



Infant Learning Lab

2024 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 and help us to improve outcomes for children who face challenges in language learning. Many families participated in one or more studies over the last year. 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!

-The Infant Learning Lab Team



(608) 263 - 5792



infantlearninglab@waisman.wisc.edu



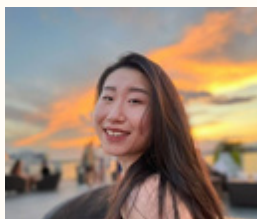
THE INFANT LEARNING LAB TEAM



Jenny Saffran, Ph.D.
Principal Investigator



Ellie Breitfeld
Ph.D. Student



Yiran Chen, Ph.D.
Post-Doctoral
Researcher



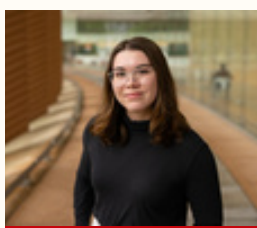
Haley Weaver
Ph.D. Student



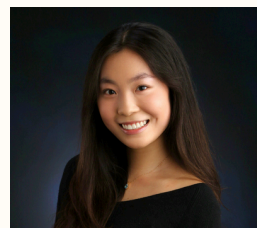
Jess Mankewitz
Ph.D. Student



Chenelle Walker
Ph.D. Student



Aja Altenhof
Ph.D. Student



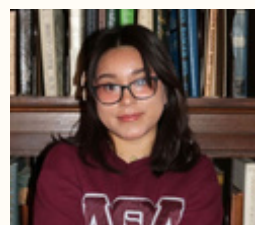
Kayla Chang
Undergraduate RA



Howard Owens
Undergraduate RA



Jessica Paul
Undergraduate RA



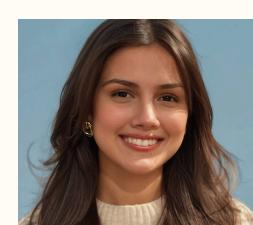
Ximena Franco
Fernanda
Undergraduate RA



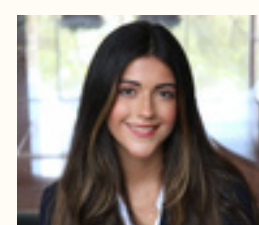
Caimanwei (Iris) Wu
Undergraduate RA



Oscar Tham
Undergraduate RA



Amari Talluri-Boye
Undergraduate RA



Veronica Herrera
Undergraduate RA



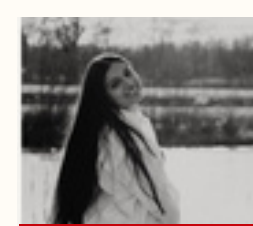
Martina Napoli
Undergraduate RA



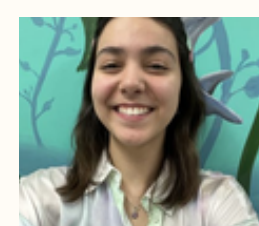
Abby Simon
Undergraduate
Thesis Student



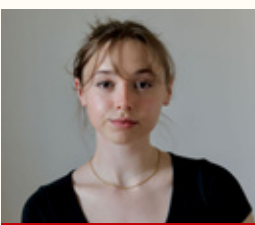
Courtney Snoberger
Undergraduate RA
and Thesis Student



Miriam Jimenez
Undergraduate RA



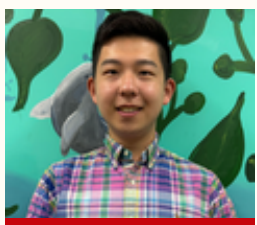
Rayane Prado Nunes
Undergraduate RA



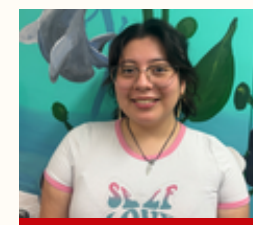
Ainsley Regner
Undergraduate RA



Thomas Brewster
Undergraduate RA



Christopher Fan
Undergraduate RA



Geoviana Sinchi-
Paucar
Undergraduate RA



Maddie Melton
Undergraduate RA



Infant Learning Lab
UW-Madison

How Do Babies Figure Out What a New Word Means?

