further, leading to increased frustration and disengagement from their educational journey (Kelleci, 2008).

Social Isolation and Disconnection

Digitalization has contributed to an increase in children's social isolation and disconnection, as excessive screen time often replaces face-to-face interactions with peers. While digital platforms allow virtual communication, they can lack the depth and emotional connection that in-person relationships provide. As children spend more time on devices, they may miss out on developing important social skills, such as empathy and conflict resolution, which are best learned through direct, real-world interactions. This shift can lead to feelings of loneliness and disconnection, impacting their overall emotional well-being and ability to form meaningful relationships.

Social isolation, social distancing, social disconnectedness, and loneliness have been found to contribute to depression and anxiety. However, cognitive skills and social support networks can help older adults maintain meaningful connections and a sense of belonging during periods of isolation. In modern society, digitization is a prominent reality, affecting all aspects of relationships, processes, and institutional networks. Even family dynamics and child development are increasingly influenced by digital tools and platforms (Rosengren, 2014). This study highlights both the benefits and challenges of digitization in society. One significant concern is the impact on child development, particularly regarding the upbringing and emotional support children need to grow into balanced and confident individuals. In light of this, parents should carefully reconsider their children's access to digital devices, as these tools are increasingly influencing the socialization process. One of the key findings about children's use of digital tools is the need to protect them from various online dangers. It's important for parents to have ongoing, open conversations with their children to build trust and provide clear guidance (Livingstone, 2013).

In today's digital age, children and adults alike spend much of their time in front of screens, often without realizing that digital games can manipulate their emotions and create false feelings of joy and achievement. Parents should monitor their children's screen time to prevent any negative effects of excessive technology use. People who are more sensitive to stress or prone to depression and anxiety should be encouraged to distance themselves from constant news exposure, as it can often be overwhelming (Upadhyay, 2025). However, it's important to note that digital education is not entirely without its drawbacks. Extended screen time, a common result of using digital platforms, has raised concerns among parents and educators. Research shows that too much screen time can impact children's attention, decrease physical activity, and even affect cognitive development (Monteiro et al., 2022). Additionally, if digital learning is not properly managed, it can lead to cognitive overload, where children become overwhelmed by

information, making it harder for them to focus and retain what they learn.

A clearer conceptual distinction between social isolation, loneliness, social disconnectedness, and reduced face-to-face interaction is warranted, as these constructs represent different dimensions of children's social experiences and should not be used interchangeably. Social isolation refers to the objective absence or limited frequency of social contacts and participation in social networks, whereas loneliness is the subjective and distressing feeling that one's social relationships are insufficient in quantity or quality (Hawkey and Cacioppo, 2010). Social disconnectedness is a broader construct encompassing limited social integration, weak social ties, and a diminished sense of belonging, while reduced face-to-face interaction merely reflects a decline in in-person communication and does not necessarily imply social isolation or loneliness. Maintaining conceptual clarity is essential for accurately interpreting the evidence regarding the psychosocial consequences of digital technology use among children. Moreover, the relationship between digital technology and children's social connectedness should be presented in a balanced and nuanced manner.

Current evidence suggests that digital technology is neither inherently harmful nor universally beneficial; rather, its effects depend on how, why, and under what circumstances it is used. Excessive or maladaptive use may displace in-person interactions, increase problematic media use, and contribute to social disconnection in some children. Conversely, digital platforms can facilitate communication, strengthen existing friendships, foster peer support, and help children maintain meaningful social relationships, particularly when geographical distance, illness, or other barriers limit face-to-face contact (Odgers and Jensen, 2020). Consequently, the association between digital technology use and social connectedness should be interpreted as context-dependent, influenced by multiple interacting factors, including the child's developmental stage, duration and intensity of screen use, type and purpose of digital activity (e.g., active social engagement versus passive consumption), quality of online interactions, individual psychosocial characteristics, and the extent of parental guidance and mediation.

Physical and Mental Health

Social isolation and disconnection represent a well-documented, bidirectional, and complex relationship with mental health issues. This social disconnectedness poses a significant public health concern among older adults, particularly due to psychosocial factors and associated physiological health problems. These include mental health disorders, cardiovascular diseases, autoimmune conditions, neurocognitive impairments, neurobiological issues, and other high-risk health conditions. Moreover, the ongoing process of digitalization is increasingly influencing today's society, further shaping the dynamics of social interaction and connectedness (McAfee and Brynjolfsson, 2017). The impact of digitalization is increasingly apparent within the education sector (Haugsbakk, 2020; Shanks, 2020). Over the past few decades, digitalization has been a prominent item on the political agenda, with high expectations that digital technologies will both disrupt and enhance learning and education (Haugsbakk, 2020; Shanks, 2020).

