Review

Unraveling the Impact of Modern Technologies on Young Minds: A Comprehensive Study

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Academic Editor: María Jose Hernández Serrano

Special Issue: Implications of Technologies on the Brain Development in Younger Students

Abstract

The implementation of modern technologies has transformed connectivity, information-sharing, and education, significantly influencing students' academic journeys. New technologies offer advantages and disadvantages, particularly impacting young students and leading to changes in habits and behaviors. While technology can improve learning efficiency through personalized approaches, excessive screen time can negatively affect communication and academic performance. Studies recommend limited screen time for children to mitigate adverse effects. Research highlights the benefits and risks of digital technology usage, emphasizing the influence on brain development and cognitive functions in younger users. Despite the positive aspects of technology, parental control is essential to safeguard children's well-being and academic performance. Integrating technology in education requires careful consideration to balance its benefits and potential risks, emphasizing the need for monitoring and regulation to optimize its impact on young minds and students.

Keywords

Modern technologies; new media; education; young mind

1. Introduction

Technological implementation has accelerated in the last decade, transforming how people connect, share information, and comprehend the world. Smartphones, social media, personalized learning platforms, artificial intelligence (AI), and massive online open courses (MOOCs) have revolutionized the educational environment. They are now powerful forces shaping students' academic journeys and outcomes. Considering device features such as simplicity, intuitive design, portability, connectivity, and speed, it is no wonder these devices have already become popular in this specific age group, in school settings, and in informal learning environments [1].

Undoubtedly, technology plays a crucial role in our lives. Emerging technologies in various fields have changed our lifestyles and had a significant impact on our daily activities. The influence of technology in our lives is wide-ranging, and we face both advantages and disadvantages in the use of technological tools. Education, especially for young students or young minds, is an important area in which to survey the impact of technology. Educational technologies and new media have changed the methods of education and learning, as well as our perspectives on the future and the implementation of the modern era. In this regard, traditional classroom instructions fail to provide an immediate learning environment, faster evaluations, and more engagement. In contrast, digital learning tools and technology fill this void. Some of the efficiencies such technologies provide are simply unrivaled by traditional learning methodologies [2].

Today, younger students are increasingly engaged in using new technological tools in their lives and education, especially during and after the COVID-19 pandemic. At the height of the pandemic, with online learning options, reduced social interaction, and limited outdoor activity, most children's lives revolved around media and technology [3].

The growth in the use of new technological tools, as well as new media and internet-based platforms, has changed their habits and behaviors. A reduction in social communication, verbal communication, the use of body language, and face-to-face negotiation and communication are some of the adverse effects of new technological tools on young minds. Research shows that more active users of communication technologies who create and post their content have lower nonverbal decoding accuracy. Moreover, technology may adversely affect their ability to read and respond to others in face-to-face communication [4].

However, it is not fair to ignore the advantages of these technologies. Research shows that reducing the use of new technological tools and media is healthier for children. The World Health Organization (WHO) recommends that children under 5 should not spend more than one hour daily on screen-based activities, while children younger than 1 should not be exposed to this type of activity at all [5]. In other words, spending too much time on screen-based activities is unhealthy for children and may damage their visual and cognitive systems. George et al. [6] emphasized that excessive screen time has become an epidemic among young people, profoundly impacting health, relationships, productivity, and development. Moreover, the increasing use of modern technologies like social media and internet-based media is a factor in the appearance of digital addiction. Digital addiction is the main problem of using new technologies, which has an unpredictable effect on young minds. "Digital addiction is now assumed to be a serious threat to the development and education of new generations because students of all ages are now in danger of being overexposed

to these technologies as they are born into a world where they interact, play, communicate, and learn utilizing these technologies" [7].

One of the significant advantages proposed by technology proponents is that it enhances learning efficiency and effectiveness. For example, personalized learning technologies can customize educational materials to fit the specific needs and abilities of each learner, creating an engaging and customized learning experience. Active learning enhances academic achievement, conceptual understanding, critical thinking, motivation, and inclusiveness compared to traditional passive lecture formats [8].

In this regard, "several studies and reports have highlighted the potential opportunities and benefits of information and communication technologies to improve the quality of education" [9]. It is important to note that "children of the current generation are exposed to increasingly varied technologies, such as computers, tablets, smartphones, and other Internet-based devices from birth, and begin using them shortly after" [10]. In this regard, parents need to utilize methods and strategies to protect their children. If using technological tools in our daily lives and children's education is inevitable today, we should define acceptable and logical methods to reduce and control the adverse effects.

