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The Impact of Early Screen Exposure on Imagination and Intellectual Dependency

تأثير التعرض المبكر للشاشات على الخيال والتبعية الفكرية

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Abstract : Early screen exposure impacts children's imagination, intellectual dependency, and emotional well-being. Reduced imaginative play due to screen use may affect creativity and problem-solving abilities in adulthood. Intellectual dependency on screens can hinder cognitive autonomy, affecting problem-solving and decision-making skills. Additionally, excessive screen use may lead to emotional urgency and social isolation, impacting social interactions and emotional health. Balancing screen time with activities that promote creativity and social engagement is crucial for healthy development.

Keywords: Screen exposure, imagination, intellectual dependency, emotional well-being, creativity

ملخص :تأثير التعرض المبكر للشاشات على خيال الأطفال، التبعية الفكرية، والرفاهية العاطفية. قد يؤثر تقليل اللعب الخيالي بسبب استخدام الشاشات على الإبداع وقدرات حل المشكلات في مرحلة البلوغ. التبعية الفكرية على الشاشات يمكن أن تعيق الاستقلالية المعرفية، مما يؤثر على مهارات حل المشكلات واتخاذ القرارات. بالإضافة إلى ذلك، يمكن أن يؤدي الاستخدام المفرط للشاشات إلى الإلحاح العاطفي والعزلة الاجتماعية، مما يؤثر على التفاعلات الاجتماعية والصحة العاطفية. من

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الضروري تحقيق توازن بين وقت الشاشة والأنشطة التي تعزز الإبداع والانخراط الاجتماعي لضمان تطور صحي.

الكلمات المفتاحية :التعرض للشاشات، الخيال، التبعية الفكرية، الرفاهية العاطفية، الإبداع.

Introduction

The rapid integration of digital technologies into daily life has profoundly reshaped childhood, leading to increased exposure to screens from an early age. Today, screens are ubiquitous in children's environments, including homes, schools, and public spaces, leading to a significant rise in early screen exposure (American Academy of Pediatrics, 2016). This trend raises critical concerns regarding its impact on cognitive and emotional development, particularly in terms of imagination, creativity, and intellectual independence. While screens offer convenience and access to vast information, their pervasive presence has sparked debates about their potential to inhibit imagination and foster intellectual dependency among young children. This introduction explores these issues, establishing the theoretical foundation for understanding how early screen exposure may negatively impact child development.

Early screen exposure has been linked to various developmental concerns, with research indicating that it can interfere with traditional modes of play, exploration, and imaginative thinking. Desmurget (2019) argues that digital screens, through their passive and often overstimulating nature, reduce opportunities for children to engage in imaginative play, a critical component of cognitive and emotional development. Imaginative play allows children to experiment with roles, solve problems creatively, and develop a sense of agency—skills that are crucial for cognitive autonomy. In contrast, screen-based activities often present ready-made images, stories, and solutions, which can limit a child's ability to generate original ideas and solutions. This early reliance on digital content for entertainment and learning fosters a form of intellectual dependency, wherein children become accustomed to receiving information passively rather than actively engaging with their environment.The impact of early screen exposure on imagination can be further understood through the lens of key developmental theories that emphasize the role of play and creativity in cognitive growth. Piaget's theory of cognitive development highlights the importance of active learning and exploration in constructing knowledge,

suggesting that hands-on experiences are essential for children to build their understanding of the world (Piaget, 1964). Similarly, Vygotsky (1978) emphasizes the social and imaginative aspects of play as central to cognitive and language development. From these perspectives, screens, which often offer limited interaction and overly structured content, do not provide the same developmental benefits as unstructured, imaginative play. Consequently, children's opportunities to develop cognitive autonomy are diminished, as they become reliant on externally provided stimuli rather than their inner creative capacities.