At its most basic level, digitalization has been used to streamline daily tasks and routines in schools. Providing computers and tablets gives students improved access to knowledge and information, while also supporting the daily administrative work of both teachers and students. (Haßler

et al., 2016). Digital platforms play a crucial role in enhancing communication between home and school, making it easier for parents, teachers, and students to stay connected and share important information (Gu, 2017). These platforms enable seamless interactions, allowing for timely updates on academic progress, school events, and other essential notices. At the same time, tablets serve as valuable tools for students, offering them a convenient way to create, complete, and submit assignments. By providing access to a variety of educational resources, tablets support students in their learning process, fostering greater engagement and organization in their academic work (Bergström, 2019), and digital whiteboards, animations, and so on are incorporated in classrooms to illustrate knowledge and information in new, innovative ways (Hapsari et al., 2019).

Numerous studies have consistently highlighted a significant correlation between the recent surge in the amount of time children spend playing video games and a noticeable decline in outdoor play and physical activity. As children increasingly engage in screen time, there appears to be a corresponding decrease in their participation in outdoor activities that are important for physical development. This shift has also been linked to a range of negative outcomes, including lower psychosocial wellbeing, as children may experience reduced social interaction and emotional development. Additionally, the excessive screen time is associated with a decrease in attention span, potentially affecting children's ability to focus and engage in tasks that require sustained concentration (Setliff and Courage, 2011).

Excessive use of technology can lead to decreased productivity in children, as much of their time is spent on activities that do not contribute to their personal growth or development. This often results in children becoming addicted to technology, whether through gaming, social media, or other online activities. These addictions can have serious consequences on their physical health, as they may lead to sedentary lifestyles, poor posture, and sleep disturbances. Moreover, excessive gaming or internet use can consume so much of a child's time that it leaves little room for engaging in meaningful or educational activities that support their intellectual and emotional development. In addition to these physical effects, technology addiction can also hinder a child's ability to form and maintain healthy interpersonal relationships. The overuse of social media, for example, can impair a child's social skills, leading to difficulties in connecting with peers and understanding real-world social cues (McNaughton et al., 2018).

Research has shown that exposure to such harmful content can lead to a significant reduction in mood, particularly among individuals who may have developed an addiction to pornography. Children, as young Internet users, are particularly vulnerable to the dangers of misinformation because they are still in a critical stage of cognitive and emotional development, which affects their ability to reason and make sound judgments. However, Children's literature helps children navigate emotional and social difficulties while modeling appropriate behaviors and providing health-related information (Upadhyay 2025).

The physical health domain encompasses outcomes associated with prolonged and excessive screen exposure, including increased sedentary behavior, reduced physical activity, sleep disturbances, digital eye strain, musculoskeletal discomfort and poor posture, as well as an increased risk of overweight and obesity (Stiglic and Viner, 2019). These physical consequences are closely interconnected, as excessive recreational screen time may displace active play, contribute to unhealthy lifestyle

patterns, and negatively influence children's growth, physical fitness, and long-term health trajectories (Tremblay et al., 2016). The mental health domain includes psychological and emotional outcomes such as anxiety, depression, mood disturbances, and difficulties in emotion regulation, problematic internet use, and broader aspects of psychological well-being (Keles et al., 2020). Although digital technologies can support learning, communication, and social connectedness, excessive, unsupervised, or maladaptive use may increase children's vulnerability to emotional distress, problematic behaviors, and poorer psychological outcomes (Nesi, 2020). Presenting the evidence within these two domains provides a clearer conceptual framework for synthesizing the existing literature, facilitates comparison across studies, and highlights the complex and multidimensional relationship between digital technology use and children's health and development.

Management Strategies for Children's Digital Use

Managing children's engagement with digital technology requires a coordinated approach involving families, schools, healthcare professionals, technology companies, and policymakers. Rather than focusing solely on restricting screen use, current evidence supports promoting healthy, balanced, and developmentally appropriate digital engagement that maximizes educational and social benefits while minimizing physical, psychological, and developmental risks (Livingstone and Blum-Ross, 2020). For parents and caregivers, establishing consistent and age-appropriate screen time rules is one of the most effective strategies for promoting healthy digital habits. Instead of focusing exclusively on the total duration of screen exposure, parents should emphasize the quality, purpose, and context of digital media use (Stiglic and Viner, 2019).

Consistent household rules regarding device use during meals, homework, and family interactions help foster self-regulation and reduce excessive dependence on digital media. Equally important is co-viewing and co-engagement, where parents actively participate in children's digital experiences by watching educational content together, discussing online information, playing interactive games, or exploring educational applications. Co-viewing enhances learning outcomes, strengthens parent-child relationships, and provides opportunities to teach critical thinking, media literacy, and responsible online behavior. Maintaining open communication about digital experiences is another essential strategy. Parents should create a supportive environment in which children feel comfortable discussing cyber bullying, inappropriate content, online grooming, misinformation, privacy concerns, and social media pressures without fear of punishment (Madigan et al. 2019).

