

NeuDLL News

Newsletter of the Neurodevelopmental Disorders Language & Learning Lab
At the University of Washington

Introduction to the Lab

The focus of the Neurodevelopmental Language and Learning (NeuDLL) lab is the development of language abilities in children with neurodevelopmental disorders. This research has included individuals with fragile X syndrome, which is the leading inherited cause of intellectual disability, as well as individuals with autism spectrum disorder or Down syndrome.

Our mission is to investigate the consequences of neurodevelopmental disorders on language development, with consideration for the relationships among genes, brain, and cognition, as well as their impact on language learning processes. The goal of this research is to understand how children develop skills related to language and communication so that those skills may eventually be supported to allow each individual to develop to his or her full potential.



Photo Credit: Chrissie Chang

Sara Kover with members of the NeuDLL lab: From left to right (front row) Kerry Lam, Caroline Vandewater, (back row) Emily Wu, Kelleen Dunley, Kover, Natasha Arora, Donna Lee



Social Cues, Eye Gaze, and Word Learning in Individuals with Fragile X Syndrome

Children use many different social cues to learn new words throughout development. Social cues made by communication partners, such as pointing, direction of gaze, facial expression, and speech prosody, may prompt children to associate a new word with a specific object.

The Neurodevelopmental Disorders Language and Learning (NeuDLL) lab studies behavioral aspects of language learning in children with fragile X syndrome (FXS) and autism spectrum disorder (ASD), as well as typically developing (TD) children for comparison.

The NeuDLL lab's principal investigator, Sara T. Kover, will be leading research which expands on a study

published by David P. Benjamin, Ann M. Mastergeorge, Andrea S. McDuffie, Kover, Randi J. Hagerman, and Leonard Abbeduto in 2014. Data for this study were collected at the University of Wisconsin-Madison and the MIND Institute at the University of California, Davis.

The authors examined two cues—pointing and verbal labeling of novel objects—and their effect on the eye gaze and word learning in FXS, ASD, and TD populations.

By having children watch videos, researchers were able to use an eye tracker to collect information from the three participant groups. Videos contained novel objects and provided opportunities to learn new words for them.

The authors found that pointing significantly increased attention toward objects in all three participant groups. However, they found that participants with FXS showed a smaller proportion of gaze toward the target

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object in the pointing segment of the videos than did the participants with ASD and TD.

Surprisingly, the authors also found that children with FXS did not exhibit face aversion, a recognized phenotypic characteristic in many people with FXS, while watching the word-learning videos. This finding may be useful in future studies with individuals with FXS because it suggests that gaze aversive behavior in individuals with FXS may merely be context dependent.

This study was the first to use eye-gaze tracking methodology to study word learning in individuals with FXS. The NeuDLL lab will use similar methodology for

upcoming studies to see how various factors affect language learning in children with developmental disabilities.

Dr. Benjamin is currently a research associate at Rady Children's Hospital in San Diego, California.

Reference:

Benjamin, D. P., Mastergeorge, A. M., McDuffie, A. S., Kover, S. T., Hagerman, R. J., & Abbeduto, L. (2014). Effects of labeling and pointing on object gaze in boys with fragile X syndrome: An eye-tracking study. *Research in Developmental Disabilities, 35*, 2658-2672. <http://dx.doi.org/10.1016/j.ridd.2014.06.021>

Q&A With Lab Manager Kerry Lam

Q: Tell us about yourself.

A: I grew up in the Seattle area, and I still live here. I did my undergraduate studies at the University of Washington, where I studied linguistics and Chinese. I was actually a Computer Science student, but decided to switch to linguistics because the study of human language was so much more intriguing and fun for me. During my undergrad I went on a student exchange for 4 months to Hong Kong, where I studied at the Chinese University of Hong Kong. Between graduation and the NeuDLL Lab, I worked with kids. I was and still currently am a teacher's assistant in a second grade classroom in Seattle. There, I get to work with students on literacy in small groups and one-on-one. The students are so sweet and always brighten my day.

Q: Why were you interested in working at the NeuDLL Lab?

A: In a way, the NeuDLL Lab brings together the academic interests I explored in college and the joy of working with young minds. Since the lab studies how children with developmental disabilities learn language, I'm interested in what our lab members will find in their studies. I didn't know

about fragile X syndrome until I started working in the NeuDLL lab, but I have been learning a lot and look forward to learning more about individuals with neurodevelopmental disorders. I also enjoy administrative tasks and organization, so as the manager of the lab, I'm able to do

those things in a field that is interesting to me.



Q: How is NeuDLL Lab different from other labs?

A: I'm currently working in the UW Aphasia Lab, which studies a communication disorder called aphasia that is a result of damage to

the brain. Many of our patients are older and have had strokes, so the target age group for each of the labs are different. Also, the NeuDLL lab is just starting off, whereas the Aphasia Lab has been up and running, conducting research studies on treatments for many years.

Q: What do you do in your time outside of the lab?

A: Outside of the lab, I help out at my parent's Chinese restaurant and volunteer my time to help people learn about the Bible. I also enjoy cooking, weight lifting, and hiking in my spare time.

Meet the Principal Investigator



Sara T. Kover, PhD, is an assistant professor at the University of Washington. Dr. Kover's expertise is in the area of language development in children with neurodevelopmental disorders. Her research has addressed the overlap between fragile X syndrome and autism spectrum disorder, the development of cognitive skills that support language acquisition, well-being in families with a child with fragile X syndrome, methodological issues in research on neurodevelopmental disorders, and the assessment of language abilities in children with neurodevelopmental disorders.

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