

**How Does Children's Usage of Screen Time Impact Their Communication Development, in
Relation to the Sociocultural Theory**

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Abstract

As screen media becomes more integral to everyday life due to technological advances and the aftermath of the COVID-19 pandemic, it is essential to understand its impact on children's communication development. This research paper is a culmination of the findings from existing literature and prior studies that analyze the effect that children's screen time has on their language acquisition, vocabulary development, non-verbal communication, social interaction, attention span, and concentration within the framework of Lev Vygotsky's sociocultural theory (1978). Findings indicate that screen media exposure during the crucial developmental stages impedes linguistic and cognitive growth, hindering social engagement and decoding of non-verbal cues. Aligned with Vygotsky's sociocultural theory, the research underscores the pivotal role of social interaction and cultural context in cognitive development, particularly in communication skills.

Keywords: Screen media, screen time, communication development, sociocultural theory

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Introduction

In a world where technology is omnipresent, individuals now rely on screen media in most aspects of their daily lives. The prevalence of screen time among young children is growing astronomically. Research studies continue to show associations between excessive screen media time in early childhood and language, cognitive, and social/emotional delays (Reid Chassiakos et al., 2016). Amidst this digital landscape, questions regarding its influence on adolescents come to light. Does screen time affect children's development? Are there long-term effects of screen time use as a child? Is there a positive outcome with screen time usage? As children begin integrating any form of screen media into their lives, there is a pressing need to understand the potential effects on their communication, cognitive, and social development. This research paper will explore the impact of screen time on children's communication development, the sociocultural theory, and the correlation between the two. Ultimately, this research aims to understand the potential impact of screen time on children's communication development.

Research Question

This research paper aims to answer the question: How does children's screen time use impact their communication development in relation to sociocultural theory? It will explore online sources, academic journals, and research studies to determine the effects of screen media on children's communication development. Additionally, it will explore Lev Vygotsky's sociocultural theory of learning (1978) and how his theory connects with the research question.

Literature Review

Theoretical Framework: The Sociocultural Theory

The Sociocultural Theory was founded by the Russian literary critic, educator, and psychologist Lev Vygotsky in 1978. His work has become the foundation of much research and theory in cognitive development over the past several decades. Vygotsky's sociocultural theory is a theory of the mind and reflects his focus on the relationship between the physiological aspects of an individual and the contexts and artifacts that are socially or culturally produced (Vygotsky, 1978). These relationships transform the mental or cognitive functions of an individual. According to Vygotsky, when it comes to development, children use collaborative dialogues with the more knowledgeable members of society to learn various aspects of their culture. This includes values, beliefs, norms, and ways to solve problems. These knowledgeable members may be parents, teachers, or more competent peers. The various social interactions of a child influence his/her personal characteristics and social skills (Yousef & Mahameed, 2022). Therefore, the sociocultural environment in which development occurs also influences its form. Social interaction is the source of learning and development, and it is not found solely in an individual's mind. The sociocultural theory of cognitive development explores the influence the world has on individual development. It asserts that learning is a primarily social process whereby development occurs through interactions with people who possess more knowledge or skill than the learner (Yousef, 1978). Understanding the foundational principles of the sociocultural theory, particularly the emphasis on social interactions and cultural influences in cognitive development, provides valuable insights into the potential impact of screen time on children's language learning processes.

Language Acquisition and Vocabulary Development

Reliance on screens during crucial developmental stages can impede a child's language learning processes, resulting in delays or deficits in vocabulary acquisition. The quality and quantity of screen time play a crucial role in shaping children's linguistic abilities, highlighting the importance of mindful media consumption practices in promoting language development. Listening to language, for instance, on an iPad, does not necessarily promote language as it lacks the reciprocity needed to correspond to the child's cognitive and language development or experiences (Sundqvist et al., 2024). Learning occurs during language-rich interactions when the parent and child engage in child-directed talk, reading, describing, explaining, and playing, which expands and develops the child's linguistic capacity and understanding. Activities, such as certain types of screen use, could disrupt or reduce these language-rich interactions and may thus be detrimental to the child's language development (Sundqvist et al., 2024).

