Over the past few months, we’ve explored a wide range of topics through our research, from what children understand about the color words that they are just starting to say, to how children come to understand that numbers go on forever. In this issue of our newsletter, we are excited to share some of our most recent findings! Two different studies are featured: one study investigated children’s ability to compare sets of objects before they were old enough to understand number words, while the other explored the best way to teach children new adjectives, specifically colors.

This is only a peek at all the research we’ve been conducting, and, as always, we are developing new studies at the Language and Development Lab as well. Our research is not possible without you. In fact, as a result of all the families involved in our studies, we have been able to do research no one else has done before! If you are interested in having your children participate in our studies and be a part of cutting-edge research, please do not hesitate to reach out to us! We are always looking for “child scientist” collaborators to join us!
Even before learning to count, children are able to notice some differences in the number of objects in small sets, such as 2 versus 3. However, we wondered if knowing how to count, and more specifically, understanding number words, might improve children’s ability to compare sets of small sizes. We reasoned that children who knew more number words might do better at comparing sets of small sizes than those who knew fewer number words.

To test this, we showed two- and three-year-old children clips of cookies falling into two jars, with one jar ending up with more cookies than the other, and asked them to choose the jar with more cookies. We then measured the children’s understanding of number words by giving them several objects and by, first, asking them to put a certain number on a plate, and then, to put “a,” “some,” or “all” of the objects on the plate. We finished by asking children to count to the highest number they could.

We found that children’s understanding of number words did not predict how well they could compare sets of small sizes, as children did well at comparing sets no matter the number of objects in the sets. Our findings suggest that children do not need to know number words in order to correctly compare quantities of sets, but instead use other skills.

"Children do not need to know number words in order to correctly compare quantities of sets, but instead use other skills."
Adjectives pose a particularly difficult word learning problem. When a child hears an adjective, like in the phrase *red car*, they must first identify what the adjective is describing: size, shape, speed, or color? Then, they also have to figure out how the adjective works when it is paired with different nouns. For example, some words are interpreted relative to a specific noun. For example, a *tall boy* is much shorter than a *tall tree*. Other adjectives, like *yellow*, are different; a *yellow banana* is about the same color as a *yellow ball*.

Past studies have shown children learn new adjectives better when they are presented with objects that only differ in one key way. For example, if a child was presented with a *blue ball* and a *red ball*, it would be easier for a child to learn *red* and *blue* than if they were presented with a *blue ball* and a *red truck*. This might be because when a child is presented with *blue ball* and *red truck*, it is difficult for the child to figure out which features are being labeled by the color words.

In this study, we wondered what kind of learning situations might help children best learn color words. To test this, trained 18-month-olds to 3-year-olds on an unknown color word. After measuring children’s existing knowledge of color words, we trained them on one of the color words that they did not yet know. During each training trial, we presented children with two objects that were identical, except for their color, side by side. One of the objects was colored with the training color, and the other was colored differently. This design clued children in on the fact that color was the only way the two objects differed, directing their attention to the color word they were hearing. In one condition, children were trained on the new color by seeing the same type of object (i.e., cars) on every trial. In another condition, children were trained on the new color by seeing different types of objects (i.e., shoes, umbrellas, kites) on every trial. After receiving different training conditions, all children received a variety of test trials. We found that children performed better on the test trials that were most similar to the training condition that they received. This supports the idea that children learn a new adjective better after hearing it in multiple contexts.

Recent LAD Lab Publications


Sullivan, J., Bale, A., & Barner, D. (under review) Most preschoolers don’t know “most”.
THANK YOU FOR YOUR SUPPORT!

THANK YOU to the San Diego families, schools, preschools, daycares, and museums that make our research possible! Your collaboration and participation help us make important discoveries about human learning, growth, and development.

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Our Team

Principal Investigator
Dr. David Barner

Lab Coordinator
Ashlie Pankonin

Graduate Students
Elisabeth Marchand
Haleh Yazdi
Rose Schneider
September Cowley

Research Assistants
Anna Duran
Calvin Lee
Gregory Sanchez
Hortensia Flores
Kaiqi Guo*
Luna Sano
Leonardo Marino
Samuel Lucero
Sara Lee
Sonora Grimsted
Vennisia Mo
Yiqiao Wang*

* Graduated Honors Students

CONGRATULATIONS!