

INFANT LEARNING LAB

2023 NEWSLETTER



DEAR CAREGIVERS AND FRIENDS,

Thank you so much for participating in language research studies at the UW-Madison Infant Learning Lab! Even though many of our participants are not yet talking (we have studies that include infants as young as 6 months of age), all of our participants are paying close attention to the sounds and sights that surround them. With your child's help, we can address important questions to better understand how infants and young children learn language. This research can also help us improve outcomes for children who face challenges in language learning. Many families participated in one or more studies over the last year, either in person or over Zoom. As always, we have had some very interesting and exciting updates. This newsletter is intended to share some findings from the studies we have conducted over the last year. Without your help, this important research could not happen. Thank you!



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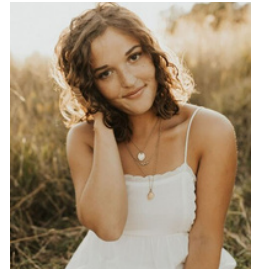
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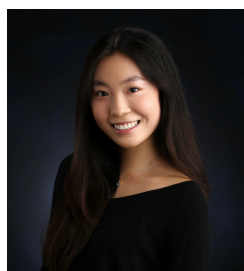
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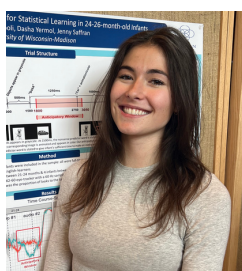
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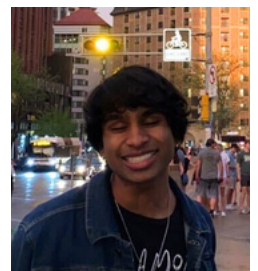
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EYE-TRACKING STUDIES

Can babies track patterns in language to predict upcoming words?

Dasha Yermol, B.A.
Ellie Breittfeld, M.S.

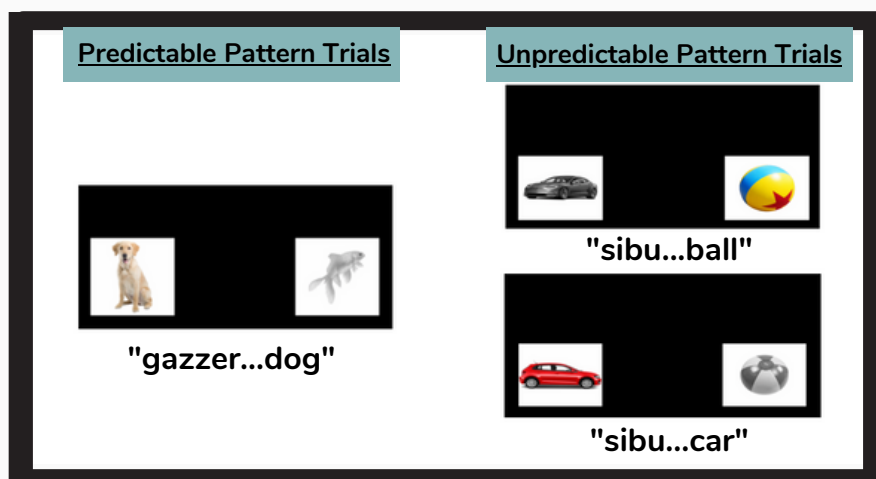
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Age: 21-26 months

Babies are very good at picking up on patterns in language. In English, there are certain words that often go together in a particular order, like adjectives that come before nouns (e.g., "pretty" followed by "baby"). Babies learn these patterns and are sensitive to deviations from established patterns. But how are babies learning the patterns? And can babies use these patterns to predict what you might say next?

Our lab is interested in whether babies can learn patterns in language and use them to make predictions about what words will come next when they are listening to speech.

We explored this question in an eye-tracking study where we taught babies new word patterns. Babies heard some made-up words that were always followed by the same familiar noun (e.g., "gazzer" was always followed by "dog"), and some made-up words that were followed by two different familiar nouns, sometimes one and sometimes the other (e.g., "sibu" followed by "car" or "ball"). While listening to these word patterns, babies saw familiar objects on the screen (e.g., a dog and a fish) and we tracked which picture they looked at. If babies learn the new patterns, they should be able to use them to make predictions about what familiar word will follow the made-up word. In other words, if babies learned the new patterns, they should look at the picture of a dog after hearing the word "gazzer", but not know whether to look at the car or the ball after hearing the word "sibu". **Our findings will help us uncover whether babies track statistical language patterns to help facilitate their language learning.** Data collection is ongoing and we look forward to sharing our results soon!