AI can play a crucial role in this matter because it can be integrated into educational approaches to enhance learning experiences. Therefore, AI has the potential to revolutionize education, but careful consideration must be given to ethical implications and equitable access [11].

Furthermore, technology enables easy access to vast educational information, providing students with the necessary tools for academic success. Additionally, modern technology promotes education beyond traditional settings [12]. The benefits of utilizing technology outside the classroom include fostering creativity, enhancing abstract thinking, developing technological proficiency, and improving collaborative and communication skills. In this context, the integration of ChatGPT in education demonstrates its potential to enrich educational experiences through interactive conversations and innovative teaching approaches despite concerns about potential limitations and ethical implications [13]. However, despite these advantages, research has shown that excessive time spent on technological devices is associated with lower self-reported academic performance, mainly due to sleep deprivation [14]. Furthermore, some studies have highlighted the negative impact of new communication technologies on students' educational capabilities. For instance, Ravizza et al. [15] found that higher rates of internet use were linked to lower test grades, and students' perceptions of this relationship did not align with their ability to multitask effectively.

The purpose of this research is to investigate the effects of modern technologies on the minds of younger students through a comprehensive study and secondary analysis technique. There have been numerous studies on the impact of modern technology on education and the minds of younger students. Therefore, 20 papers were selected in this field and evaluated using the theory of cumulative effects.

2. Theoretical Framework

The theoretical foundation for understanding the impact of modern technologies on young minds is best anchored in Bandura's Social Cognitive Theory (SCT), initially conceptualized in 1986 and extensively revised over subsequent decades. SCT posits that human behavior is influenced by the reciprocal interaction of personal factors, environmental influences, and behavior itself,

encapsulated in the concept of triadic reciprocal causation [16]. The theory has evolved significantly, especially in its application to technology and media, as researchers have sought to adapt it to the digital age [17]. At its core, SCT emphasizes the role of observational learning, self-efficacy, and environmental reinforcement, all of which are profoundly affected by the pervasive presence of modern technologies, particularly in the lives of young individuals.

Recent studies have extended Bandura's SCT to digital media, demonstrating its relevance in explaining how young minds engage with technology. For instance, Mader et al. [18] applied SCT to explore how social media influences adolescents' self-perception and emotional well-being. They highlighted that repeated exposure to curated content on Instagram fosters observational learning, shaping users' beliefs about societal norms and expectations. Similarly, Anderson and Jiang [19] found that the algorithmic personalization of content amplifies environmental reinforcement, creating feedback loops that significantly influence adolescents' behavior and mental health. However, some scholars, such as Przybylski et al. [20], have critiqued SCT's applicability to modern technologies, arguing that the theory underestimates the role of algorithmic bias and the unprecedented scale of digital interactions, which often operate beyond conscious observation.

Defenders of SCT's relevance, such as Livingstone and Helsper [21], argue that the theory remains robust because it emphasizes the adaptability of human cognition in response to environmental stimuli, including technological advancements. They assert that SCT's focus on self-regulation and self-efficacy is particularly pertinent in the digital era, where young individuals must navigate complex digital landscapes requiring critical thinking and self-control. Conversely, opposing perspectives, like those of Twenge et al. [22], suggest that SCT fails to account for the passive consumption patterns promoted by binge-watching and infinite scrolling, diminishing the active engagement necessary for observational learning to occur effectively.

The importance of SCT in this study lies in its ability to provide a nuanced framework for analyzing the multifaceted interactions between young individuals and modern technologies. By focusing on the interplay between individual agency and environmental factors, SCT facilitates an understanding of how technologies empower and constrain young minds. For example, the theory helps elucidate how exposure to educational apps can enhance self-efficacy in learning, while excessive use of social media may contribute to anxiety and distorted self-perceptions. These insights are critical for developing interventions to foster healthy technology use among young individuals.

Despite its strengths, SCT has notable gaps when applied to the context of modern technologies. The theory's original formulation does not adequately address the role of artificial intelligence, algorithmic design, or the addictive features of digital platforms central to today's technological landscape. The SCT's traditional focus on observational learning overlooks the unconscious behavioral conditioning fostered by features such as notifications and gamification. Moreover, the theory struggles to incorporate the global interconnectedness of digital environments, which transcends the localized environmental influences emphasized in Bandura's early work [23].