Reid Chassiakos et al. (2016) also support this in their research. They state that adult interaction remains crucial for toddlers to learn effectively from digital media. For example, from 12 to 24 months of age, toddlers can begin to learn novel words from commercially available "word learning" videos, but only if their parents watch with them and reteach the words, essentially using the videos as a learning scaffold to build the language skills. In one longitudinal study of low-income families, 14-month-olds whose mothers had talked with them during educational television programming since infancy showed more advanced language development than infants whose mothers did not talk with them during media use. The few experimental studies showing independent learning of words from videos at this age have been limited by their low ecologic validity. They have also shown that toddlers lose the knowledge learned over time

without repetition. Digital media learning for young children will only be effective if there is adult involvement and reciprocity.

Gastaud et al. (2023) conducted a cross-sectional study addressing the pressing issue of integrating digital devices into daily life by examining the effects of screen time on cognitive development during the crucial formative years. The researchers reviewed the potential ramifications of excessive screen time and delve into the implications that early technology use and cognitive development. The researchers found that television exposure has demonstrated associations with significant language delays. Moreover, high exposure to background television has been associated with adverse effects on language use and acquisition, attention, cognitive development, and executive function (Ponti, 2022). This highlights the multifaceted impact of screen time on children's development, suggesting that its influence extends beyond language acquisition alone. The passive nature of screen consumption, coupled with the potential displacement of more interactive and enriching activities, could hinder various aspects of children's communication development. Thus, it is imperative to consider the broader implications of screen time on overall child development, encompassing not only linguistic skills but also attentional abilities, cognitive functioning, and socio-emotional well-being (Ponti, 2022).

On the other hand, researchers Gastaud et al. (2023) reported that screen media can be used as a learning tool for children. Children who have learning disabilities need more help outside and sometimes inside the physical classroom. Specially designed educational applications on tablets or screen media help children develop the competence to socialize with other individuals by providing additional support. There are also television shows, such as Sesame Street, designed for children that perform everyday social interactions; these characters

talk to the child audience in a way that complies with social conventions, such as waiting for others to respond and having eye contact (Gastaud et al., 2023). Similarly, many specialized educational applications on-screen media aim to help children enhance their social skills, designed to teach them to communicate and cooperate with others appropriately. Thus, if used in moderation and educationally, screen media can benefit children's social interaction skills (Ma et al., 2022).

Research on language development includes a cross-sectional study conducted by Bhutani et al. (2024), exploring the available research on the relationship between screen time and language development in children under 12. The motivation behind this in-depth search was to determine if previous studies regarding this topic were accurate and if they reported positive or negative results. The researchers chose 16 studies for this review. Nine reported a negative impact of screen time on children's language development, five reported no significant impact, and two reported a positive effect. Concluding the various studies, the results determined that the adverse effects of screen time on a child's language development outweighed the positive effects. The research exploration reveals the negative impact of excessive screen time, which impedes the language learning process and delays vocabulary development. It also affects non-verbal communication and body language, leading to the inability to perceive and respond to social cues.

Non-verbal Communication Cues and Social Interaction

The analysis of non-verbal communication cues and body language suggests that prolonged screen exposure may hinder the nuanced understanding of interpersonal dynamics. Children exposed to excessive screen time may exhibit difficulties in decoding and interpreting non-verbal signals, such as facial expressions, gestures, and posture. This could impact their

ability to accurately perceive and respond to social cues, emphasizing the need for balanced media use to facilitate holistic communication skills development.

Technology, specifically screen time, diminishes opportunities for the crucial face-to-face interactions children in the developmental stages need. The reliance on digital media stems from new technological advancements incorporating their way into everyday lives. Although some are beneficial, the excessiveness of screen time can disrupt the development of essential interpersonal competencies. For example, in grade school, children learn the basics of reading, writing, math, science, etc., but they are also learning how to take turns, be active listeners, and follow the rules. Heavy screen usage limits children's skills to read individual emotions and distracts them from activities such as playing and interacting with peers (Raheem et al., 2023). Unlike real-life interactions where non-verbal cues and social nuances abound, screen-mediated communication often lacks the depth and richness of traditional face-to-face encounters. Before two years of age, children are still developing cognitive, language, sensorimotor, and social-emotional skills, which require hands-on exploration and social interaction with trusted caregivers for successful maturation (Reid Chassiakos et al., 2016).