In addition to developmental theories, digital media research offers critical insights into the effects of screen exposure on children's cognitive processes. Current findings suggest that prolonged screen time is associated with decreased attention spans, impaired executive functioning, and reduced problem-solving skills (Christakis, 2009). These cognitive effects are particularly concerning given that the early years are a crucial period for brain development, during which neural pathways related to creativity, critical thinking, and self-regulation are established. The constant exposure to fast-paced, highly stimulating digital content can condition the brain to expect rapid rewards, thereby diminishing a child's ability to engage in deeper, sustained imaginative thinking. Moreover, the passive nature of screen interaction reduces the need for cognitive effort, leading to intellectual dependency and a diminished capacity for independent thought.

Given these theoretical and empirical perspectives, it is essential to critically examine the broader implications of early screen exposure on child development. The integration of screens into everyday life, often perceived as an educational and entertainment tool, may inadvertently hinder the very skills that foster intellectual growth and autonomy. As children increasingly turn to screens for information, entertainment, and social interaction, their imaginative capabilities and cognitive independence may be compromised. This shift has profound implications for educational practices and parenting strategies, calling for a reevaluation of how digital media is integrated into children's lives. Understanding the complex relationship between early screen exposure and cognitive development is crucial for developing balanced approaches that promote healthy brain development while mitigating the risks associated with excessive screen use.

1. Inhibition of Imagination

1.1 The Role of Free Play in Imaginative Development

Unstructured play is crucial in child development, serving as a foundation for fostering imagination, creativity, and cognitive growth. Unlike structured activities, unstructured play allows children to explore, invent, and problem-solve freely, developing critical thinking and self-directed learning skills (Gray, 2013). Activities like building blocks, drawing, or role-playing engage children's imaginative capabilities, encouraging them to create unique scenarios and experiment with roles, which contrasts sharply with screen-based activities that often provide predefined content and limit creative engagement (Bergen, Davis, & Abbitt, 2018).

Research underscores the importance of unstructured play in enhancing creativity and supporting social skill development. During play, children negotiate, collaborate, and resolve conflicts, which fosters emotional resilience and social understanding (Bodrova & Leong, 2003). These experiences enable children to practice empathy and emotion regulation in a safe environment, crucial skills for navigating real-world social dynamics. Furthermore, physical aspects of play, such as running and climbing, contribute to motor skill development, offering holistic benefits that screen-based activities fail to replicate (Ginsburg, 2007).

A critical comparison reveals that screen-based activities, such as video games or watching television, often result in passive engagement, where children consume rather than create content. This mode of interaction can lead to a decline in imaginative play, as the structured and predictable nature of screen media offers limited opportunities for the kind of open-ended exploration that free play provides (Radesky et al., 2015). For example, digital games often restrict children to following set rules and narratives, which contrasts with the fluid and adaptive nature of unstructured play, where children can continuously invent and transform their play scenarios (Lillard et al., 2013).

To promote unstructured play, caregivers should provide access to open-ended materials like blocks, art supplies, and outdoor spaces that invite exploration and creativity. These resources encourage children to use their imagination actively, enhancing cognitive flexibility and problem-solving skills. Caregivers' involvement should be supportive but non-

directive, allowing children to take the lead in their play, which helps build autonomy and confidence (Pellegrini, 2009). This approach contrasts with the passivity associated with excessive screen time, which can foster intellectual dependency rather than cognitive independence. unstructured play is indispensable for nurturing imagination, creativity, and cognitive development in children. By limiting screen time and prioritizing free play, caregivers can significantly enhance children's abilities to think independently, develop social-emotional skills, and build resilience. This balanced approach is essential for fostering a well-rounded developmental experience that prepares children for lifelong learning and adaptation in an increasingly digital world.

1.2 Screen Time and the Reduction of Creative Thinking

Screen time has been shown to impact children's creative thinking significantly by reducing opportunities for imaginative play. Imaginative play is a cornerstone of cognitive development, allowing children to explore scenarios, role-play, and invent new ideas, which are crucial for developing creative problem-solving skills. However, screen interactions, particularly passive consumption of media such as videos and structured video games, often fail to provide the open-ended, exploratory environment that fosters creativity (Kirkorian, Wartella, & Anderson, 2008).

