

The Digital Dilemma:

Navigating the Benefits and Drawbacks of Technology for Young Children

By: Celia Baker

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Table of Contents

**Note: All table of contents items are linked and will take you to a specific section of the document.*

Contextual Description.....	3
Introduction.....	4
Benefits.....	5
Creative learning and educational opportunities.....	5
Development of digital literacy skills.....	6
Enhanced cognitive development.....	7
Drawbacks.....	8
Health concerns.....	9
Social and emotional implications.....	10
Education and developmental risks.....	11
Analysis and Frameworks.....	12
Discourse impacts.....	12
Digital literacy and future success.....	13
Recommendations.....	14
Parental involvement.....	15
Balanced lifestyle and approach to technology.....	16
Conclusion.....	18
References.....	19

Contextual Description

This research report covers the challenge of determining how to expose young children to technology to gain the most benefit while reducing potential harm from technology use. I draw on scholarly research in the field of childhood development in the benefits and drawbacks sections and then offer an analysis and recommendations of how to move forward with support drawn from experts in the field. By evaluating this current issue through a lens of multiple perspectives, I honed my analytical and critical thinking skills. I exhibited a high level of ethical reasoning when completing this research report, a skill required when writing about potentially divisive topics and when vulnerable populations are involved. My ability to consider both short- and long-term consequences of actions is also illustrated in the recommendations section where I offer ideas for stakeholders to help promote positive outcomes for young children's relationship with technology.

Introduction

People of all ages regularly use digital devices in our modern society, but some of the youngest are among the most prolific users. Technology is being introduced into the homes and classrooms of children at increasingly younger ages, making it critical to understand how such technology integration may affect children in the short- and long-term. The COVID-19 pandemic brought about a renewed concern regarding children's technology use since screen time—for both entertainment and educational purposes—increased exponentially during the lockdown period.

There are arguments both for and against allowing children to use digital devices. Many of the benefits relate to the learning opportunities afforded by technology, allowing children to supplement their education outside of the classroom by growing and developing in a less structured environment. On the other hand, the downfalls of technology use for children are often based on the argument that their brains are being negatively affected. The potential harms often cited include impaired emotional and social intelligence, social isolation, and an increased prevalence of attention-deficit symptoms, in addition to contributing to a sedentary lifestyle. Another critical aspect of the discussion is how the rhetoric used by the media and broader society shames parents for their decisions about technology use for their children, affecting parents' ability to rationally decide how to raise their own children without unwanted external pressures and judgment. All three of these factors contribute to the complexity of the current narratives about children and screen time. While exposing children to technology at an early age has many benefits and drawbacks, the educational opportunities, digital literacy advantages, and developmental affordances of technology use make screen time an essential aspect of modern childhood in an increasingly digital world.

Benefits

The many benefits of young children using technology in their everyday lives at home and in school environments include fostering creative learning and providing a myriad of educational opportunities, nurturing the development of digital literacy skills, and enhancing the cognitive development of growing young minds.

Creative learning and educational opportunities

The vast number of educational and learning opportunities for young children afforded by digital technologies can help to stimulate creativity and foster critical thinking skills. The Early Years Learning Framework, an evidence-based program started in Australia to support early childhood education, “recognizes the role of digital technology in young children’s lives for communication purposes and indicates that digital technology use should be considered a core learning outcome” (Straker et al., 2018, p. 301). The Framework ascertains that “with a focus on hands-on learning and intentional teaching, the inclusion of digital technology in early childhood education is framed within an expectation that digital technology use will be active and occur in collaboration with adults and peers” (p. 301). The capacity for creative learning through internet platforms that are both educational and entertaining can enable children “to develop creativity and social skills, and provide opportunities both for stimulation and relaxation” (McDool et al., 2020, p. 3). By using technology to explore, learn, and stay curious, children will be able to apply technology effectively when later schooling years make it a necessity, such as for writing essays, completing collaborative projects, or learning graphic design skills.