In conclusion, while Bandura's Social Cognitive Theory offers a valuable lens for understanding the impact of modern technologies on young minds, it requires refinement to address the unique challenges posed by the digital age. Integrating insights from contemporary research on digital media and cognitive psychology can enhance the theory's applicability, ensuring it remains a robust framework for examining the complex interplay between technology and youth development.

2.1 Ethical Concerns

Ethical approval and consent to participate were not required because this study was designed as a systematic review and analysis of already published manuscripts.

3. Methodology

This research utilized a systematic review and secondary analysis methodology to explore the effects of modern technologies on young minds. Conducting a primary study involving every individual affected by modern technologies is challenging logistically and ethically. To overcome this limitation and achieve the research goals, the methodology relied on selecting representative samples from existing research, as outlined by Ali Khan et al. [24]. They stress that systematic reviews allow researchers to synthesize findings from various studies to develop a comprehensive understanding of a phenomenon. This aligns with the descriptive research framework, which aims to present a clear and detailed picture of the topic under study by using existing data to identify patterns, trends, and gaps.

Secondary analysis was the primary method used for data collection and interpretation in this study. This method involves utilizing data already collected and analyzed by other researchers, making it a valuable tool in social science research due to its efficiency and breadth of scope [25]. By drawing on a wide range of scientific articles and studies, researchers can gain a multidimensional perspective on the research problem. Boslaugh [26] highlights the utility of secondary analysis in public health and epidemiology, where datasets are often complex and extensive, making them suitable for re-analysis in new contexts. In this study, secondary analysis was applied to research findings that explored the impact of modern technologies on cognitive, emotional, and behavioral outcomes among young individuals, using datasets and insights originally collected for related purposes.

To ensure methodological rigor, a systematic search strategy was implemented across major academic databases, including PubMed, Scopus, and Google Scholar. The search was limited to studies published between 2019 and 2024 to ensure that the findings reflected the most recent developments in technology and its influence on young minds. The inclusion criteria were carefully defined to maintain relevance and quality. Only studies explicitly addressing the impact of modern technologies on young individuals were included. The study design was restricted to empirical research, including experimental, quasi-experimental, and correlational studies, as these designs offer robust evidence for causal and associative relationships. The population of interest was limited to participants aged 18 years or younger, reflecting the focus on young minds. Lastly, only full-text articles available in English were considered to facilitate comprehensive analysis and interpretation.

The systematic review process involved screening titles and abstracts for relevance, followed by a detailed review of the complete texts to ensure they met the inclusion criteria. Data extraction focused on key variables, such as the type of technology examined, the specific cognitive, emotional, or behavioral outcomes studied, and the methodological quality of each study. This process followed established protocols for systematic reviews, ensuring consistency and transparency throughout the research. As noted by William [27], secondary analysis requires careful attention to the context and original purpose of the data to ensure accurate interpretation and application.

By utilizing this methodology, the research synthesized findings from various studies to offer a comprehensive understanding of the impact of modern technologies on young minds. This approach

not only expanded the scope and depth of the analysis but also identified gaps in the existing literature, laying the groundwork for future research in this crucial area. In this regard, 20 papers were selected for this study.

4. Findings

The research selected for this paper focuses on various fields, such as the potential benefits and possible risks of using digital technology, literature regarding the impact of technology use on children's brains, cognitive, socio-emotional, and physical development, digital addiction, effects of new media and technologies on education, school lives, learning process, adolescent mental health, and well-being and identifying the consequences of technology overuse in childhood. Different profiles of screen-based engagement related to functional brain organization in late childhood are also examined [28-31]. The main target of these studies is to analyze the impact on the behavior and brain of younger users of new technologies. In recent years, young children have increasingly engaged with various electronic devices like television, smartphones, or tablets, which have become part of their daily lives [32]. Their lives and behaviors are influenced by these technologies, altering their lifestyle, behavior, speech patterns, and manners. Despite the benefits of new technologies for young users, digital addiction as a preventive strategy of learning and as a tool for misuse are the main disadvantages of new technologies and media on young users. Moreover, ethical consideration is the main factor that needs to be considered. In other words, contrary to the benefits of new technologies, focusing on the harmful effects is a significant part of studying the impact of new technologies on young minds.