Regular conversations encourage children to develop sound digital judgment and seek guidance when encountering online risks. Furthermore, implementing bedtime device rules is crucial because evening exposure to screen light and stimulating online activities can delay melatonin secretion, disrupt circadian rhythms, and impair sleep quality, which subsequently affects cognitive performance, emotional regulation, and physical health. Experts recommend establishing device-free bedrooms, discontinuing screen use at least one hour before bedtime, and encouraging calming pre-sleep routines such as reading or relaxation activities. Finally, parents should actively promote offline activities, including outdoor play, sports, creative hobbies, music, reading, social interactions, and family-based recreational activities. These experiences

support physical health, emotional resilience, social competence, creativity, and cognitive development while preventing excessive reliance on digital entertainment (Hale and Guan 2015).

Schools also play a central role in helping children develop healthy relationships with technology. Comprehensive digital literacy education should extend beyond basic computer skills to include critical evaluation of online information, responsible social media use, ethical digital behavior, cyber security awareness, privacy protection, recognition of misinformation, artificial intelligence literacy, and responsible digital citizenship. As children increasingly rely on digital resources for learning, these competencies become essential life skills. Effective implementation requires continuous teacher training, enabling educators to integrate technology confidently into teaching while recognizing signs of problematic digital use, cyber bullying, excessive gaming, and technology-related mental health concerns. Professional development programs should equip teachers with evidence-based instructional methods, classroom digital management strategies, and knowledge of emerging educational technologies.

Schools should also establish comprehensive digital safety policies that address cyber bullying prevention, online harassment, safe internet practices, data privacy, appropriate technology use, and mechanisms for reporting digital misconduct. Collaboration among teachers, parents, school counselors, and students is essential for creating a safe digital learning environment. Importantly, educational technology should be employed only when there is clear pedagogical purpose (Tamim et al., 2011). Technology integration should enhance learning through interactive simulations, collaborative learning platforms, adaptive educational software, virtual laboratories, and personalized instruction rather than replacing effective teaching practices or increasing passive screen exposure. Educational technology should support active learning, creativity, problem-solving, communication, and higher-order thinking skills while avoiding unnecessary or excessive digital use.

At the policy level, governments and regulatory agencies have a critical responsibility to create digital environments that prioritize children's rights, safety, and well-being. Robust child data protection legislation should limit the collection, storage, sharing, and commercial exploitation of children's personal information by digital platforms. Privacy-by-design principles, transparent consent mechanisms, restrictions on targeted advertising, and stronger parental controls can help safeguard children's digital privacy. In parallel, improving platform safety requires technology companies to implement age-appropriate design features, effective age verification systems, stronger content moderation, parental supervision tools, default privacy settings, and rapid mechanisms for identifying and removing harmful or exploitative material.

Policymakers must also ensure equitable digital access, recognizing that the digital divide remains a major determinant of educational inequality. Investments in affordable internet connectivity, digital infrastructure, assistive technologies for children with disabilities, and access to high-quality educational devices are essential to ensure that all children can benefit from digital learning opportunities regardless of socioeconomic or geographic circumstances. Simultaneously, governments should strengthen the regulation of harmful online content, including violent material, sexual exploitation, self-harm promotion, gambling, hate speech, misinformation, predatory advertising, and addictive platform design

practices (Poblet et al., 2017). Effective regulation requires collaboration among governments, educators, healthcare professionals, researchers, child advocacy organizations, technology companies, and international regulatory bodies to balance child protection with children's rights to information, education, participation, and digital inclusion. Continuous surveillance, evidence-based policymaking, and periodic revision of regulations are necessary to keep pace with rapidly evolving digital technologies.

CONCLUSION AND IMPLICATIONS

This review highlights the multifaceted impact of digital technology on children's lives, emphasizing that its effects depend on the context, purpose, and conditions of use. Digital technologies can provide valuable opportunities for learning, creativity, communication, and social connection when integrated purposefully and supported by appropriate guidance. However, excessive use, inadequate digital literacy, limited adult supervision, unequal access, and exposure to unreliable information may negatively influence children's well-being and development. Future research should further examine the developmental and temporal dimensions of children's digital experiences, including how patterns of use influence cognitive, social, and emotional outcomes. Greater attention is also needed to understanding children's interactions with emerging technologies, particularly artificial intelligence, and to developing educational approaches that promote critical thinking, ethical awareness, and responsible digital citizenship. Overall, digital technology should be viewed as a tool whose benefits and risks are shaped by how it is accessed, understood, and managed. A balanced, evidence-informed approach involving children, parents, educators, and policymakers is essential to maximize the potential of digital environments while addressing the challenges associated with children's growing engagement in the digital age.

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The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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This study was conducted following the ethical guidelines, and in this study, there are no applicable participants.

Consent for publication

The author confirms that this manuscript is original and has not been published elsewhere nor it is currently under consideration for publication elsewhere.

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