Medical Xpress

Naming people and objects in baby's first year may offer learning benefits years later

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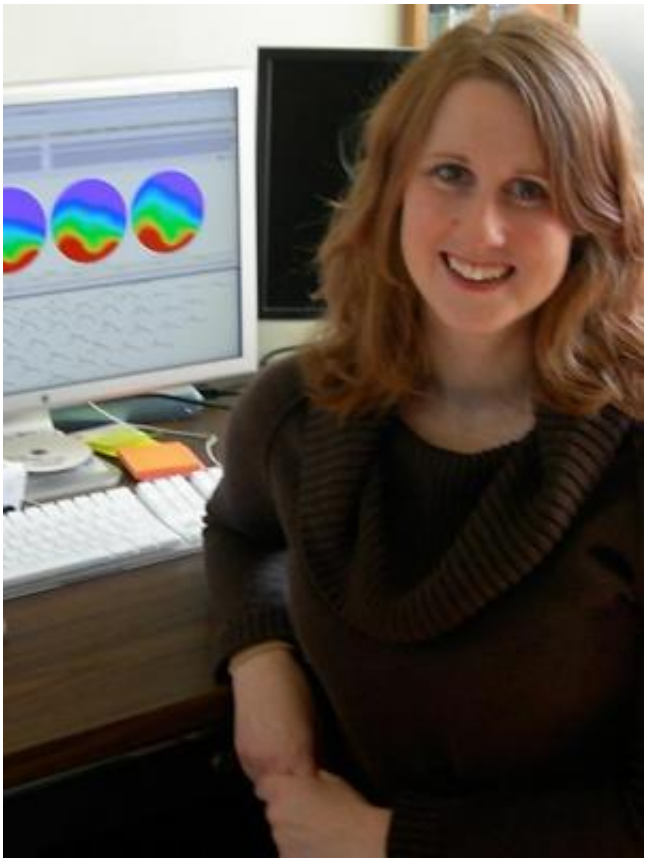

Lisa Scott's research suggests that learning in infancy between the ages of six to nine months lays a foundation for learning later in childhood. Infants learn labels for people and things at a very early age. Credit: UMass Amherst

In a follow-up to her earlier studies of learning in infancy, developmental psychologist Lisa Scott and colleagues at the University

of Massachusetts Amherst are reporting that talking to babies in their first year, in particular naming things in their world, can help them make connections between what they see and hear, and these learning benefits can be seen as much as five years later.

"Learning in infancy between the ages of six to nine months lays a foundation for learning later in childhood," Scott says. "Infants learn labels for people and things at a very early age. Labeling helps them recognize people and objects individually and helps them decide how detailed their understanding of the object or face needs to be."

Details of Scott's research, conducted with UMass Amherst psychological and brain science doctoral students Hillary Hadley and Charisse Pickron, appears in a recent online edition of the journal *Developmental Science*.

Scott's own earlier experiments as well as work by others shows that before they are six months old, babies can easily tell faces apart within familiar (e.g., human faces) and unfamiliar (e.g, monkey faces) groups. But by nine months, they are no longer as good at distinguishing faces outside their own species compared to faces from their own species.

This decline in recognizing unfamiliar individuals is called "perceptual narrowing" and is driven by the infants' experience interacting with some groups more than others and learning the names of individuals in some groups more than others during the six- to nine-month window, the neuroscience researchers say.

In the original experiment three years ago, Scott gave parents picture books to read to their infants in this age range. The books had photos of either different monkey faces or different kinds of strollers. For one group the parents spoke unique names, such as Boris or Fiona, and for the other group the same pictures were all labeled the same, just monkey

or stroller.

Scott and colleagues measured how long the babies looked at the images, and their neural responses before and after training. Results for both looking and neural responses suggested that training with individual-level labels led the babies to learn in a way that would allow them to better tell the difference between examples of monkeys or strollers in the future.

However, one unanswered question was whether the learning seen during the six- to nine-month window would be retained into childhood. To answer this, Scott and her team conducted the follow-up study reported this month. They examined response time on a picture-matching task as well as brain responses in the children, now four and five years old, who participated in the earlier training study. The researchers also examined response in a control group of children who did not participate in the training study.

As Scott explains, she and colleagues predicted that children trained with individual-level, unique labels would show lasting behavioral and neural changes in response to early training experience during infancy. But it wasn't clear whether such changes would be specific to the trained images, that is, stimulus-specific, or related to a more general ability.

They found that children trained with individual-level labels showed both behavioral and neural advantages for human faces and not for the trained images.

"These children were faster to match human faces and they exhibited more adult-like neural responses to human faces compared to children who received experience with category labels and children with no book experience," they say.

This suggests that training within individual-level labels in infancy leads

to long lasting learning effects that generalize from the trained images to the more commonly experienced category of human faces. "Even brief experiences can be important for infants, as they are actively building skills that they can use in a variety of contexts later in life," the authors note.

More information: onlinelibrary.wiley.com/doi/10 … /desc.12259/abstract

Provided by University of Massachusetts Amherst