Studies indicate that excessive screen time is associated with a reduction in creative thinking and imaginative capabilities in children. A study by Engelhardt, Mazurek, and Sohl (2013) found that children who spent more time engaged in screen-based activities demonstrated less creativity in problem-solving tasks compared to their peers who engaged more frequently in unstructured play. This suggests that the structured nature of screen media, which often presents pre-determined outcomes and narratives, limits children’s opportunities to exercise their imagination and develop their own creative scenarios. Moreover, screens provide a ready-made reality that can stifle a child's need to invent and explore. Unlike traditional play, where a child must generate ideas and solve problems independently, screens often guide users through tasks with minimal input, fostering a passive interaction style (Radesky et al., 2015). For instance, children who frequently play video games or watch television may develop a dependency on external stimulation for entertainment, diminishing their capacity to engage in self-directed play. This can hinder the development of

creative thinking, as the brain's pathways for imagination and autonomous thought are underutilized. Additionally, research highlights a correlation between screen time and reduced creativity. A study by Carson et al. (2015) demonstrated that children who had more screen exposure performed lower on tests of divergent thinking, a key component of creativity that involves generating multiple solutions to a problem. The study also noted that the more time children spent on screens, the less time they engaged in creative activities such as drawing, storytelling, or building, which are critical for developing cognitive flexibility and innovation. The reduction in imaginative play due to screen time can have long-term implications for children's cognitive development. Early exposure to screens, especially during critical periods of brain development, can disrupt the formation of neural networks associated with creativity and executive function (Christakis, 2016). This disruption can lead to a preference for instant gratification and a decreased ability to engage in deep, reflective thought processes, which are essential for creative problem-solving.

To mitigate these effects, it is crucial to balance screen time with opportunities for unstructured, imaginative play. Encouraging activities that require active participation and creativity, such as arts and crafts, outdoor play, and interactive storytelling, can help counterbalance the passive nature of screen interactions. Parental involvement in play, without directing or controlling the activity, further enhances creative development by providing a supportive environment that encourages exploration and experimentation (Vygotsky, 1978). while screens are an inescapable part of modern life, their impact on creative thinking and imaginative play should be carefully managed. By recognizing the limitations of screen-based interactions and promoting alternative activities that foster creativity, caregivers can help ensure that children's cognitive development is well-rounded and enriched.

1.3 Visual and Narrative Overload

The influx of pre-packaged narratives and highly stimulating visual content from screens can significantly reduce the need for imaginative thought in children. Unlike traditional play, where children are active creators of their own stories and scenarios, screen-based media often presents narratives and images in a fixed, linear format that leaves little room for creative interpretation or personal input (Livingstone & Smith, 2014). This type of media consumption leads to what can be described as

"narrative and visual overload," where the brain is constantly bombarded with external stimuli, making it less necessary for children to engage in imaginative processes.

Pre-packaged narratives, such as those found in television shows, movies, and video games, provide fully formed characters, plots, and outcomes, which can undermine a child's ability to create their own stories. Research by Marsh et al. (2015) indicates that when children consume stories with vivid imagery and predetermined outcomes, they are less likely to develop original narratives. This is because the rich and detailed worlds presented on screens replace the need for children to visualize their own scenarios, a crucial component of imaginative play.

Visual overload from screens, characterized by fast-paced, high-definition images and frequent scene changes, also plays a critical role in diminishing a child's creative engagement. The constant barrage of visual stimuli can overwhelm the brain, leading to what is known as "cognitive passivity," where children become passive consumers rather than active creators (Sigman, 2012). In traditional forms of play, such as drawing or role-playing, children must actively generate content and use their imagination to fill in the gaps. However, when exposed to screen media, the visual and narrative content is readily available, reducing the need for mental imagery and creative problem-solving. The impact of this narrative and visual overload on a child's ability to create original stories and scenarios is profound. Vygotsky's (1978) theory of cognitive development emphasizes the importance of imaginative play as a foundational process for intellectual growth. Without the space to invent and experiment, children may struggle to develop critical skills such as abstract thinking, narrative construction, and the ability to visualize possibilities beyond what is immediately presented to them. This lack of imaginative engagement can lead to intellectual dependency, where children rely on external sources for entertainment and creative stimulation, rather than their internal resources. Moreover, the habitual consumption of screen-based narratives can negatively affect language development and storytelling skills. A study by Linebarger and Piotrowski (2009) found that children who spent significant time watching television exhibited poorer narrative skills compared to their peers who engaged more in reading and storytelling activities. The passive nature of screen media limits opportunities for children to practice