11- to 13-Month-Olds

Have you ever wondered how your baby starts to understand words? When you think about it, learning what a new word means can actually be really difficult. For example, one day your baby might hear the word “dog” and see your family’s pet, but another day they might hear the word “dog” and see a stuffed animal or an illustration in a picture book. So, your baby has to use all of these different examples of dogs to figure out what “dog” means. How do they do it? We’re wondering whether babies might start to figure out what words mean by noticing the similarities between the different examples of a word they see. For example, they might notice that their pet dog, their stuffed dog, and the dog in their book all have ears, a tail, a snout, and four legs. So, they learn that “dog” means an animal with ears, a tail, a snout, and four legs.

To explore this possibility, we show 11- to 13-month-old babies pictures of different unfamiliar objects and they hear all of these objects labeled with a new made-up word. All of the objects are different in some ways—for example, they are all different colors, shapes, and patterns—but they are the same in other ways—they all have a swirl on them. We use a camera that tracks where babies are looking to see if they start to look at what is the same between all of the objects (the swirl) while they are learning the new word.

This project is still in progress, but our initial results suggest that babies do indeed start to pay attention to what is the same between object examples to help them learn a new word! We’re excited to continue to explore the impressive ways babies start to learn language even before their first birthday!

Ellie Breitfeld
(she/her)
breitfeld@wisc.edu





How Do We Know What Words Toddlers Know?

18- to 20-Month-Olds

We often consider all the words a child knows as a good indicator of their language development. For example, your child's pediatrician may have you fill out a checklist to see if your child is understanding or saying different words. But, how can we best figure out which words toddlers know?

We tested this question by comparing two very common methods for assessing the words that a child understands: a parent vocabulary checklist and an eye-tracking task. We asked parents to report whether their child did not know, only understood, or understood and said a list of object words. We also asked parents about how confident they were in their responses. We wondered if it would be easier for parents to report on words they talk about a lot at home, compared to less common words. For example, it might be easier to report whether your child knows a word like 'apple' if your family eats apples, has books with apples, or plays with toy apples. In contrast, it might be harder to estimate your child's understanding of a word like 'glasses' if your family only reads about glasses once in a while, but no one in the house wears them.

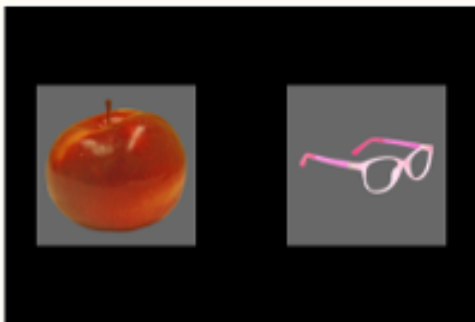
Then, after parents completed the checklist, we tested their toddler's understanding of those same words using eye tracking. In the eye-tracking task, toddlers saw two pictures on a screen and heard a word labeling one of the pictures. For example, a toddler may have seen a picture of an apple and glasses on a screen and heard the question, "Do you see the apple? Check that out!". If the toddler looked at the picture of the apple, we would take that as a sign that they know the word 'apple'. We then compared where toddlers looked on the eye-tracking task with what their parents reported to see if both methods were equally effective at showing the words that toddlers know.

Apple

- ☐ does NOT understand or say
- ☐ understands
- ☐ understands AND says

How sure are you about your response for apple?