EYE-TRACKING STUDIES

Do preschoolers use objects' locations to help them learn new words?

Ellie Breitfeld, M.S.

breitfeld@wisc.edu

Age: 42-48 months

In their daily lives, preschoolers learn about new objects and their names in particular locations. For example, children likely learn words for new foods in the kitchen or at the grocery store. **Does the location where new objects appear influence what children learn about them?** For example, if a child sees an unfamiliar object in the kitchen, can they infer that the new object is likely an edible food?

Outdoor scene



"Wow a Gazzer! Look at this Gazzer! It's a Gazzer!"

Kitchen scene



"This is a Coodle! It's a Coodle! Wow, a Coodle"

To answer this question, we showed children unfamiliar objects and taught them made-up words for these objects. Critically, we showed children that some of the objects only appeared in kitchen scenes, while other objects only appeared in outdoor scenes. We wondered whether preschoolers learned to associate unfamiliar objects with actions related to the location where the object appeared. In other words, would preschoolers associate the verb "eat" with the objects that appeared in kitchen scenes and the verb "throw" with the objects that appeared in outdoor scenes? Preschoolers heard sentences like "I like to eat the "coodle" and we measured whether they looked at the object that previously appeared in kitchen scenes after hearing the verb (i.e., "eat") but before hearing its label (i.e., "coodle"). Our results showed that preschoolers learned the made-up words and could successfully predict the upcoming objects from the verbs they heard. That is, preschoolers looked at objects that occurred in kitchens after hearing the verb "eat" and looked at objects that occurred outdoors after hearing the verb "throw". **These findings suggest that preschoolers can use the locations where objects appear as clues to what kinds of actions these objects might be associated with even without explicitly being taught this information. Altogether, this study highlights the important role that surrounding contexts, like the kitchen or the outdoors, play in supporting children's language learning.**

INTERACTIVE STUDIES

Investigating 5-year-olds' learning from gender-match and gender-nonmatch peers

Desia Bacon, Ph.D.

dabacon@wisc.edu

Age: 60-72 months

Infants are very capable word learners, using cues from the people and objects in their environment to guide their learning.

As the word learning environment becomes more complex, children begin to use more advanced skills to decide who might be a good person to learn from. For example, whether the person has shown themselves to be knowledgeable and trustworthy.



Additionally, children are attentive to gender cues, and use them to guide their preferences for who to learn from. Although children indicate a preference for learning from a gender-match peer, we know less about how children's gender-related preferences align with their learning outcomes. In this tablet-based study, 5-year-olds were taught the names of novel objects by two child informants. The gender-match informant was a child matching the participant child's race and gender, and the gender-nonmatch informant was a child matching the participant child's race but not matching the participant child's gender. Both informants correctly labeled familiar objects (for example, a shoe), but gave different novel word labels to the same novel objects. Children's learning was assessed right after they were taught the novel words, and again 10 minutes later. In both an immediate and delayed test, children recalled 16 novel words that mapped onto eight novel objects significantly above chance. 5-year-olds successfully learned novel word-object labels from a same-race same-gender informant and a same-race different-gender informant. There was no significant difference in children's recall of ingroup informant and outgroup informant taught referent labels. These results demonstrate that when both gender-match and gender-nonmatch informants are equally knowledgeable, peer informant gender does not interfere with children's learning and recall after a 10-minute delay.

This research expands our understanding of how children might be using different characteristics of people in their environment to drive their novel word learning from gender-match and gender-nonmatch peers.

That's a
koba.



That's a
blicket.



Where's the koba?



Where's the blicket?

ONLINE STUDIES



Haley Weaver, M.S.