Technology use is also conducive to the establishment of unique learning environments. Namely, the more often children interact with technology, the better they can take advantage of

its learning opportunities. “Being able to effectively use and learn from technology requires a certain level of digital skill, which includes competencies such as successfully navigating websites. These are skills that children can use to support their own learning, by, for example, looking up information to complete assignments and efficiently preparing written reports, and that parents might be able to tap into when socializing their children to the Internet” (Hurwitz & Schmitt, 2020, p. 2). The cyclical nature of how technology use promotes digital literacy, which then allows for creative learning to take place online, makes it essential for children to be exposed to technology at an early age, equipping them with skills to create meaningful learning experiences in online spaces.

Development of digital literacy skills

Digital literacy, which is also sometimes called digital citizenship, “includes internet etiquette, filtering information, making sound decisions related to posting and leveraging the benefits of the online world in a fast-evolving digital universe” (Hampshire, 2021). The growing minds of young children can catch onto steps, patterns, and methods of completing tasks very quickly in digital spaces. “As with other developmental domains, children’s actual experiences going online further drive their digital skill acquisition, above and beyond general age-related maturation. When children are online, they have opportunities to master the gestures needed to operate digital devices, work through technical challenges, and cope with any online risks they may encounter” (Hurwitz & Schmitt, 2020, p. 2).

Hurwitz and Schmitt (2020) conducted a longitudinal study with 101 families in Chicago, IL to assess the effect early internet use (in kindergarten and pre-K programs) had on children’s digital skill and academic achievement by the time they were in early middle school. They found that exposure to technology helps children to develop digital literacy skills in early

childhood, a significant predictor of “middle childhood digital skill, which was significantly and positively associated with school performance” (p. 1). This illustrates that early exposure to digital technology can promote the development of information processing skills as well as skills to comprehend new technology, platforms, and online information that will be built upon as children continue their education.

The benefits of technology use in early childhood are also closely tied to parental technology knowledge. Parent digital skill is a significant predictor for children’s digital skill and future success throughout middle and high school, and college, as well as being a critical factor in determining career readiness (Hurwitz & Schmitt, 2020, p. 3). When parents can employ techniques to encourage digital literacy growth such as teaching their children how to identify credible sources and setting a good example with their own technology use, children will begin to develop their own breadth of knowledge for using technology in a strategic, effective, and safe manner.

Enhanced cognitive development

In terms of enhancing cognitive development, the affordances of technology use include a sharper memory and improvements in cognitive skills like “working memory and divided and sustained attention” (Small et al., 2020, p. 185). Educational computer games have also been shown to “enhance multitasking, one of the cognitive domains that declines in a linear fashion across the lifespan” (p. 184). Children experience the greatest brain plasticity in early childhood, so when children are exposed to meaningful technology during their primary years of development, cognitive skills can be harnessed for benefit in the long term. “Digital skill has been linked to general cognitive ability at school entry, and standardized test performance, grades, and social competence in adolescence,” making childhood technology use a strong

predictor of middle childhood academic success (Hurwitz & Schmitt, 2020, p. 3). Even video games—when played in moderation—can have positive effects on the cognitive training of young minds. “Recent research suggests potential benefits [of videogames], such as improved visual attention processing, spatial visualization, reaction time, and mental rotation” (Small et al., 2020, p. 185). With enhanced visual attention abilities, children are able to more effectively process visual information in their surroundings, filter out irrelevant information, and recognize appropriate ways to respond or react in various contexts.

As much of a child's cognitive development occurs before the age of 12, utilizing technology to learn a variety of skills is essential during this critical phase. “The development of social-emotional (SE) skills, such as prosocial interactions, emotion self-regulation and emerging empathy, form the foundations of mental [and cognitive] health” (Wan et al., 2021, p. 2). When children can explore the world around them in diverse ways using technology, they are able to progress their organization thoughts, problem-solving skills, ability to reason, and overall concrete learning and thinking techniques. These skills allow children to progress through elementary school with at grade level knowledge in a variety of academic realms including reading, language comprehension, writing, and math, setting the foundation for success moving into intermediate and secondary level academic rigor.

Drawbacks

Technology has introduced a variety of challenges for young children with “potential harmful effects of extensive screen time and technology use includ[ing] heightened attention-deficit symptoms, impaired emotional and social intelligence, technology addiction, social isolation, impaired brain development, and disrupted sleep” (Small et al., 2020, p. 179). Here I will focus on the drawbacks encompassing issues of health concerns, negative

implications for social and emotional intelligence and skill development, and education and developmental risks.