0 25 50 75 100



Haley Weaver
(she/her)
hjweaver@wisc.edu

We found that the words reported to be known on the parent checklist reflected the words that toddlers understood in the eye-tracking task, but only if we considered parent report of both pictures on the screen and parents' confidence. For example, if a parent reported that their toddler knew the word 'apple' but not the word 'glasses', their toddler might have correctly looked at the glasses. We think this means that toddlers as young as 18-months can use a process of elimination to look at the correct picture. So, for example, if your toddler knows what an apple is, they can essentially "rule out" the picture of the apple and look instead at the picture of the glasses when they are asked to "Find the glasses!", even if they do not know the word 'glasses'. These findings are exciting because they show that even young toddlers can do some early reasoning and they highlight just how much parents know about their child's language development!



How Do Toddlers Learn Whom To Learn From?

22- to 24-Month-Olds

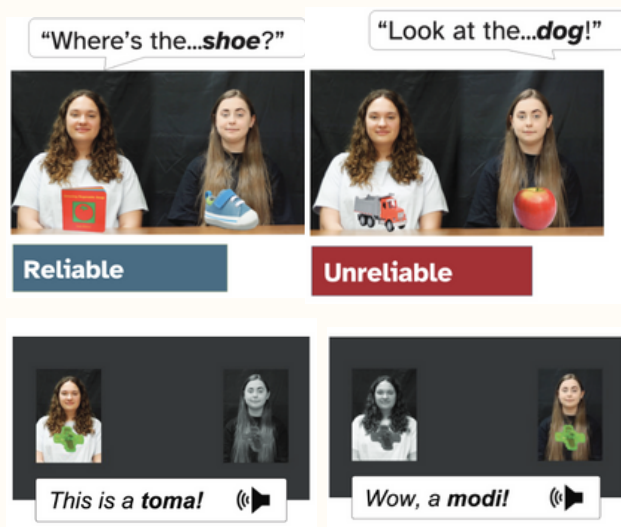
We want to understand how toddlers keep track of how different speakers use language in different ways. We know that young children don't just learn words and grammar – they also learn how to use language in social situations. In this study, we are interested in measuring whether toddlers keep track of the quality of information they get from different speakers and whether they use what they learned to inform who they like to learn from.

In the study, toddlers watch videos of two speakers. One speaker always provides accurate, informative labels for familiar objects (like books and shoes). The other speaker provides inaccurate, uninformative labels (for example, they say “look at the dog” when talking about an apple). After seeing these videos, the toddlers get to choose which speaker they want to learn from.

The toddlers see gray images of the two speakers holding new objects. When the toddler looks at one of the speakers, that speaker's image lights up and they label the object. The toddler can then choose to look at the other speaker, who will also label the object. This lets the toddlers decide which speaker they want to learn from using just their eyes.

Data collection is still ongoing, but preliminary results suggest that toddlers gather information from both the correct and incorrect speaker. This may be because, for these kids, even incorrect information is still useful information to know. We're excited to explore this result more in future versions of this study!

Jess Mankewitz
(they/them)
mankewitz@wisc.edu



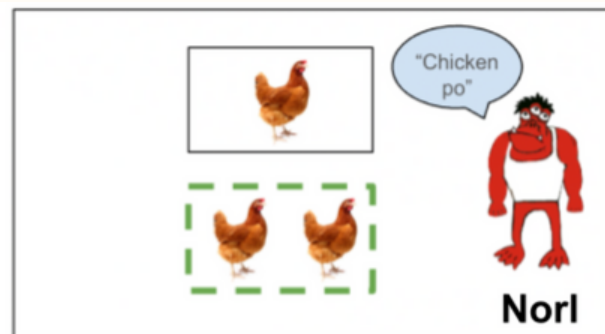
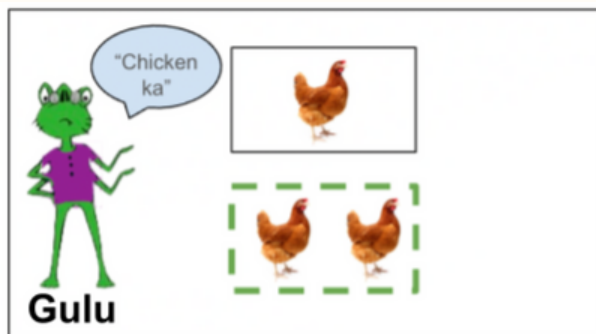


HOW DO CHILDREN LEARN ABOUT SOCIAL GROUPS FROM THE WORDS THEY HEAR?