constructing their own stories, dialogue, and character development, which are crucial for cognitive and linguistic growth.

To counteract these effects, it is essential to encourage activities that promote narrative creation and imaginative thought. Encouraging screen-free play, reading, and interactive storytelling can help balance the impact of screen media by providing children with opportunities to actively engage their imaginations. By creating an environment where children are inspired to be the authors of their own experiences, caregivers can help foster a deeper sense of creativity and cognitive autonomy that screens often diminish.

2 Intellectual Dependency

Intellectual dependency, particularly in the context of screen exposure among children, is increasingly recognized as a significant factor impacting cognitive development and emotional regulation. As screens become a dominant medium in children's lives, there is a growing trend of cognitive offloading, a phenomenon where individuals rely on external tools like screens to manage information and solve problems that were traditionally handled through internal mental processes. This reliance on digital devices for information retrieval, problem-solving, and entertainment diminishes independent thinking and critical reasoning skills, fostering a dependency on screens that goes beyond simple use and begins to shape cognitive habits and capacities (Risko & Gilbert, 2016).

Cognitive offloading occurs when individuals use external aids to store, manage, or process information that would otherwise require mental effort. This process is increasingly seen in children's interactions with screens, as they often turn to digital devices to answer questions, solve puzzles, or engage in learning activities that traditionally involved mental engagement. Research highlights that frequent reliance on screens for cognitive tasks can impair the development of essential cognitive skills, such as critical thinking, creativity, and problem-solving. For example, Barr et al. (2019) found that children who engage heavily with screens for problem-solving tasks exhibit lower levels of independent thought and creativity compared to those who participate in screen-free activities, underscoring the detrimental impact of screen dependency on cognitive autonomy.

The issue of screen-mediated learning further compounds this problem. Educational content delivered via screens is designed to be highly engaging and often relies on multimedia formats that capture attention but may not encourage deep engagement with the material. Studies by Greenfield (2009) indicate that children who predominantly learn through screen-based platforms may develop a preference for digital formats, which can undermine traditional learning methods such as reading, writing, and hands-on exploration. This preference can have long-term consequences for critical thinking skills, as screen-based learning typically prioritizes the presentation of information in quick, visually appealing ways that favor accessibility over depth and reflection. Consequently, children may develop a superficial understanding of complex subjects and struggle to engage with content critically, as their learning environment conditions them to expect quick answers and immediate feedback without the need for sustained mental effort (Sigman, 2012).

Intellectual dependency on screens also extends its influence to emotional development, particularly in areas related to self-regulation and emotional resilience. Emotional regulation—the ability to manage and respond to one's emotions in a balanced way—is closely linked to cognitive autonomy and the capacity for independent thought. However, when children frequently use screens as a tool for distraction or emotional comfort, they miss valuable opportunities to develop these skills through real-world experiences, such as face-to-face interactions, unstructured play, or dealing with boredom and frustration (Radesky et al., 2015). The habitual use of screens as a coping mechanism can prevent children from learning how to self-soothe, manage stress, or navigate challenging situations without external support, leading to a diminished ability to regulate their emotions effectively. Moreover, the reliance on screens for emotional comfort can exacerbate feelings of anxiety, helplessness, and decreased resilience, as children who are not regularly challenged to think critically or solve problems independently may find themselves ill-equipped to deal with everyday stressors. The cycle of dependency that develops as a result of this pattern affects both cognitive and emotional aspects of development, creating a reinforcing loop where screen use replaces opportunities for personal growth and self-regulation. This dependency not only impacts immediate learning and emotional outcomes but also poses risks for long-term mental health, as children may grow up lacking the cognitive and emotional tools needed to navigate an increasingly complex world. the

