

Talking directly to toddlers strengthens their language skills

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(Medical Xpress)—Just as young children need nourishing food to build physical strength, they also need linguistic nutrition for optimal development of language and cognitive abilities.

New research from psychology researchers at Stanford University shows that by talking more to their toddler, parents help the child learn to process language more quickly, which accelerates vocabulary growth. The research is published in *Psychological Science*, a journal of the Association for Psychological Science.

It is well-known that socioeconomic status (SES) plays a role in language development. In general, children of lower-SES families have smaller vocabularies and lower language proficiency scores than more advantaged children. The new work helps elucidate the mechanism for these SES disparities, suggesting ways to reduce the language gap.

Previous efforts to measure the impact of child-directed [speech](#) have involved observing a mother and child interact for an hour or so during child-centered activities.

"This artificial setup isn't ideal," said lead researcher Adriana Weisleder, "since it ignores the other people and contexts important in the child's daily experiences."

Instead of bringing caregivers and toddlers to the lab for observation, Weisleder and Anne Fernald, a Stanford psychology professor and co-

author on this study, asked mothers to record their children in the everyday tumult of the home environment. They enrolled 29 children, 19 months old, from low-income Latino families, a growing sector of the U.S. population that is underrepresented in research. Each child was outfitted with a special shirt containing a small audio recorder that captured all the sounds he or she heard during the day.

"Most toddlers don't spend their days just with mom," Fernald said. "A 10-hour recording of interactions at home gives us a more natural, representative sample of each child's daily language exposure."

The recordings were analyzed by special software, called LENA (Language Environment Analysis), which distinguishes between human speech and other sources of speech, such as television and radio, and provides a measure of each. Native Spanish speakers then listened to the recordings to differentiate adult speech directed to the child from speech the child only overheard, such as when the caregiver was on the phone or talking with another adult.

There were surprisingly large differences between families in the amount of child-directed speech toddlers heard from adults over the course of a 10-hour day. One toddler heard more than 12,000 words of child-directed speech, while another heard only 670 words during the entire day.

"That's just 67 words per hour, less speech than you'd hear in a 30-second commercial," Fernald said.

How child-directed speech works

To determine the impact of these differences, the researchers conducted follow-up tests five months later. They found that those children who had experienced more child-directed speech had larger vocabularies by

24 months, compared to children who had heard less child-directed speech.

"By capturing different contexts of daily language interactions at home, we were able to show that adult speech to the child – but not speech simply overheard by the child – is important for vocabulary learning," Weisleder said. "Mere exposure to speech directed to others or on TV is not enough to drive early vocabulary development. Toddlers learn language in the context of meaningful interactions with those around them."

The researchers also assessed children's efficiency in language processing, using a procedure designed by Fernald. Toddlers were shown two images – for example, a dog and a book – as they listened to a voice asking them to look at one of the pictures, while a video camera recorded the child's reaction.

Trained "coders" then reviewed the video, noting the exact moment when the child's gaze shifted toward the named object. In this way, the researchers could study children's speed and accuracy in interpreting familiar words, with millisecond-level precision.

This test showed that children who had experienced more child-directed speech were more efficient at processing language. The analyses revealed a cascade of effects – those toddlers who heard more child-directed talk became faster and more reliable in interpreting speech, and it was their superior skill in processing language that then increased their success in vocabulary learning.

"As you learn language, you're getting faster and more accurate at interpreting the words you know in fluent speech, and this helps you pick up and learn new words as well," said Weisleder, who conducted the research as a graduate student in Fernald's lab and is currently a

postdoctoral fellow at the NYU School of Medicine.

Bridging the language gap

An important finding was that even within a low-SES group there were substantial differences among parents in verbal engagement with their children and in children's language outcomes.

"A central message of this research is that SES does not determine the quality of children's language experience," Fernald said. "Despite the challenges associated with living in poverty, some of these moms were really engaged with their children, and their kids were more advanced in processing efficiency and vocabulary."

In other cases, Weisleder said, the mothers they spoke with were unaware that they were capable of helping their [young children](#) learn. The researchers believe this lack of confidence exists partly because the adults hadn't received much education themselves.

The scientists are now working on interventions with disadvantaged Latino families to help parents learn how to engage more effectively with [toddlers](#). By developing special games and skill-building exercises, their goal is to educate families about the crucial role they can play in fostering a child's language and cognitive development.

"Parents need to know the importance of providing linguistic nutrition and exercise to their young [children](#)," Fernald said. "By talking with them more in an engaging and supportive way, parents can nurture early brain development and build a strong foundation for [language](#) learning."

More information: pss.sagepub.com/content/early/.../97613488145.abstract

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