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Can a computer teach babies to count?

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Source: Rutgers University

Summary: A recent study of 81 babies between 14 and 19 months old found the same outcome: When these babies watched a video where they were shown pictures of toy cars and toy pigs and listened to someone count out loud prior to the toys being hidden in a box -- similar to an earlier study done in person -- the babies looked longer when the box was lifted and some of the objects disappeared. When there was no out loud counting and just pointing in the video, the babies became distracted and looked away, similar to the same earlier study done in person.

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FULL STORY

When Jinjing Jenny Wang embarked on a two-year study to determine whether infants experience any cognitive benefits from watching someone count out loud on screen instead of in person, she had already seen what affect such a video had on her own daughter at 10 months old.

"I showed my daughter a counting video and wondered just how she would react," said Wang, assistant professor of cognitive psychology in the School of Arts and Sciences at Rutgers University-New Brunswick. "The literature was mixed. Some said it wouldn't work but my daughter gave me the opposite result. She did respond and reacted to the counting she was seeing on the video."

A recent study by Wang of 81 babies between 14 and 19 months old published in *Developmental Psychology* found the same outcome. When these babies watched a video where they were shown pictures of toy cars and toy pigs and listened to someone count out loud prior to the toys being hidden in a box -- similar to an earlier study done in person -- the babies looked longer when the box was lifted and some of the objects disappeared. When there was no out loud counting and just pointing in the video, the babies became distracted and looked away, similar to the same earlier study done in person.

"Our findings suggest that babies do gain some benefits from these counting videos as long as the counting videos were made to resemble real life as much as possible and engage them, which could give children a boost before they start school," said Wang. "It could reduce disparities in children who might hear less counting in person from caregivers for whatever reason."

Wang, who is the director of the Cognition and Learning Center at Rutgers, designs studies to answer questions like how babies perceive the world, how babies learn their first words and numbers and how these perceptual and learning abilities support children's later cognitive development. She works with a staff that in-

cludes a lab manager, a post-doc, a graduate student and over a dozen undergraduate researchers.

The study began during the COVID-19 pandemic and all analysis was done virtually with Rutgers-New Brunswick student researchers reviewing webcam videos of the babies rather than observing them in person. Wang said they are beginning to see babies and families in person. She also oversees a satellite lab at the Liberty Science Center in Jersey City where museum visitors can participate in live science and interact with scientists at Rutgers.

While study findings offer promising insight into how technology can be used to close the gaps in early childhood learning, Wang said, future research needs to be done to examine potential negative consequences of screen exposure.

"What needs to be determined is if these counting videos are going to be used, how much should they be used to help babies learn," Wang said.

Story Source:

Materials provided by **Rutgers University**. Original written by Robin Lally. *Note: Content may be edited for style and length.*

Journal Reference:

1. Jinjing (Jenny) Wang. **Does virtual counting count for babies? Evidence from an online looking time study..** *Developmental Psychology*, 2022; DOI: 10.1037/dev0001478

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