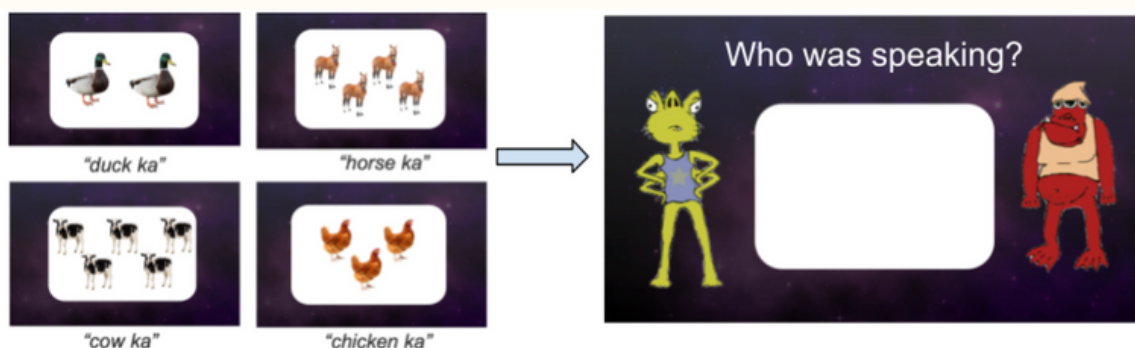
60- to 84-Month-Olds

As adept users of our native language, adults constantly infer social information from the way someone speaks. For instance, we can often guess a speaker's gender, age, or place of origin when they are talking over the phone. When do children learn to associate different language patterns with different social groups?

To explore this question, we asked 4- to 5-year-olds to play an iPad game where they learn the language patterns of Gulus and Norls, two visually-distinct alien groups: Gulus consistently use “ka” as a plural marker and the Norls use “po”. They learn that pattern over many trials like the one below where the aliens label different animals.



To ask whether children pick up the pattern, we play sentences spoken by new voices containing either “ka” or “po” and ask children to select whether it’s a Gulu or a Norl speaking.



Yiran Chen (she/her)
chen2537@wisc.edu

This project is still ongoing, but our initial data suggests that 5 year olds do start to pick up different patterns associated with the different aliens. We are excited to refine the paradigm to demonstrate this learning more robustly and in even younger children.



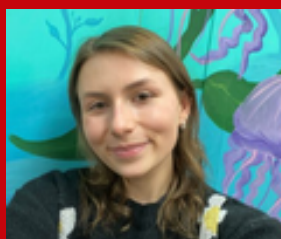
In the ILL Community...

Recently Graduated Lab Members!

- 1) Jenna Bezek received her bachelor's degree in Spring 2024, and is now a Speech Language Pathology student at the University of Minnesota Twin Cities in Minneapolis, MN.
- 2) Sydney Lex received her bachelor's degree in Spring 2024, and is now a Speech Language Pathology graduate student at Vanderbilt University in Nashville, TN.
- 3) Julia Waltzman received her bachelor's degree in Spring 2024, and is now a full time preschool teacher assistant at Montessori School at Flatiron in New York, NY.



Jenna Bezek
B.A. in
Communication
Sciences and
Disorder



Sydney Lex
B.A. in
Communication
Sciences and
Disorder



Julia Waltzman
B.A. in Psychology
with a certificate in
Fine Arts

Recently Joined Lab Members!

Christopher, Amari, and Miriam joined the Infant Learning Lab in the Summer 2024. Chenelle, Aja, Ximena, Veronica, and Ainsley joined the Infant Learning Lab in Fall 2024.



Celebrating our Lab Members!