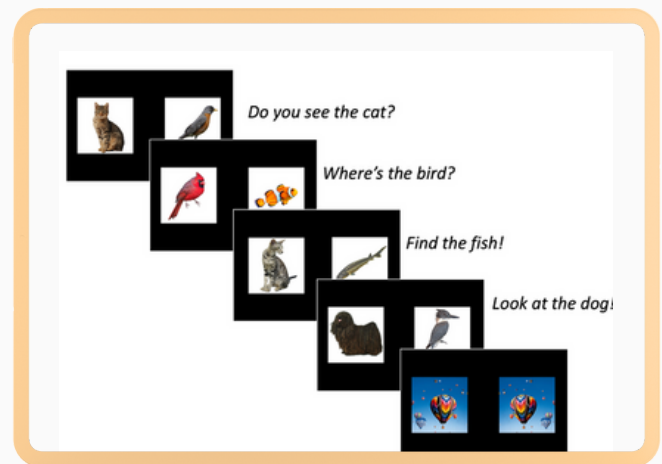
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Age: 14-18 months

Investigating infants' word meanings for early learned animal words

As babies first begin learning language, they have the incredible task of not only learning that words are used to label particular things in the world, but also that words refer to broad categories, which may include things that look very different from one another. For example, babies must learn that the word "dog" refers to all canines – even though two individual dogs may look strikingly different (e.g., a golden retriever vs. a Chihuahua). We know that adults have a sense of how representative, or stereotypical, an individual category member is of the broader category it belongs to. For example, when you think of the word "dog," you are probably imagining a golden retriever, a Labrador retriever, or your own pet dog. We wondered whether babies' understanding of words, like "dog," is limited to stereotypical category members, like golden retrievers, or if babies recognize many different category members, like Chihuahuas and pugs. In addition, we wanted to know whether babies' experiences with different category members would influence their understanding of words. For instance, is a baby who has a pet Chihuahua more likely to understand that the word "dog" refers to a Chihuahua compared to a baby who does not have a pet Chihuahua?

To answer these questions, we tested 14- to 18-month-olds' comprehension of words in the presence of different category members. For example, to test comprehension of the word "dog," a golden retriever and a tabby cat would appear on the screen and babies would hear, "Where's the dog?". We can then use where babies are looking on the screen as evidence that they comprehend a word or not. For instance, if a baby shifted their eyes to look at the picture of the golden retriever after hearing the word "dog," we would infer that they comprehended the word "dog."



We also asked caregivers to report how stereotypical different category members were of their babies' experiences with the tested categories and to provide information about what contexts their babies experience different category members. For example, a caregiver might report that a golden retriever is typical of their baby's experience with dogs and that their next-door neighbor has a golden retriever. We conducted this experiment online using Lookit (<https://lookit.mit.edu>), which is a website for researchers to post experiments for families to participate in studies from home.

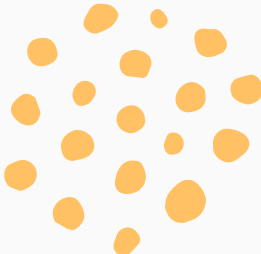
So far, we found that the category members that are stereotypical for adults (e.g., golden retrievers) are also the category members that caregivers report are stereotypical of their baby's experiences with different categories. Interestingly, caregivers reported animals as more stereotypical when the animal appeared in the home as a pet or during activities like walks to the park. **These findings provide some hints that babies' early categories have adult-like structure, possibly because of the kinds of experiences babies have with animals in their daily activities.** We are currently exploring babies' looking behavior from the study on Lookit and are excited to see whether this data reflects our findings from the caregiver survey.

ONLINE STUDIES

Desia Bacon, Ph.D.
dabacon@wisc.edu
Age: 60-72 months

Investigating 5-year-olds' learning from race-match and race-nonmatch peers

Past research suggests that **children are attentive to cues related to group membership and use these cues to guide their preferences for whom to learn from.** Children are attentive to race cues from a young age and use informant knowledge, trustworthiness, and race to guide their preferences for whom to learn from. Despite children indicating race-match learning preferences, less is known about children's learning from race-match and race-nonmatch peers. In this experimenter-moderated Zoom study, 5-year-old children were taught the names of novel objects by two child informants. The race-match informant was a child matching the participant child's gender and race, and the race-non-match informant was a child matching the participant child's gender but not matching the participant child's race. Both informants correctly labeled familiar objects (for example, a shoe), but gave different novel word labels to the same novel objects. Children's learning was assessed right after they learned the novel words, and again 10 minutes later. 5-year-olds successfully learned the novel word-object labels from a same-race same-gender informant and a different-race same-gender informant. There was no significant difference in children's recall of race-match informant and race-nonmatch informant-taught novel labels. These results demonstrate that when both race-match and race-nonmatch informants are equally knowledgeable, peer informant race does not interfere with children's learning and recall after a 10-minute delay.



