Children learn better when they figure things out for themselves, research finds

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(Medical Xpress)—Research conducted by Penn State Brandywine Assistant Professor of Human Development and Family Studies Jennifer Zosh has discovered that toddlers learn new words more effectively by using their knowledge about the world to infer the label of an object, rather than by simply being instructed and told which word goes with which object.

"Optimal Contrast: Competition Between Two Referents Improves Word Learning" has been published in the latest special issue of *Applied* Developmental Science.

Zosh, along with colleagues Meredith Brinster (University of Texas at Austin) and Justin Halberda (Johns Hopkins University) ran two experiments that gauged preschoolers' ability to learn new words, comparing their memory for words learned through inference and instruction.

During inference trials, the children were shown a familiar object and a new, novel object and were asked to point at the new object. These trials required the children to use their knowledge of the familiar object and its label to eliminate that object and infer that the new word referred to the new object. On instruction trials the children were told the name of the new object and no recognizable objects were shown. Zosh and her colleagues found that even though children looked at the new object longer during the instruction trials, they retained the newly learned word better during inference trials.

Zosh believes that these discoveries could help enhance people's ability to teach children a variety of new information. "People tend to think that parents must directly instruct their children by telling them the labels of the objects that surround them, but this research tells us that children are even better word learners when we ask them to figure things out for themselves," Zosh said. "This finding enhances our understanding of the ways in which toddlers learn new words and may have interesting implications for learning outside of the domain of language acquisition."

Zosh also started the Brandywine Child Development Lab, in which games are used to aid in the exploration of how children learn about new objects, numbers and language. The lab also gives undergraduate students a chance to take part in research while attending Brandywine.

"I want to give the students a firsthand experience to see if they would like to be in the research field for themselves," Zosh said. "My model for undergraduate involvement is from the ground up. I like to help students find their passion for a topic, design and run a study to examine that topic and present their findings. Having a complete research experience gives them the opportunity to fully experience the process of science."

Zosh's former student and Penn State Brandywine graduate Laura Twiss-Garrity was one of the students that became actively involved in the Brandywine Child Development Lab's research. Twiss-Garrity completed the research-based option of the human development and family studies degree and worked closely with Zosh.

"She played a key role in coding some of the data," Zosh said. "This helped us to determine that even though children look more at the target object when we directly instruct them, they actually show better retention when they look less but have to figure things out for themselves."

Zosh is currently conducting follow-up research at the Rocky Run YMCA in Media, where she is working with children of different age groups and trying to understand how age affects word learning. "We are asking questions that no one on Earth knows the answers to," Zosh said. "It's exciting to think how we can take this knowledge and use it to help teach children."

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