Congratulations Grads!

- 1) Ellie Breitfeld received the Mentoring Undergraduates in Research, Scholarly and Creative Activities grant in Summer 2024. She also received a grant funded from NICHD (National Institute of Child Health and Human Development) in Summer 2024 to support her dissertation research!
- 3) Jess Mankewitz received the Morse Society award to support their Ph.D with the Waisman Center!
- 3) Haley Weaver received the Graduate Student Service Scholarship grant in Spring 2024!

Congratulations Undergrads!

- 1) Christopher Fan and Amari Talluri-Boye received the Honors Summer Research Apprenticeships in Summer 2024!
- 2) Miriam Rodriguez Jimenez received the LASER Summer Research Apprenticeship in Summer 2024!
- 3) Maddie Melton and Geoviana Jamie-Lynn Sinchi-Paucar joined the Undergraduate Research Scholars Program in Fall 2024!
- 4) Abby Simon received the Summer Senior Honors Thesis Award in Summer 2024!
- 5) Rayane Prado Nunes, Abby Simon, and Courtney Snoberger received the Hilldale Faculty-Student Research Fellowships in Summer 2024!



Infant Learning Lab
UW-Madison

RECENT LAB PUBLICATIONS

- 1) Breitfeld, E., & Saffran, J. R. (2024). Early word learning is influenced by physical environments. *Child Development*, 95(3), 962–971.
<https://doi.org/10.1111/cdev.14046>.
- 2) Breitfeld, E., Compton, A. M., & Saffran, J. R. (2024). Toddlers' prior social experience with speakers influences their word learning. *Infancy*, 29(5), 771–788. <https://doi.org/10.1111/infa.12608>
- 3) Mathée-Scott, J., Prescott, K. E., Pomper, R., Saffran, J., & Weismer, S. E. (2024). Prediction by Young Autistic Children from Visual and Spoken Input. *Journal of Autism and Developmental Disorders*, 1–13. DOI: 10.1002/aur.3212.
- 4) Prescott, K. E., Mathée-Scott, J., Bolt, D., Saffran, J., & Ellis Weismer, S. (2024). The effect of volatility in linguistic input on prediction behavior in autistic toddlers. *Autism Research*, 17(11), 2305–2318.
<https://doi.org/10.1002/aur.3212>.
- 5) Saffran, J. (2024). Statistical Learning. In M. C. Frank & A. Majid (Eds.), *Open Encyclopedia of Cognitive Science*. MIT Press.
<https://doi.org/10.21428/e2759450.7a74eed8>.
- 6) Weaver, H., Zettersten, M., & Saffran, J. R. (2024). Becoming word meaning experts: Infants' processing of familiar words in the context of typical and atypical exemplars. *Child development*, 95(5), e352–e372.
<https://doi.org/10.1111/cdev.14120>





Know Someone with a Baby?

We are always looking for families to participate in our research! Currently, we have studies for children aged 6 months to 7 years. If your family welcomed a new child this year and you would like to participate in future studies, we would love to hear from you! Sign up for our email list by calling (608-263-5876), emailing (infantlearninglab@waisman.wisc.edu), or visiting our enrollment page:

<https://data.infantlearning.waisman.wisc.edu/infantdb/enroll/>.

Feel free to share our contact information and sign-up link with friends or family members who might be interested in learning more about how children learn language!





In the Madison Community

Upcoming Child-Focused Events in Madison

- 1) Little Sprouts nature & Literature-based program at Olbrich Botanical Gardens most Tuesdays & Fridays March 4 – May 23.
- 2) Discover the Nice Age Trail: a new exhibit at the Madison Children's Museum inspired by nature, designed to teach kindness. Currently available through this spring 2025!
- 3) Children's Zoo Exhibit and Attractions at the Henry Vilas Zoo all year round.

Other Child Development Research Opportunities at the Waisman Center



Social Kids Lab



Child Emotion Lab



Binaural Hearing and
Speech Lab