Children's social competence is demonstrated by their assertiveness in initiating social interactions, independence in completing tasks, sociability in cooperating with others, and compliance in following instructions and rules (Raheem et al., 2019). As a result, children may experience challenges in building and maintaining meaningful relationships, highlighting the need for promoting balanced screen time habits to nurture social-emotional development.

Singer-Califano (2008) explores using technology to enhance social skills by investigating how technology can be harnessed to improve social interactions and communication abilities. By examining the potential benefits and challenges associated with

incorporating technology into social skill development, the author provides valuable insights into the evolving role of technology in fostering interpersonal connections. This resource is particularly relevant for educators, therapists, and researchers interested in leveraging technology to support social skill acquisition and development in various contexts.

Krauss and Glucksberg (1969) investigated the development of communication skills in children by conducting two experiments that measured the growth of communication skills throughout the duration of the experiment. The study highlights that communication competence is not solely dependent on linguistic competence, emphasizing the importance of considering a speaker's ability to adapt their message to the listener's knowledge and capabilities. The findings suggest a gradual development of communication proficiency over age. The detrimental effects of excessive screen time on children's ability to decode non-verbal cues and interact socially also affect their attention span and concentration during verbal communication.

Attention Span and Concentration

Research conducted by Raheem et al. (2023) states that excessive screen time is associated with diminished attention span and concentration, hindering children's ability to engage effectively in verbal communication. Frequent exposure to digital media, characterized by rapid stimuli and constant distractions, can contribute to attentional deficits and reduced cognitive control. Consequently, children may struggle to sustain focus during conversations or academic tasks, underscoring the importance of setting appropriate limits on screen time to support cognitive development. When reading storybooks aloud, children get enough time to process what was said by listening to the voices and seeing the pictures. However, the continuous appearance of on-screen images does not provide enough time for children to process, which

affects their focus and attention. It decreases their ability to control impulses; they do not wait and want to get their desired thing immediately.

Zimmerman and Christakis (2007) tested the hypothesis that early television viewing of three content types, educational, nonviolent entertainment, and violent entertainment, is associated with subsequent attentional problems. The researchers found a strong association between subsequent attentional problems and viewing noneducational entertainment at an early age. Attention-deficit/hyperactivity disorder (ADHD) is among the most common disease of childhood that affects between 4% to 11% of children. The genetic role of such diseases has been established, but researchers speculate that screen media has recently contributed to the increase of these attentional deficit disorders in children. The theory of formal features suggests that the fast pacing and rapid scene changes that are characteristic of television reward fixed attention to a constantly changing stimulus and do not reward self-directed attention to opportunities for learning (Hopper & Chang, 1998)—reiterating the fact that educational shows would be expected to be less damaging because their pacing is typically much slower. Research done by Zimmerman and Christakis (2007) also found modest but significant associations between total television viewing before age three and problems with attention regulation at age seven, controlling for a variety of possible confounders, including the level of parental emotional support and cognitive stimulation provided to the child in the first years of life.

Post COVID-19

The COVID-19 pandemic brought the world to a standstill in 2020 and continues to exert lasting effects on everyday life, which will continue for years to come. Despite the world being put on lockdown, people showed resilience and could adapt by finding new ways to work, learn, and grow. Its impact is evident in every aspect of life today, with one specific notable area of

change being education. The transition to online education was radical. The traditional paper and pencil classroom was traded for ZOOM calls, online submissions, breakout rooms, and virtual recess. While this newfound education system was new and riveting, it presented many unique challenges, especially for younger students. Shifting to a virtual classroom eliminated the hands-on experiential learning, in-person interaction, and collaboration vital to children's developmental stages. Children, especially in the developmental stage, learn best hands-on, and with their learning being limited to a screen, their progression is slowed (Sergeeva et al., 2023).