According to Table 1, the findings of these research studies show that frequent use of digital technologies can worsen ADHD symptoms, hinder emotional and social intelligence, contribute to addictive behaviors, increase social isolation, and disrupt brain development and sleep patterns [28]. Video games and other online tools can provide mental exercises that stimulate neural circuitry, enhance cognitive functioning, reduce anxiety, and promote better sleep. Some research suggests that the blue light emitted by certain new media and screens impacts melatonin production, disrupting sleep patterns and affecting child outcomes. Additionally, studies indicate that moderate internet use can help children build relationships with their peers, and co-viewing provides opportunities for "scaffolding" and can assist children in understanding onscreen content. This means that new technologies not only have adverse effects but can also help children improve their lives in a suitable and acceptable way. The internet, as a major current technology, helps to diversify user experiences and alter brain connectivity and networks. Despite the positive impacts of modern technologies, training health professionals can assist younger students and users in better managing their usage. The primary reason for regulating children's use of new technologies is based on research findings suggesting that "early digital experiences can have lasting effects on the structure of children's brains" [33, 34].

Table 1 Researches in the field of modern technologies' impact on younger users and students.

Title of research	Subject/Purpose	Findings
Brain health consequences of digital technology use	• Studying the potential benefits and possible risks of using digital technology	• Frequent use of digital technologies can exacerbate ADHD symptoms, impede emotional and social intelligence, contribute to addictive behaviors, increase social isolation, and disrupt brain development and sleep patterns. • Video games and other online tools can offer mental exercises that stimulate neural circuitry, enhance cognitive functioning, alleviate anxiety, and promote better sleep.
Impacts of technology use on children: Exploring literature on the brain, cognition and well-being	• Exploring the literature regarding the impact of technology use on children's brain, cognitive, socio-emotional, and physical development.	• Blue light affects melatonin production and can disrupt sleep patterns. • Moderate internet use can help children develop relationships with their peers. • Not all media is created equal; appropriateness can impact child outcomes. • Co-viewing offers opportunities for "scaffolding" and can aid children in comprehending onscreen content.
Impacts of technology on children's health: a systematic review	• Identifying the consequences of technology overuse in childhood.	• Optimizing internet use and reducing risks with the participation of parents and caregivers as moderators. • Training health professionals to better guide children.
Impact of digital screen media activity on functional brain organization in late childhood: Evidence from the ABCD study	• How different profiles of screen-based engagement related to functional brain organization in late childhood.	• No meaningful associations have been found between overall profiles and measures of cognitive and mental wellbeing, even when setting the evidential threshold very low.

A Review of Evidence on the Role of Digital Technology in Shaping Attention and Cognitive Control in Children [35]	• Introducing the available evidence from three central bodies of literature on the impact of technology on attention and executive functions from both a functional and developmental perspective: television, video games, and digital multitasking.	• The significant degree of heterogeneity in associations is substantial because of the rapid development and spread of numerous digital technologies and contents, as well as the growing diversity of user experiences.
How Early Digital Experience Shapes Young Brains During 0-12 Years: A Scoping Review	• Understanding how digital use shapes young brains is crucial for informing researchers, policymakers, and educators in their professional practice.	• Digital experience can have both positive and negative impacts on children's brains, both structurally and functionally. • It can lead to changes in the frontal, parietal, temporal, and occipital lobes, as well as alterations in brain connectivity and networks. The prefrontal cortex, responsible for executive function, is particularly vulnerable to these effects. • Over time, early digital experiences can have lasting effects on the structure of children's brains.
The impact of the digital revolution on human brain and behavior: where do we stand?	• Exploring in a multifaceted manner how, by what means, and with what possible effects digital media use has on brain function, the good, the bad, and the ugly sides of human existence.	• Digital media does have an impact on human psychological well-being and cognitive performance. • The frequency of use and the amount of time spent online can have varied effects on a person's health and behavior. • Neurological consequences have been observed about internet and gaming addiction, language development, and the processing of emotional signals.
The Effects of Early Technology Use on the Development of Young Children	• Reviewing several areas of early childhood development, including social-emotional skills, literacy, language development, and fine motor skills.	• Technology is most effective for learning when an adult is present to guide and facilitate not only the use of the device but also the learning process.