Health concerns

The use of technology, particularly excessive use, has the potential to cause negative outcomes for physical health through a sedentary lifestyle. Some of the physical concerns associated with technology use include “poor and sustained postures... and increasing sedentary time with displacement of gross motor activities that impact on bone and muscle growth, motor skill, and energy expenditure and obesity” (Straker et al., 2018, p. 300). Children need regular physical activity and outdoor play for energy expenditure, improving flexibility, maintaining a healthy weight, and preserving an overall healthy body and mind. When technology use gets in the way of young children’s critical need for physical activity, they are less likely to make exercise a regular habit as they age, increasing the likelihood of both short and long-term negative health outcomes.

The addictive nature of technology also poses a risk to the mental well-being of young children. Hollis et al. (2020) deem technology and the internet as a “triple-edged sword” to children’s mental health because of three interplaying factors—learning opportunities, intellectual risks, and mental health outcomes. The authors assert that the “very same qualities and characteristics of the Internet that make positive contributions [to learning, development, and personal growth] possible, such as its immediacy, portability, intimacy, unconstrained reach and lack of supervision and regulation of content, has opened children and young people up to a range of serious social, intellectual and mental health risks” (p. 837). Another threat to mental health is cyberbullying, which is more likely to occur with excessive digital media use. Cyberbullying theory describes how children who spend more time on social networks have a

greater chance of being the victim of direct attacks from others on their sense of self, well-being, and self-esteem (McDool et al., 2020, p. 4).

Social and emotional implications

Social concerns of technology use include “isolation, restricted face-to-face discourse, cyber-bullying, and predatory pedophiles,” while emotional fears consist of a higher prevalence of “addiction, depression, and access to inappropriate content and advertising” (Straker et al., 2018, p. 300). Social and emotional intelligence encompasses skills that are critical for interpersonal communication, developing relationships, and working well with others. Social intelligence involves the ability to recognize and respond appropriately to social cues. “Spending extensive periods of time with digital media translates to spending less time communicating face to face,” which can impede the development of essential social skills (Small et al., 2020, p. 180). Thus, the potential risk of impaired social skills and emotional literacy in young childhood can result in life-long challenges for navigating challenges with friends, parents and family members, future work colleagues, healthcare providers, and many other types of relationships. On the other hand, emotional intelligence allows for the regulation of emotions and feelings as applicable to the context. Young children often struggle with their emotional regulation, so introducing the risk factor of technology may prolong this stage of childhood, presenting both short-term (e.g., misbehaving at school) and long-term implications (e.g., engaging in risky behaviors as adolescents).

The malleable nature of young children’s brains is a particular concern when it comes to technology use as their brains are more likely to experience sensitivity to chronic consumption of screen time, affecting their social and emotional regulation. Small et al. (2020) conducted a study comparing primary school students at an overnight nature camp where all technology was

forbidden to a control group of children who continued their usual daily digital media consumption (around 4 hours each day). The authors found that the “nature camp participants restricted from screen time demonstrated significantly better recognition of nonverbal emotional and social cues than participants who continued their usual daily screen time... suggest[ing] that time away from screen-based media and digital communication tools improves both emotional and social intelligence” (p. 180).

Education and developmental risks

While digital technology has seemingly unlimited opportunities for learning, many uses do not harness such developmental benefits. The research by Hurwitz and Schmitt (2020) suggests that “simply spending time online without the development of important competencies like digital skill may be detrimental to academic achievement” (p. 8). Additionally, increased screen time provides less time for reading and the development of reading comprehension skills which “has been associated with poorer language development and executive functioning, particularly in very young children, as well as poorer language development in a large cohort of minority children” (Small et al., 2020, p. 181).

Since “gaming and streaming entertainment [can] displace time spent on schoolwork,” academic success and overall educational development can be harmed, particularly if children are unable to achieve at grade level learning benchmarks (McDool et al., 2020, p. 3). On top of that, the addictive nature of technology, created particularly through recommendation algorithms, contributes to a lower level of engagement in school and on homework assignments. This can stunt academic performance and limit the intrinsic motivation of young students to take initiative in their learning by asking questions and engaging a curious mind. “When children are watching screens they spend less time practicing skill development via interactions with, and exploration

of, their environment,” which can hamper the inquisitiveness essential for young minds to grow and thrive (McArthur et al., 2020, p. 1).