Research by Gastaud (2023) notes that the immersion of young children in screen-based educational activities, while necessary during the pandemic, raises concerns about its long-term impact on their communicative, cognitive, and socioemotional development. When analyzing these developmental milestones, it is vital to consider the influence of media in this early period of life - considering that children exposed to screens tend to engage in less thinking and problem-solving since cartoons and related activities do not interact with the child. Furthermore, the shift to online education has intensified pre-existing struggles in access to quality education, with marginalized communities facing disproportionate challenges in accessing remote learning resources. The digital divide, characterized by disparities in internet access, technology proficiency, and socio-economic resources, has widened the gap in educational opportunities, exacerbating inequalities in academic achievement and outcomes.

The pandemic altered the dynamic of initial technology usage. Online school forced children to learn how to navigate new technology early on. Learning the ins and outs of the internet was most children's gateway to social media. With few limitations, young children were quickly exposed to society's many explicit and overwhelming realities. For some, the line between corruption and influence is blurred. Considering these challenges, it is imperative to

recognize the nuanced impact of online education on children's development and well-being. While digital technologies offer unprecedented opportunities for learning and connectivity, their integration into educational settings must be accompanied by thoughtful considerations for children's developmental needs and holistic growth. As society navigates the post-pandemic landscape, concerted efforts are needed to address the challenges posed by remote learning while harnessing the potential of technology to enhance educational experiences and promote equitable access to learning opportunities for all children.

The study by Sergeeva et al. (2023) highlights the correlation between Information and Communication Technology (ICT) competencies and communication skills. Their findings shed light on the interplay between technological proficiency and interpersonal communication skills, offering insights into the importance of integrating ICT education into educational curricula to enhance students' communicative competence in the digital age. As society recovers from the pandemic, online learning and digital communication have become more prevalent. Children who have developed better ICT competencies will likely have better communication skills in the digital world. Additionally, as children spend more time on screens for educational and recreational purposes, understanding the relationship between ICT competencies and communication skills becomes essential for educators and parents alike to support healthy screen time habits and promote effective communication in children's post-pandemic lives. Amidst the transformative shift towards a digital world, it is important to understand the challenges of implementing screen media into the educational environment and leisure use in everyday life.

Discussion

This research ultimately concludes that children's screen time has an overarching negative impact on their communication development. Screen media exposure during the crucial

developmental stages can disrupt and reduce the necessary language-rich interactions that young children need for language acquisition and vocabulary development (Sundqvist et al., 2024).

Moreover, prolonged screen exposure is associated with diminished attention span and difficulties decoding and interpreting non-verbal communication signals.

Cognitive development is a socially mediated process in which children acquire cultural values, beliefs, and problem-solving strategies through collaborative dialogues with more knowledgeable members of society (Vygotsky, 1978). Therefore, the quality and quantity of social interactions, especially during early childhood, significantly influence language development and overall cognitive growth. Bhutani et al. (2023) emphasized the importance of environmental influences on a child's development, particularly parental interaction and exposure to various stimuli. They underscored that parents' active engagement with their children and the types of stimuli presented to them are critical factors in fostering language development.

According to Ponti (2022), screen time recommendations for children emphasize limiting exposure, especially for those under two years old. Routine or regular screen time should be limited to less than 1 hour per day for children aged two to five years. Additionally, families must be mindful of their screen time habits, with adults modeling healthy screen use behaviors for children to emulate. Activities involving screen use, especially certain types, could disrupt language-rich interactions critical for language development and vocabulary acquisition.

Research indicates that children who spend more time with screens tend to have lower vocabulary levels than those with limited screen exposure (Sundqvist et al., 2024). The newborn brain exhibits rapid development and plasticity in response to environmental stimuli.

Zimmerman and Christakis (2007) highlighted the theoretical mechanisms through which early television viewing might impair healthy attention regulation development, with the type of on-

screen content potentially moderating these effects. Excessive screen time during childhood can have detrimental effects on communication development, underscoring the importance of mindful screen use practices and promoting rich social interactions for children's healthy cognitive and linguistic development.

