Researchers Exploring How Early Skills Connect to Later Learning

Identifying children with Developmental Language Disorder (DLD) can be challenging since toddlers and preschoolers vary quite a bit in their early language skills. More research needs to be done to better understand DLD and to find ways to identify children with this condition earlier. (Read more about our research on p.2, "Does early vocabulary predict future language skills.")

Parents and caregivers have amazing insights and they are often the first to raise concerns about their child's communication skills. The Language Learning and Meaning Acquisition (LLaMA) Lab is doing a study that may help better diagnose kids with communication challenges in the future. To come up with better preventative care and treatment options, we need to know the early signs.

You and your child can join this study and help other kids with DLD. We want to follow families over time as children grow from 18 months to 4 years. Families will help our lab learn how children succeed at language learning in many contexts and also give us new insights into which children should receive earlier support.

Why should you participate? Families can learn more about child language skills and development and contribute valuable information that may benefit other children and their families in the future. Families will also have the opportunity to consult with speech-language pathologists and get ongoing feedback about their child’s language development. Families will be compensated up to $330 for participating across the entire study.

Who can take part? Currently, we're looking for families near West Lafayette and Indianapolis with a child aged 18 months or younger. Participation in this study will be until your child reaches 48 months. Your child must be learning English at home, have standard vision and hearing, and not be diagnosed with any cognitive or neurological problems. Children with and without language concerns are all welcome.

Contact us today at the LLaMA Lab for more information!
llamalab@purdue.edu
765-496-0427 (West Lafayette)
765-496-7547 (Indianapolis)
Research Updates

Using eye tracking to help identify ASD

The AtteND Lab, in collaboration with colleagues from the Indiana University School of Medicine, is now working with primary care physicians across Indiana’s Early Autism Evaluation Hub system to improve early identification of ASD. Based in part on findings from previous AtteND Lab studies (which you may have participated in), we are conducting NIH-funded research focused on developing an innovative method for early ASD diagnosis with the goal of improving access to high-quality care in local communities and lowering the age of diagnosis across Indiana. This novel method includes using eye-tracking biomarkers to help identify autism risk in children referred for an ASD diagnosis.

Does early vocabulary predict future language skills?

In a new paper, we use data science tools (machine learning, network science) to predict future language abilities from parental reports of toddler’s language skills. Children vary not only in the NUMBER of words they learn, but CONNECTIONS between the words they learn. Below are two 18-month-old’s vocabularies. They each say the same number of nouns but vary in how those word meanings connect – creating different networks. We found that toddlers’ networks accurately predicted later preschool and school-age language outcomes. Open access paper available in Scientific Reports: www.nature.com/articles/s41598-021-85982-0

Research news from the Auditory Cognitive Neuroscience Lab

Seeing the mouth movements of a speaker helps us hear better in a noisy place. For example, it tells us when a word is about to start and what its first sound is likely to be. Children begin to use such visual cues for speech perception when they are still infants, and this skill continues to develop through adolescence. A recent study from our lab compared the ability to match mouth movements with heard speech sounds in children with developmental language disorder (DLD) and in children with typical language (TL). In children with TL, the brain produced a strong response when the heard vowel did not match the articulating face. However, this response was significantly reduced in children with DLD. These findings suggest that children with DLD have less precise memories for how speakers’ lips typically move during articulation and, as a result, may benefit less from seeing the talker’s face in a noisy environment. Current projects in our lab aim to understand why using speech-related visual information is more challenging for children with DLD and what impact it has on their overall language skills. You can read the full report here: https://doi.org/10.3390/brainsci11040507 We are grateful to all families who participated in the study!
In the Summer of 2022, SLHS researchers and clinical staff will offer programs in which children participate in federally-funded research and receive therapy, continuing to build skills over the summer when school-based services are not available. All activities are offered at no cost to families. **Call now to schedule eligibility testing!**

**SuPur Friends Program**

The Summer Purdue (SuPur) Friends Program is for 9- to 12-year-old children with autism spectrum disorder. During the program, children will participate in pragmatic language groups, which are designed to provide opportunities to interact with peers, to learn and practice skills for social interaction, and to develop friendships. Two-hour sessions provide opportunities for children to learn and practice skills during motivating activities. Parents have the opportunity to meet with clinical staff at the end of the program to discuss their child's progress. Compensation for participation includes a written report on results of standardized testing and $10 per hour for eligibility testing and research participation. The program meets TWTh mornings from 9-11:30 from July 19 through Aug. 4 in Lyles-Porter Hall on Purdue's campus.

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**Summer Fun Program**

The Summer Fun program is for 4- and 5-year old children with language delays. Eligible children have a significant delay in language development without accompanying medical problems, hearing impairment or other significant developmental delays. During Summer Fun, children participate in fun and language-enriching preschool activities. Individualized communication goals are addressed daily during 2 half-hour therapy sessions. Parents receive a written report of standardized test scores and meet with clinical staff to discuss their child's progress. Families receive $10 per session for eligibility testing and research participation. The program meets TWTh mornings from 9-11:30 from June 14-July 7 in Lyles-Porter Hall on Purdue's campus.

**Contact:** Dr. Pat Deevy  •  765-496-1821  •  deevy@purdue.edu

**Kids Needed!**

We are looking for children with language difficulty (such as understanding complex sentences, struggling to find words when speaking) to participate in a brain study.

Children must be 8-12-year-old native speakers of North American English, have normal hearing, vision, and intellectual development, and be free of neurological disorders and conditions (such as autism/Asperger's, head injuries, seizures, brain tumors, cerebral palsy, stuttering, OCD, and depression). There are 8 sessions, which are structured as games. Children are paid $10/hour; parents are paid $10 per session. Please come and help Purdue scientists better understand the causes of developmental language disorder!

For more information, contact: Jennifer Schumaker, jschumak@purdue.edu, 765-494-4445 lab phone