This research expands our understanding of how children might be combining different characteristics of people in their environment, like race and gender, to drive their novel word learning. In future work, this method can be used to investigate how preferences children display may impact children's learning.



KNOW SOMEONE WITH A BABY?

We are always looking for babies to participate in our studies! Our current studies involve children as young as 6 months and up to 5 years of age. If your family just welcomed a new child and you would like to update your information with us, give us a call at **(608) 263-5876** or email us at infantlearninglab@waisman.wisc.edu. Also, if you know a friend who has young children or recently had a baby, feel free to pass along our contact information!

CURRENTLY RECRUITING

11- to 13-Month-Olds

In this study, we are interested in what babies pay attention to and remember when they are learning about new objects. Study participation involves a one-time, 20-minute visit to the Waisman Center.

18- to 20-Month-Olds

A new study in our lab is exploring whether toddlers know that the same word refers to many different objects in the world. Study participation involves completing a survey at home and a one-time, 30-minute visit to the Waisman Center.

22- to 26-Month-Olds

Another new study in our lab is interested in how toddlers learn who to learn from. Study participation involves a one-time, 20-minute visit to the Waisman Center.

To sign up for our email list, click on Baby Bucky!



UPCOMING COMMUNITY EVENTS

- Lakeside Kids -July 11th, 10:00 am
- Lake Mendota Family Night -July 11th, 4:00 pm
- Early Explorers Playgroup -July 12th, 10:00 am
- Warner Family Fun Night -July 14th, 5:30 pm
- Poetry Playtime -July 16th, 1:00 pm
- Sensory Friendly Night -July 28th, 4:30 pm

LOOKING FOR MORE RESEARCH OPPORTUNITIES?

Child Emotion Lab

Exploring children's emotional development
<https://childemotion.waisman.wisc.edu/>

Binaural Hearing & Speech Lab

Studying how children learn to locate sounds in their environment
<https://bhsl.waisman.wisc.edu/>

The Little Listeners Project

Studying language in toddlers with and without autism spectrum disorder
<https://littlelisteners.waisman.wisc.edu/>

The Social Kids Lab

Studying the cognitive and social development of young children
<https://socialkids.waisman.wisc.edu/>

ILL NEWS

RECENT PUBLICATIONS

- Zettersten, M., Pomper, R., & Saffran, J. R. (2022). Valid points and looks: Reliability and validity go hand-in-hand when improving infant methods. *Infant and Child Development*.
- Bacon, D., & Saffran, J. (2022). Role of speaker gender in toddler lexical processing. *Infancy*.
- Bacon, D., Weaver, H. J., & Saffran, J. R. (2021). A framework for online experimenter-moderated looking-time studies assessing infants' linguistic knowledge. *Frontiers in Psychology*.

AWARDS RECEIVED

- *Outstanding Undergraduate Research Scholar Award* - Evann Zima
- *Outstanding Undergraduate Research Scholar Award* - Vinauv Uday
- *Psychology Department Distinguished Service Award* - Haley Weaver
- *Psychology Department Distinguished Service Award* - Ellie Breitfeld



Evann Zima and **Vinauv Uday** with Outstanding Undergraduate Research Scholar Awards

OUR GRADUATES



- **Desia Bacon** (*Graduate Student*) graduated from UW with a Ph.D. in Psychology! In the fall, Desia will begin a new position as an Assistant Professor of Psychology at San José State University.
- **Dasha Yermol** (*Lab Manager*) will be starting her Ph.D. in the Brain, Behavior, and Quantitative Science Program at the University of Kansas this fall!
- **Vinauv Uday** (*Research Assistant*) graduated from UW with a B.S. in psychology and economics with certificates in criminal justice and leadership!
- **Evann Zima** (*Research Assistant*) graduated from UW with a B.S. in Psychology! Post-graduation, Evann will be starting her Masters in Clinical Mental Health Counseling at the University of Wisconsin - Whitewater.
- **Caroline Kerper** (*Research Assistant*) graduated from UW with her B.S. in Psychology and Legal Studies with a certificate in criminal justice!