Limitation of Study

The implications of this research are extensive. The rapid evolution of technology presents the challenge of keeping the research up-to-date and accurate. Since technology is ever-changing, the effects of screen media exposure over time may also change, and the research conducted in this study will no longer be relevant and applicable. Furthermore, the COVID-19 pandemic was recent, so researchers will only be able to study the long-term effects on children who lived through the pandemic in the distant future. Another implication includes external factors. This study was conducted generally and did not focus on one specific gender, age, or demographic. Family dynamics, educational environment, societal influences, etc., will likely impact a child's communication development. Despite the limitations, there are a multitude of opportunities for the future of this research.

Future Research

Future research should aim to address the limitations in this research while adapting to the ever-changing world of technology to understand the impact that screen media has on children's communication development. Further longitudinal research investigating the impact of sub-categories of leisure screen time behavior on overall development and well-being is warranted (Belton et al., 2021). This longitudinal research can provide deeper insights into the

enduring effects of screen time and understandings that will give parental figures and educators more targeted guidelines.

In the meantime, the Early American Academy of Pediatrics (AAP) recommendations to discourage media exposure for children younger than two years were based on research on television and videos, which showed that in-person interactions with parents are much more effective than video for learning new verbal or nonverbal problem-solving skills (Reid Chassiakos et al., 2016). Ponti (2022) also supports the recommendation that screen time should be less than an hour a day for children ages two to five, and children under two years of age are recommended to zero hours a day. Ponti (2022) emphasizes the importance of forming good screen time habits and suggests language stimulation through interactions and activities. The first five years of age are the most significant for language stimulation, so they must be involved in many language-rich interactions to help structure and shape continued learning (Sundqvist et al., 2024).

Belton et al. (2021) conducted a study investigating screen time's varying effects on children's well-being. The 2017 study sampled the daily leisure screen time of children 8-12 years old. The findings underscore the importance of considering the diversity of screen-based activities and their potential impacts on different dimensions of children's health and happiness, offering valuable implications for parents, educators, and policymakers striving to promote healthy screen habits and overall well-being in children. Children who self-reported less than two hours of leisure screen time had better dimensions of overall well-being, including physical, peer, parental, and school, but not psychological. The researchers highly suggest that children's daily leisure screen time should be limited due to this study's growing evidence and results.

Hinkley et al. (2014) investigate the relationship between early childhood electronic media use and well-being, offering insights into the potential impacts of screen time on various dimensions of children's health and happiness. The study findings suggest that greater electronic media use in early childhood is associated with poorer well-being outcomes. This study provides valuable insights into the potential impact of electronic media on children's health and highlights the importance of monitoring and regulating media use during this critical developmental period.

Brebner et al. (2017) conducted an exploratory study of a novel approach to enhancing children's speech, language, and communication skills through a professional development program for early childhood educators. The study examines the effectiveness of an embedded, service-based professional development model, which integrates training directly into educators' daily interactions with children. Due to the complexities of children's linguistic and communicative development during their formative years, this study highlighted the need for new and innovative strategies. The researchers concluded that optimizing professional development initiatives for educators would be beneficial, ultimately fostering better speech, language, and communication outcomes in young learners. The suggestion is to create a well-designed program that allotted sufficient time to develop relationships and communication processes between the parties. During this time, educators can develop relationships and mutual understanding of expertise, skills, and knowledge to support one another better.

Conclusion

Excessive screen time can impede children's communication competencies, as evidenced by language acquisition and comprehension limitations, disruptions in social interaction, and attentional deficits. These effects align with Vygotsky's sociocultural theory, which emphasizes the importance of social interaction and cultural context in shaping cognitive development,

including communication skills. The sociocultural theory posits that children learn and develop through meaningful social interactions with more knowledgeable members of society, a process hindered by excessive screen time. As such, interventions aimed at promoting balanced screen time habits and fostering rich social interactions are crucial for supporting healthy communication development in children. Furthermore, future research should aim to overcome the limitations of the ever-changing technological modern world to understand screen time's long-lasting and future impact on children's communication development.

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