Analysis and Frameworks

After presenting both the benefits and drawbacks of technology use for young children, I would like to provide an analysis of the frameworks that impact how modern culture discusses this issue and why technology use for children is an important aspect of modern childhood. In particular, I will be exploring the role of rhetoric in the current state of discourse surrounding children’s screen time, as well as the crucial role of technology in developing digital literacy to set up children for successful future personal and professional endeavors.

Discourse impacts

The narratives used to discuss this issue harm parents and negatively affect their ability to implement technology use into their children’s lives in a rational, thoughtful manner. The current rhetoric used by the media and broader society to shame technology-related parenting choices contributes to “parental feelings of guilt or internal conflict as a result of their children’s screen time use” (Findley et al., 2022, p. 6). When people “fret about excess screen time as bad parenting, what we’re really talking about is bad mothering... When we worry that parents are shirking their duties by relying on an electronic babysitter, we’re really worrying that mothers are putting their own needs alongside, or even ahead of, their kids’ needs” (Samuel, 2016). Some even argue that society’s “screen time fixation isn’t about kids at all. It’s about mothers... [and how modern culture] doesn’t like innovations that make mothers’ lives easier” (Samuel, 2016). This illustrates the problematic narratives through which children’s technology use is

discussed, consequently infiltrating many of the conclusions about the harms of screen time on health and development.

These frameworks can also lead to black-and-white thinking in which all technology use is viewed as harmful and fails to provide space to acknowledge the commendable features of technology. For example, current “sedentary behavior guidelines are being operationalized as leisure ‘screen time.’ Sedentary behavior conflated with screen time may cause families to miss the physical activity opportunities for children, including those afforded by mobile digital technology, and to reject implementation of screen time advice” (Straker et al., 2018, p. 302). Rather than associating children’s technology use with discourses of bad parenting, society should welcome diverse perspectives and lifestyles and reflect those within personal narratives and public guidelines for screen time. “Consistent health and education digital technology guidelines [should] more clearly articulate positive ways for children to use technology that involve physical activity and promote opportunities for children to learn with and through digital technologies” (Straker et al., 2018, p. 302).

Digital literacy and future success

In the section on the benefits of digital technology use, I discussed the positive aspects of digital literacy skill development. I want to reemphasize that point here after taking into consideration the summative impact of both the benefits and drawbacks of digital technology on young children’s lives. Our modern world functions in a digital landscape, with new digital tools, platforms, software, and other technologies emerging regularly. Because of this, children need to learn how to use and interact with digital devices so they can enhance their space for learning about the world and harness the opportunities afforded by digital technology. Children also need parental guidance to explore online environments safely. Introducing young children

to digital technologies early in childhood provides optimal time for parents to help foster healthy online habits and teach them how to use these devices, in addition to providing guidance for navigating challenges that arise.

Hurwitz and Schmitt (2020) suggest that “young children benefit from some amount of Internet exposure, but that spending time online in the absence of acquiring digital skill is insufficient for positive outcomes” (p. 8). This means that mindless tasks like scrolling or video watching can be problematic in excess, but structured engagement with technology can progress a child’s skill development. For example, playing an educational game or using a word processing program to write a story can challenge children’s minds and help them to understand how to effectively interact with online platforms. Research has shown that “well-designed and educational [online] programs with age-appropriate features may help children to learn antiviolence attitudes, empathy, tolerance, and respect” (Swider-Cios et al., 2023, p. 5). These social skills cannot be taught—they must be learned through practice, interaction, and engagement. If children can obtain soft skills while also growing their digital literacy repertoire by using digital technology, they will be better equipped to deal with changing social relations as they age. Academic performance is also bolstered by digital skill development and the study by Hurwitz and Schmitt is the first to “find evidence in favor of a longer-term link” between technology use and academic success (p. 8).

Recommendations

The two main recommendations for addressing the issue of children’s screen time include parent involvement through active mediation and establishing technology use through a balanced approach by moving away from strict rules.

