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Young Toddlers May Learn More From Interactive Than Noninteractive Media

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When and How Do Interactive Digital Media Help Children Connect What They See On and Off the Screen?

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Preschoolers can learn a lot from educational television, but younger toddlers may learn more from interactive digital media (such as video chats and touchscreen mobile apps) than from TV and videos alone, which don't require them to interact. That's the conclusion of a new article that also notes that because specific conditions that lead to learning from media are unclear, not all types of interactive media increase learning and not all children learn to the same degree from these media.

The article, a review of studies on the issue by Heather Kirkorian, associate professor of human development and family studies at the University of Wisconsin, Madison, is published in *Child Development Perspectives*, a journal of the Society for Research in Child Development.

"Research is just beginning to address how children learn from interactive digital media, but interactivity appears to help young children connect what they see on a screen to their experience in the world," according Kirkorian. "However, some types of interactivity are more beneficial than others, and optimal conditions for learning may vary considerably from person to person."

In her article, Kirkorian summarizes and analyzes research on how toddlers learn from digital media, focusing on how children understand what they see on screens in their early years. She also looks at the extent to which cognitive constraints and the complexity of tasks children must carry out as they watch or interact with media alter the effects of these media on their early learning and development.

We already know that children engage cognitively when they watch TV and can learn from well-designed educational TV programs. However, learning from video isn't the same as learning from direct experience, and until age 2 or 3 years, children appear to have difficulty learning from media that are not interactive. Older preschoolers also have trouble learning from media when they're tested on more difficult tasks. This may be because video is presented in two dimensions. Also, video lacks many cues that support learning; for example, people and characters in videos can't react to a learner'sfacial expressions or respond to a learner's

questions.

Do interactive media support or hinder learning? Kirkorian concludes that interactive media may be more demanding cognitively because children must decide on and generate appropriate motor responses. But interactive media may facilitate learning by promoting a sense of agency, increasing children's engagement through personally relevant responses or guiding children to look at relevant information on the screen. Studies have found that toddlers learned from video chats as well as computer games and touchscreen apps, with the impact depending in part on the extent to which interactive features directed their attention to relevant information.

Furthermore, the degree to which interactivity boosts learning from screens varies considerably, according to Kirkorian, who notes that the reasons for this variability are unclear and may have to do with age-related changes in children's learning strategies or constraints in children's cognition. It may also relate to the inability of some children (especially boys and younger toddlers) to inhibit their behavioral impulses: T oddlers who can't resist the impulse to tap the screen tend to learn more from watching noninteractive videos than from games or apps that require them to interact with the screen in a certain way.

"The extent to which young children learn from screen media depends on, among other things,the intersection between the cognitive demands of a particular learning task and each child's cognitive resource s," according to Kirkorian. "For instance, interactive features that guide attention to important information may be more useful than those that divert attention from that information or provide little guidance. However, this may be true only if interacting with the screen doesn't create additional cognitive load. When encountering particularly challenging or novel information, children may learn more from observing noninteractive video than from using interactive media, at least in the short term."

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