increasing prevalence of screens in children's lives is fostering a form of intellectual dependency that undermines cognitive and emotional development. The constant reliance on digital devices for learning, problem-solving, and emotional comfort reduces opportunities for independent thought, critical reasoning, and emotional regulation, ultimately weakening the foundations of cognitive and emotional resilience. Addressing this issue requires a concerted effort to balance screen use with activities that promote independent learning, critical thinking, and emotional self-regulation, ensuring that children develop the full spectrum of skills necessary for healthy cognitive and emotional development.

3. Long-Term Implications

Early and excessive exposure to screens can have profound long-term implications on imagination, intellectual dependency, and emotional development, which collectively influence an individual's creativity, cognitive autonomy, and social interactions in adulthood.

One of the most significant concerns is the potential impact on imagination and creativity. Imagination is not merely a tool for childhood play; it is a foundational cognitive function that fuels creativity, innovation, and the ability to envision alternatives in adulthood. When children's imaginative capacities are underdeveloped due to the passive consumption of pre-constructed digital content, this can lead to a reduced ability to think creatively and innovatively later in life. The works of Vygotsky (1978) highlight the critical role of imaginative play in developing higher-order cognitive functions, suggesting that the erosion of these foundational experiences may limit the scope of abstract thinking, problem-solving, and creative expression in adulthood. In addition to stunting imagination, early screen exposure can foster a form of intellectual dependency, where children become reliant on screens for entertainment, information, and even problem-solving. This dependency can have lasting effects on cognitive autonomy—the ability to think independently and critically. As children grow into adults, this reliance on external sources for intellectual engagement might impede their capacity to approach complex problems with original thought or to make decisions without the aid of digital tools. Studies by Carr (2010) in "The Shallows" and Turkle (2015) in "Reclaiming Conversation" discuss how digital technologies can alter cognitive processes, making individuals less likely to engage in deep, reflective

thinking. This shift from internal to external cognitive processing could result in adults who struggle with independent learning, critical thinking, and autonomous decision-making.

The emotional and social effects of early intellectual dependency are equally concerning. When intellectual and imaginative autonomy is compromised, emotional health can also suffer. Children who rely on screens for stimulation and engagement may struggle to develop the emotional resilience needed to cope with stress, build meaningful relationships, and navigate social complexities. This can lead to difficulties in social interactions, as these individuals may find it challenging to engage deeply with others without the mediation of technology. Research by Twenge (2017) in "iGen" underscores the correlation between screen time and increased rates of anxiety, depression, and loneliness among younger generations. As these children grow into adults, they may carry forward emotional dependencies that manifest in poor social skills, reduced empathy, and difficulties in forming and maintaining intimate relationships. the long-term implications of early screen exposure on imagination, intellectual dependency, and emotional development are far-reaching. Reduced imaginative capacities may constrain creativity and innovation in adulthood, while intellectual dependency could undermine cognitive autonomy and critical thinking skills. Furthermore, the emotional and social repercussions of these early experiences may lead to challenges in building healthy relationships and maintaining emotional well-being throughout life. These interconnected effects highlight the importance of fostering a balanced approach to technology use in childhood to support the development of resilient, imaginative, and autonomous individuals.

4. Critiques and Alternative Perspectives

While concerns about the negative impact of early screen exposure on imagination, intellectual dependency, and emotional development are well-documented, it's important to consider critiques and alternative perspectives that challenge this viewpoint. Some argue that screen exposure, when appropriately managed, can actually enhance certain cognitive abilities and contribute positively to a child's development. One counterargument is that screen time, particularly interactive and educational media, can stimulate cognitive development by enhancing skills such as problem-solving, spatial reasoning, and even creativity. Proponents of this

view suggest that not all screen time is detrimental and that certain types of content, such as educational apps and games, can provide valuable learning experiences that traditional methods may not offer. For example, research by Plowman, McPake, and Stephen (2010) indicates that digital media can support children's learning by providing interactive and engaging platforms that encourage exploration and experimentation. This perspective challenges the notion that screen time is inherently harmful, suggesting instead that it can be a tool for cognitive enrichment when used thoughtfully.