Parental involvement

Findley et al. (2022) assert that “the most important factor in screen time usage among young children is their parents, who ultimately serve as gatekeepers for [children’s] use of screens” (p. 2). Since caregivers play a primary role in mitigating the potential harms of technology on young children, they need to be actively involved in their children’s technology use. “By actively participating in co-viewing and co-using, referred to as joint media engagement, screen-based media with their very young children, parents [can] help them with comprehending what is happening on screen, directing their attention to relevant content, and recognizing onscreen emotions” (Swider-Cios et al., 2023, p. 9).

The American Academy of Pediatrics currently “recommends that parents limit screen time for children aged 2 years or younger, when the brain is particularly malleable” (Small et al., 2020, p. 180). Beyond this stage, it is up to parents to set digital technology time limits and content boundaries, but it is best to give children a chance to explore technology without allowing too much free reign over devices. This can be a tricky balance but using active mediation, which refers to “parent-child discussions about screen media use and the onscreen content to facilitate learning,” can be advantageous as it is an evidence-based approach to technology use (Swider-Cios et al., 2023, p. 9).

Parents can help inspire curiosity and conversation while their children are using digital devices by “encouraging their children to ask questions and seek answers about the information they encounter online” (Hampshire, 2021). Active engagement from parents in this manner allows children to develop critical thinking skills and maintain a curious mind when interacting with digital media. “Parental mediation and supervision during screen-based media exposure can [also] help young children to understand the content better and transfer what they see on

screen to a new situation (Swider-Cios et al., 2023, p. 5). This helps to ensure active learning during screen time and can help mitigate the negative implications of excessive screen time. “In children of preschool age and older, digital media directed toward active learning can be educational, but only when accompanied by parental interaction” (Small et al., 2020, p. 181).

Another goal of active mediation is to promote children’s digital literacy. In order to work towards building digital skills, parents can guide their children “to responsibly consume and interpret digital media, from learning how to identify credible online sources to recognizing how social media posts and comments create a digital footprint that lives in the cloud indefinitely” (Hampshire, 2021). By engaging in active mediation, parents can help their children develop digital literacy and digital citizenship, allowing children to become more informed and empowered to use technology safely and responsibly with improved learning outcomes.

Balanced lifestyle and approach to technology

A balanced approach to children’s technology use is key to combating both the potential harms of screen time and the harmful narratives perpetuated by modern culture. According to Dr. Colleen Russo Johnson, a renowned child development expert, psychologist, and author, there should be no absolute rules when it comes to children’s screen time. She believes technology is not “evil” and should not be treated as such. She also believes the rhetoric used to discuss the parenting decisions behind children’s technology use contributes to the problematic narratives in the media that make parents and caregivers feel judged for their choices. “The extreme messages about children’s technology have been particularly harmful for parents for whom providing screen time might be the best option. Maybe playing outside isn’t available or is unsafe, and some parents need their children to be on a screen while they juggle work and other

responsibilities” (Ovide, 2021). When parents are portrayed as villainous for allowing their children to interact with technology and mobile devices, they are more likely to struggle to maintain a balanced parenting approach regarding technology use for fear of external judgment and criticism. Just as children need to have a certain level of autonomy in their screen time, parents, too, deserve the freedom to make parenting decisions on their own accord.

Moving away from extreme and unrealistic views about screen time for children is the first step to improving the current digital landscape. “The imperative is for clear information on appropriate digital technology use that addresses health, well-being, and educational development of the whole child and supports informed decision-making by parents and professionals” (Straker et al., 2018, p. 301). Completely denying children the use of technology is problematic, but so is unrestricted and unsupervised access. “As technology continues to be a part of our everyday life, it may be necessary to adjust [past strict] screen time guidelines to better meet the constantly evolving needs of families with young children, and to account for the changing modalities of educational activities, interaction, and formal instruction” (Findley et al., 2022, p. 7). Each day, context, and child is different, and affording children the autonomy to determine when technology use is appropriate (with parental supervision) can help set them up for future success. Establishing screen time boundaries in childhood increases children’s likelihood of maintaining a healthy relationship with their devices, reducing the chances of internet and smartphone addiction as they enter the pre-teen and teen years. Children need to feel they have at least a small amount of agency over their technology use, so providing a limited amount of time to freely explore the digital world is equally important for their development as is encouraging them to participate in engaging offline activities.