Digital Media and Developing Brains: Concerns and Opportunities [36]	• How digital technologies may be influencing brain development that underlies both adaptive and maladaptive screen-related behaviors.	• Specific considerations regarding brain-behavior relationships involving screen media activity exist for infancy, toddlerhood, and early childhood; middle childhood; and adolescence. • Translating knowledge gained into better interventions and policies to promote healthy development is essential in a rapidly changing digital technology environment.
Long-term impact of digital media on brain development in children [37]	• Investigating the individual effects of digital media use • on the development of the cortex, striatum, and cerebellum in children over 4 years, accounting for socioeconomic status and genetic predisposition.	• Individual digital media usage did not alter the development of cortex or striatum volumes. • High social media usage was associated with a statistically significant change in the developmental trajectory of cerebellum volumes.
Digital Technology and Brain Development	• Concerns about the impact of digital technology on early brain development, especially as the popular media is quick to establish negative causative links. • Socrates once warned about how writing might reduce people's capacity to memorize information.	• If digital media is used to engage the child in an interactive manner, it can be helpful for the child's development. • It is more important to focus on the quality and content of digital media. • It is essential to understand that many negative associations with digital media are perhaps secondary to poor parenting practices and that digital media may just be a proxy measure.
The Implementation of Information Technology in The Development of Left and Right Brain at An Early Age in The World of Education	• Developing the use of both the right and left brain in early childhood through integrating information technology.	• The implementation of information technology in learning through video displays is highly beneficial for developing both the right and left brain in early childhood.

Revealing the intellectual structure and evolution of digital addiction research: An integrated bibliometric and science mapping approach [38]	• Discusses "digital addiction" as an umbrella term that encompasses addiction to various digital technologies such as the internet, social media, smartphones, and video games.	• There has been a shift in research focus over time, moving from early concerns about internet addiction to more recent explorations of smartphone and social media addiction. • The concept of "addictive behavior" has remained a central theme, with emerging trends emphasizing the importance of resilience and preventive strategies.
Understanding the role of digital technologies in education: A review	• examine the role of digital technologies in education by exploring their potential benefits and challenges while emphasizing the need for thoughtful and strategic integration to maximize their impact on student learning and minimize potential risks	• Digital technologies offer significant potential to enhance learning experiences, such as through personalized learning, increased access to information, and improved communication and collaboration. • Challenges such as the digital divide, potential for misuse, and ethical considerations must be carefully addressed. • The paper emphasizes the need for a thoughtful and strategic integration of technology in education, including teacher training, equitable access, and ongoing evaluation to maximize benefits and minimize risks.
The Effect of Social Media on Students' School Life in Indonesia [39]	• Pervasive influence of social media on students' school lives, focusing on four key factors: motivating students in academic achievement, utilization for scholarly discussions, accessibility of study materials through social media, and the potential distraction of school assignments.	• Social media may not have a significant effect on students' school lives. • However, students reported experiencing both negative and positive impacts of social media on their academic endeavors.
The Influence of Young Children's Use of Technology on Their Learning: A Review [40]	• Investigate and synthesize existing research on how technology use impacts the learning and development of young children. • Explore the potential benefits and challenges of technology integration in early childhood education.	• Technology can be effectively integrated into early childhood education to enhance learning outcomes.

Technology: Impact on the Youth and Society [41]	• Examine the multifaceted impact of technology on youth and society. • Analyze the social, economic, and cultural implications of technological advancements on young people.	• Technology has a profound and multifaceted impact on youth, influencing their social interactions, educational experiences, and overall well-being. • The digital divide exacerbates existing inequalities among youth. • Ethical considerations, such as data privacy, cyberbullying, and the potential for digital addiction, require careful attention.
The impact of digital technology use on adolescent well-being [42]	• Investigate the relationship between digital technology use and adolescent mental health and well-being. • Explore the potential positive and negative impacts of digital technology on various aspects of adolescent well-being.	• Implies general effects on the opposing end of the spectrum but are very small. • Effects differ depending on the type of use: whereas procrastination and passive use are related to more harmful effects, social and active use are linked to more positive effects. • Digital technology use has more potent effects on short-term markers of hedonic well-being than long-term measures of eudemonic well-being. • Adolescents are more vulnerable. Effects are comparable for both adolescents and adults.
The clinical implications of digital technology	• Explores the impact of digital technology on the mental health and well-being of children and adolescents from a clinical perspective	• Digital technology use can have significant impacts on adolescent mental health, both positive and negative. • Clinicians need to be aware of the role of digital technology in their patients' lives and incorporate this into their assessments and treatment plans.
Psychological impact of the use of new computer technologies on young schoolchildren [43]	• Discusses the psychological effects of using computer technologies in the educational process on young schoolchildren.	• Computerized learning has a positive effect on the motivation of students, as well as on the development of thought processes in accordance with the learning process.