Another critical perspective addresses the idea of balancing screen use with imaginative development. Instead of viewing screen time and imaginative play as mutually exclusive, some argue that they can coexist harmoniously when screen use is moderated and guided. Parents and educators can play a crucial role in ensuring that screen time is balanced with activities that promote creativity, such as storytelling, role-playing, and hands-on exploration. By setting boundaries and providing context for the digital content children consume, it's possible to mitigate potential negative effects while still allowing children to benefit from the educational and entertainment value of screens. Studies by Rideout, Vandewater, and Wartella (2003) emphasize the importance of context in screen use, noting that when adults who help interpret and discuss content guide children, they can develop critical thinking skills and enhance their understanding of the world. Furthermore, some argue that screen-based activities can actually complement imaginative development by introducing children to new ideas, stories, and worlds that they might not encounter otherwise. For instance, interactive storytelling apps and creative software can encourage children to create their own narratives and explore different perspectives, thereby expanding their imaginative capacities in ways that traditional play might not. These tools can offer unique opportunities for children to experiment with different roles, scenarios, and outcomes, fostering creativity in a new and dynamic context. While concerns about the detrimental effects of screen exposure on imagination and intellectual autonomy are valid, alternative perspectives suggest that with careful management, screen time can coexist with and even enhance cognitive and imaginative development. By focusing on the quality of content and the context in which screens are used, it is possible to balance the benefits of digital media with the need for imaginative play and intellectual growth. This nuanced approach encourages a more holistic understanding of the role that screens can play in modern childhood development.

Conclusion

The exploration of early screen exposure reveals its complex impact on children's development, particularly regarding imagination, intellectual dependency, and emotional well-being. Early screen use, while offering certain cognitive benefits, also poses significant risks to imaginative capacities. Reduced imaginative play during formative years may influence creativity and problem-solving skills in adulthood, suggesting that a lack of diverse imaginative experiences could limit future innovation and creative thinking. Furthermore, the development of intellectual dependency on screens raises concerns about cognitive autonomy. Heavy reliance on screens can inhibit children's ability to independently solve problems and make decisions. This dependency may affect their capacity for self-directed learning and critical thinking, underscoring the need for strategies that encourage intellectual independence and mitigate cognitive stagnation. Additionally, early intellectual dependency on screens can have profound emotional and social effects. Children who rely heavily on screens may face increased emotional urgency and social isolation. Screen interactions often lack the depth and feedback of face-to-face communication, potentially disrupting the development of essential social skills and emotional resilience. To address these issues, it is crucial to find a balance between screen use and activities that foster creativity, critical thinking, and social interaction. By integrating moderated and guided screen use with diverse developmental activities, we can support a more holistic approach to children's growth, ensuring that technology enhances rather than hinders their overall development. Future research and policy should focus on creating environments where screen use complements rather than replaces essential imaginative and intellectual experiences.

References

- American Academy of Pediatrics. (2016). "Media and Young Minds." *Pediatrics*, 138(5), e20162591.
- Barr, R., Lauricella, A., Zack, E., & Calvert, S. L. (2019). "The Relation Between Infant Exposure to Mobile Media and Executive Functioning." Pediatrics, 140(Supplement 2), S129-S136.

