

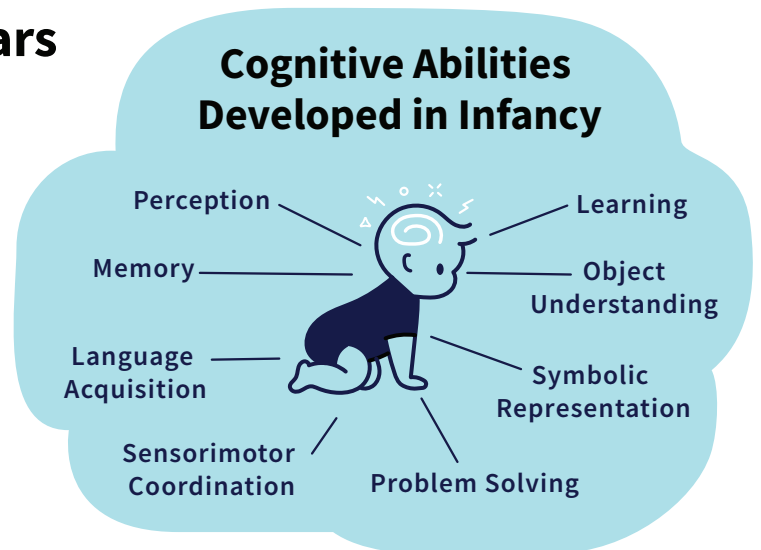
Infant Cognitive Development and Screens

2024

Importance of the First Two Years for Cognitive Development

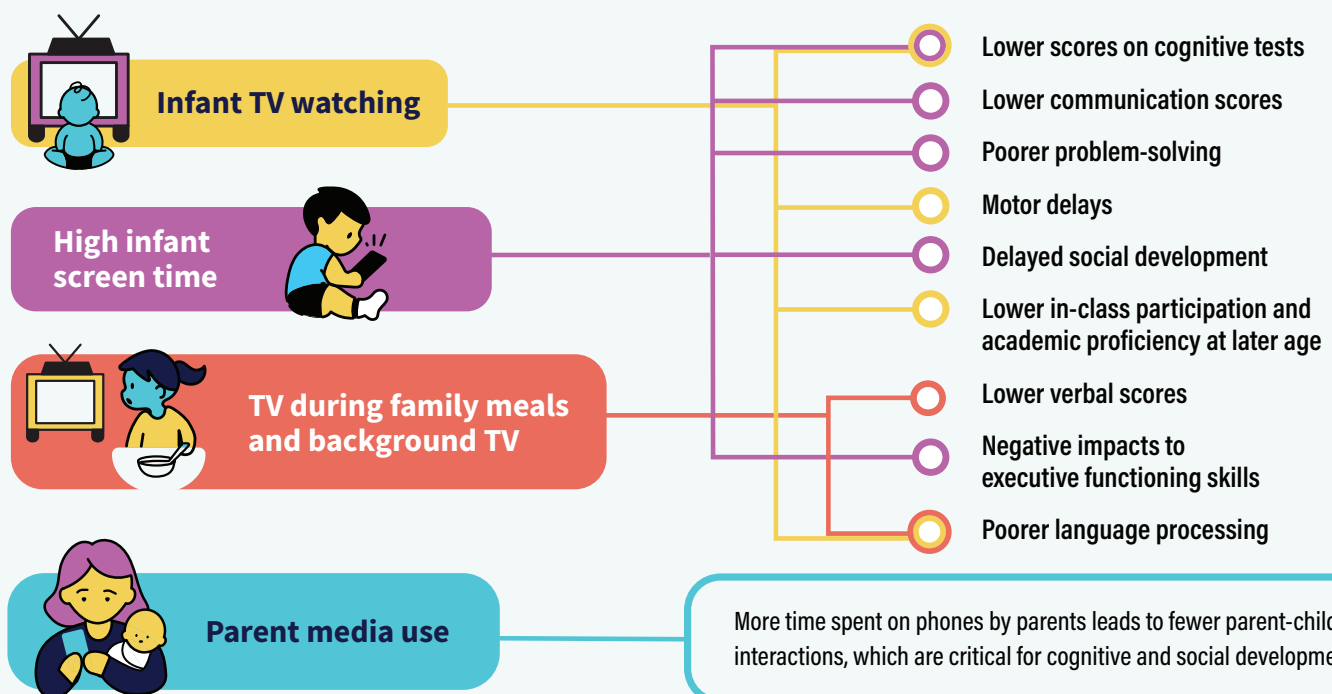
Infant cognitive development refers to the process by which infants grow mental traits and abilities in the first two years of life. Key faculties and cognitive skills emerge during this period, all of which depend on critical environmental inputs for their proper development. Screen media use is one such environmental experience that can affect the development of these abilities.

