Sensitivity to visual speech information in children with Autism Spectrum Disorders to be studied in NIH grant

NEW HAVEN — Dr. Julia Irwin, a Senior Scientist at Haskins Laboratories, has received an award of $150,000 from the National Institutes of Health to examine sensitivity to visual speech information in children with autism spectrum disorders (ASD).

Dr. Irwin’s special interest in children with developmental disabilities grew out of more than fifteen years of studying communication from infancy to adulthood. She became intrigued by what she found—and didn’t find—in the literature about communication deficits in children with ASD. Much of the current research and intervention focuses on improving social interactions because children with ASD have difficulty sustaining eye contact and have trouble reading common social cues. But does lack of attention to the face explain why such children also have more trouble producing speech? Could differences in perceptual processing impact an affected child’s ability to communicate? Do children with ASD lack sensitivity to information that the human face provides? Or are such clues lost in the perceptual pathways of the brain?

Dr. Irwin hopes to find answers by using a non-invasive technique to examine the processing of children with ASD. By using videos of speaking human faces with a method that allows her to track eye movements, she can determine whether affected children actually look at the face as part of their perceptual processing of speech. Dr. Irwin introduces children to a perceptual effect known as the McGurk effect, which demonstrates the interaction between hearing and vision in speech perception. This effect may be experienced when video of a speaking face producing one sound (for example, /ga/) is dubbed with a different speech sound (/ba/). Participants who effectively process both the sound and sight often report hearing a third sound (/da/).

Additionally, Dr. Irwin aims to develop a training procedure for non-verbal children with ASD, which would allow them to participate in speech perception studies. Dr. Irwin hopes this procedure will unlock some of the secrets of this largely understudied group of children, and that the findings will offer new avenues for early intervention.

According to Autism Speaks, a non-profit research and advocacy group affiliated with the National Alliance for Autism Research, 1 in 150 children will be diagnosed with an autism spectrum disorder. Ultimately, Dr. Irwin envisions that her basic research will translate directly into practical, effective interventions for this population.

Haskins Laboratories was founded in 1935 by the late Dr. Caryl P. Haskins. This independent research institute has been in New Haven, Connecticut since 1970 when it formalized affiliations with Yale University and the University of Connecticut. The Laboratories’ primary research focus is on the science of the spoken and written word.