Conclusion

Since digital devices are becoming increasingly prevalent and relied upon in our everyday lives, it is not realistic to remove digital technology from the lives of young children. Complete deprivation of screen time is advised against but structured steps must be taken to avoid detrimental effects of technology. By taking a more balanced approach, the benefits of using digital devices—including unique learning opportunities, digital literacy development, and cognitive enhancement—can be harnessed while reducing the negative effects on physical and mental health, social and emotional intelligence, and other developmental risks. Adjusting the narrative through which screen time for young children is discussed culturally would provide parents and children the space to find the best approach to technology use. Ultimately, finding a balance between digital and non-digital activities is essential for young children to grow through a variety of experiences and to develop healthy relationships with technology, helping to promote future personal, professional, and academic success.

References

- Findley, E., LaBrenz, C. A., Childress, S., Vásquez-Schut, G., & Bowman, K. (2022). 'I'm not perfect': Navigating screen time among parents of young children during COVID-19. *Child: Care, Health, and Development*, 48(6). <https://doi.org/10.1111/cch.13038>
- Hampshire, K. (2021, July 19). *How to build digital literacy for your K-8 child*. U.S. News and World Report. <https://www.usnews.com/education/k12/articles/how-to-build-digital-literacy-for-your-k-8-child>
- Hollis, C., Livingstone, S., & Sonuga-Barke, E. (2020). Editorial: The role of digital technology in children and young people's mental health – a triple-edged sword? *Journal of Child Psychology and Psychiatry*, 61(8), 837–841. <https://doi.org/10.1111/jcpp.13302>
- Hurwitz, L. B., & Schmitt, K. L. (2020). Can children benefit from early internet exposure? Short- and long-term links between internet use, digital skill, and academic performance. *Computers and Education*, 146. <https://doi.org/10.1016/j.compedu.2019.103750>
- McArthur, B. A., Browne, D., Tough, S., & Madigan, S. (2020). Trajectories of screen use during early childhood: Predictors and associated behavior and learning outcomes. *Computers in Human Behavior*, 113. <https://doi.org/10.1016/j.chb.2020.106501>
- McDool, E., Powell, P., Roberts, J., & Taylor, K. (2020). The internet and children's psychological wellbeing. *Journal of Health Economics*, 46. <https://doi.org/10.1016/j.jhealeco.2019.102274>

- Ovide, S. (2021, July 26). The messy truth about kids' screen time. *The New York Times*.
<https://www.nytimes.com/2021/07/26/technology/kids-screen-time.html>
- Samuel, A. (2016, May 3). *Happy Mother's Day: Kids' screen time is a feminist issue*. JSTOR Daily. <https://daily.jstor.org/screentime-feminist-issue/>
- Small, G. W., Lee, J., Kaufman, A., Jalil, J., Siddarth, P., Gaddipati, H., Moody, T. D., & Bookheimer, S. Y. (2020). Brain health consequences of digital technology use. *Dialogues in Clinical Neuroscience*, 22(2), 179-187.
<https://doi.org/10.31887/DCNS.2020.22.2/gsmall>
- Straker, L., Zabatiero, J., Danby, S., Thorpe, K., & Edwards, S. (2018). Conflicting guidelines on young children's screen time and use of digital technology create policy and practice dilemmas. *The Journal of Pediatrics*, 202, 300–303.
<https://doi.org/10.1016/j.jpeds.2018.07.019>
- Swider-Cios, E., Vermeij, A., & Sitskoorn, M. M. (2023). Young children and screen-based media: The impact on cognitive and socioemotional development and the importance of parental mediation. *Cognitive Development*, 66.
<https://doi.org/10.1016/j.cogdev.2023.101319>
- Wan, M. W., Fitch-Bunce, C., Heron, K., Lester, E. (2021). Infant screen media usage and social-emotional functioning. *Infant Behavior and Development*, 62.
<https://doi.org/10.1016/j.infbeh.2020.101509>