(Barr & Kirkorian, 2023; Hipp et al., 2017; McLaughlin et al., 2021)



Screen Exposures and Potential Impacts

Impacts from infant screen use affect the trajectory of subsequent cognitive development beyond infancy into later childhood and even potentially adulthood.



Infants, Digital Media, and Learning

Research results are consistent in finding that infants do not learn well from screens, and screen use disrupts and displaces real-world contexts that are optimal for learning.



COGNITIVE REQUIREMENTS FOR SCREEN LEARNING NOT PRESENT IN INFANTS

Learning from screens requires a cognitive representation of the screen (“dual representation”) that is typically not achievable in infants below a certain age.



LANGUAGE LEARNING

Basic language learning requires live, in-person social settings, not just audiovisual exposure to language. Even socially-responsive media does not support toddler language learning from video.



VIDEO DEFICIT EFFECT

Very young children (12-24 months) have difficulty transferring what they have learned from a screen to a real-world context. Sensory, motor, and memory demands make solely audiovisual media insufficient for developmentally appropriate learning.



EXAGGERATED AUDIOVISUAL INTENSITY

High intensity stimulation from screens is beyond what infants’ developing brains are calibrated to process.



PARENTAL OVERESTIMATION

Parents tend to overestimate the learning that infants are experiencing using digital media.



DISPLACEMENT

Developmental milestones, which largely depend on children's accumulated experiences interacting with the world, may be delayed if some or much of that experience is displaced by screen time.

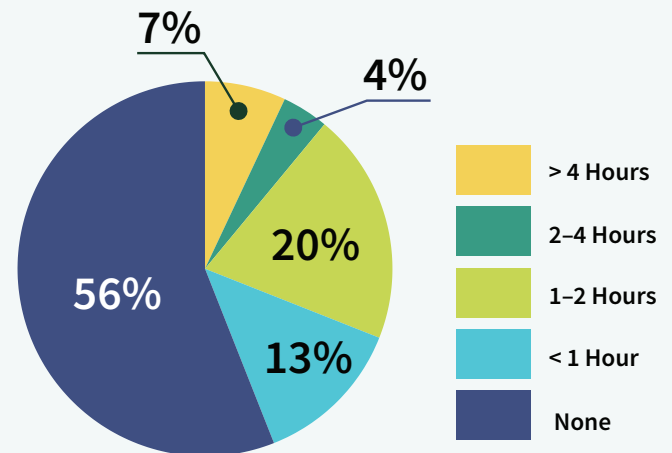
(Barr & Kirkorian, 2023; Christakis, 2009; DeLoache et al., 2010; Hipp et al., 2017; Koch et al., 2024; McHarg et al., 2020; Sundqvist et al., 2021; Zack et al., 2009)

“ The recommendation of the American Academy of Pediatrics (of which I was one of the lead authors) is that there should be no screen use before 18 months, except for video chat. The simple reason is that there is no evidence that children acquire anything meaningful from screens before the age of 18 months. To me, this means that any time they're spending on a screen is coming at the expense of meaningful and impactful real world experiences. Simply put, young children need laps, not apps. ”

Research and Screen Time Amounts

Research studies vary in how they define “high” amounts of screen time, though there is broad agreement that the listed effects from infant screen time worsen with higher doses/amounts of screen time.

Daily Screen Use Among Children Under 2 Years Old



(Rideout & Robb, 2020)

Family/socioeconomic factors affecting screen time and its impacts

A number of family and environmental factors have been found to be associated with high screen time for infants, such as:

- Lower family income
- High family TV time
- Smaller living spaces
- One sibling
- Greater maternal pre-pregnancy BMI
- Lower maternal age
- Not predominantly breastfeeding
- Lower maternal education level

(Adams et al., 2018; Durham et al., 2021; Law et al., 2023)

Dimtri Christakis, MD, MPH

CHIEF SCIENCE OFFICER,
Children and Screens

GEORGE ADKINS PROFESSOR,
University of Washington