	- The problem of the influence of information technology on students has both psychological and social significance. - Without prohibiting access to computers and electronic games, the child should be taught to make the right choice in terms of development, to understand the peculiarities of the development of information technologies in the modern world.

A recent study delving into the potential effects of digital media use on brain function, examining both the positive and negative aspects of human life, has uncovered that digital media indeed affects psychological well-being, cognitive performance, health, and behavior [44]. This indicates that the influence of new media and modern technologies is more profound than previously thought, altering the cognitive and neurological systems of individuals and leading to shifts in emotional responses.

In the case of video games, they present an important opportunity to enhance education, even from a lifelong learning perspective, due to their ability to engage players and provide realistic simulation opportunities [45]. Additionally, integrating information technology in learning through video displays is highly beneficial for developing the right and left brain in early childhood [46].

In other research, the consideration of "digital addiction" is discussed. Addressing and changing unsuitable behaviors is a crucial aspect of utilizing new media and technologies. Due to the harmful effects of digital addiction, defining resilience and implementing preventive strategies are essential responsibilities for policy-makers and parents. In the information society era, determining the right plan for preventing the misuse of new media and technologies is a significant aspect of their use, which is often overlooked in families and society.

The impact of new technologies on school life, education, and the learning process is well-documented in research. It is important to recognize that new technologies are changing the methods of learning and education and have implications for the learning process. However, challenges such as the digital divide, potential misuse, and ethical considerations need to be carefully addressed. It is crucial to consider both the advantages and disadvantages of these technologies.

The enhancing learning outcomes, influence on social interaction, exacerbation existing inequalities, negative end short-term markers of hedonic well-being than long-term measures of eudemonic well-being, adolescent mental health, both positive and negative effects on the motivation of students psychological and social are the other main effects of new technologies on young minds which are emphasized by the researches.

In conclusion, based on these studies, the impact of new media and modern technologies on younger users or students is not as harmful as previously believed. However, this does not negate the importance of parental control. The theory of accumulative impact suggests that both negative and positive effects can influence children's behavior and lives. These impacts play a role in shaping the behavior of young users in society, and the decrease in verbal and face-to-face communication may present challenges for them in society. Additionally, social interaction, exacerbating existing inequalities, and changing psychological and social motivations are other impacts of new technologies that parents and young users should consider.

5. Conclusion

The impact of modern technology on young minds and students consists of a combination of negative and positive effects that collectively shape the overall impact. Assessing these effects is crucial for policymakers, authorities, parents, and teachers to make informed decisions about how to use modern technologies and mitigate any negative impacts. Digital addiction is a significant issue highlighted in research, as it can have adverse effects on behavior and social activities, making it

essential to monitor young users closely. Addiction to new technologies and media can also impact mental health and alter young users' beliefs about life and society.

All the research mentioned in this paper underscores the importance of parents and teachers defining control systems to protect children and young students from adverse impacts. While modern technology in education is inevitable, it is evident that these technologies can enhance students' understanding and facilitate deep learning.

The unconditional integration of modern technology into education poses risks to learners' academic performance compared to controlled exposure. Therefore, it is crucial to establish policies and interventions that promote a balanced and optimal use of technology. This shift in educational discourse moves from simply accepting technology's presence to evaluating its impact in collaboration with educators.

In conclusion, the research emphasizes that despite the constraining role of new technologies and media on young users in education and school life, designing control systems and mitigating harmful ethical effects are essential duties for parents and policymakers. This aspect helps young users utilize new technologies and enhance their academic and social lives.

6. Limitations of the Research

While this study offers a comprehensive overview of the impact of modern technologies on young minds, it is essential to acknowledge certain limitations. Firstly, the reliance on existing literature may introduce biases, as studies with significant findings are more likely to be published. Secondly, the rapid pace of technological advancements can quickly render research findings outdated, necessitating ongoing evaluation and adaptation. Additionally, the complex interplay between individual differences, social factors, and technological factors makes it challenging to isolate the specific effects of technology. Further research is needed to explore the long-term consequences of technology use, particularly in relation to mental health, cognitive development, and social skills.

Author Contributions

The author did all the research work of this study.

Competing Interests

The author has declared that no competing interests exist.

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