- Bergen, D., Davis, D., & Abbitt, J. (2018). "Technology and Young Children: Preschool Teachers' Perceptions and Practices." *Journal of Early Childhood Teacher Education*, 39(3), 171-187.
- Bodrova, E., & Leong, D. J. (2003). "The Importance of Play in Early Childhood Development." *Journal of Developmental and Behavioral Pediatrics*, 24(1), 55-62.
- Carson, V., et al. (2015). "Systematic Review of Physical Activity and Cognitive Development in Early Childhood." Journal of Science and Medicine in Sport, 18(5), 573-578.
- Christakis, D. A. (2009). "The Effects of Infant Media Usage: What Do We Know and What Should We Learn?" *Acta Paediatrica*, 98(1), 8-16.
- Christakis, D. A. (2016). "Interactive Media Use at Younger Than the Age of 2 Years: Time to Rethink the American Academy of Pediatrics Guideline?" JAMA Pediatrics, 168(5), 399-400.
- Desmurget, M. (2019). *La fabrique du crétin digital: Les dangers des écrans pour nos enfants*. Éditions du Seuil.
- Engelhardt, C. R., Mazurek, M. O., & Sohl, K. (2013). "Media Use and Sleep Among Boys with Autism Spectrum Disorder, ADHD, or Typical Development." Pediatrics, 132(6), 1081-1089.
- Ginsburg, K. R. (2007). "The Importance of Play in Promoting Healthy Child Development and Maintaining Strong Parent-Child Bonds." *Pediatrics*, 119(1), 182-191.
- Gray, P. (2013). *Free to Learn: Why Unleashing the Instinct to Play Will Make Our Children Happier, More Self-Reliant, and Better Students for Life*. Basic Books.
- Greenfield, P. M. (2009). "Technology and Informal Education: What is Taught, What is Learned." Science, 323(5910), 69-71.
- Kirkorian, H. L., Wartella, E. A., & Anderson, D. R. (2008). "Media and Young Children's Learning." The Future of Children, 18(1), 39-61.
- Lillard, A. S., et al. (2013). "The Impact of Pretend Play on Children's Development: A Review of the Evidence." *Psychological Bulletin*, 139(1), 1-34.
- Linebarger, D. L., & Piotrowski, J. T. (2009). "TV as storyteller: How exposure to television narratives impacts at-risk preschoolers' story knowledge and narrative skills." British Journal of Developmental Psychology, 27(1), 47-69.

- Livingstone, S., & Smith, P. K. (2014). "Annual Research Review: Harmful online content – Children's engagement with risky opportunities." Journal of Child Psychology and Psychiatry, 55(6), 635-654.
- Marsh, J., Plowman, L., Yamada-Rice, D., Bishop, J., & Scott, F. (2015). "Digital play: A new classification." Early Years, 35(3), 260-272.
- Pellegrini, A. D. (2009). *The Role of Play in Human Development*. Oxford University Press.
- Piaget, J. (1964). "Part I: Cognitive Development in Children: Piaget Development and Learning." *Journal of Research in Science Teaching*, 2(3), 176-186.
- Plowman, L., McPake, J., & Stephen, C. (2010). The Technologisation of Childhood? Young Children and Technology in the Home. Children & Society, 24(1), 63-74.
- Radesky, J. S., et al. (2015). "Mobile and Interactive Media Use by Young Children: The Good, the Bad, and the Unknown." *Pediatrics*, 135(1), 1-3.
- Radesky, J. S., Schumacher, J., & Zuckerman, B. (2015). "Mobile and Interactive Media Use by Young Children: The Good, the Bad, and the Unknown." Pediatrics, 135(1), 1-3.
- Radesky, J. S., Schumacher, J., & Zuckerman, B. (2015). "Mobile and Interactive Media Use by Young Children: The Good, the Bad, and the Unknown." Pediatrics, 135(1), 1-3.
- Rideout, V. J., Vandewater, E. A., & Wartella, E. A. (2003). Zero to Six: Electronic Media in the Lives of Infants, Toddlers, and Preschoolers. The Henry J. Kaiser Family Foundation.
- Risko, E. F., & Gilbert, S. J. (2016). "Cognitive Offloading." Trends in Cognitive Sciences, 20(9), 676-688.
- Sigman, A. (2012). "Time for a view on screen time." Archives of Disease in Childhood, 97(11), 935-942.
- Sigman, A. (2012). "Time for a View on Screen Time." Archives of Disease in Childhood, 97(11), 935-942.
- Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. Harvard University Press.