



Language and Social Communication Program
Boston University School of Medicine
<http://www.bu.edu/autism/>
Spring 2004

WHAT'S NEW AT THE LAB

We would like to welcome new families who have just started participating in our studies and those who have helped us in our research many times already. We are anticipating several changes this summer as we continue to learn more about the way children develop language, process information about people's faces, and engage in social communication.

We must sadly say goodbye to several of our research team members, who will be leaving the Lab to pursue new opportunities. Research assistant **Lauren Evancie** will be entering the Master's program in speech/language pathology at Emerson University. Research assistant **Alyssa Verbalis** has made plans to enter the PhD program in clinical psychology at the University of Connecticut. Research assistant **Kelly Ehrman** plans to continue her career in a new home in California. We wish each of these talented researchers the best of luck as they begin these new ventures.

This summer, however, we will be welcoming some new faces to our research team. **Rhyannon Bemis** joins us from Maryville College in Maryville, Tennessee. She will be working as a research assistant on some of the projects involving language development. **Brandon Keehn**, a recent graduate from the University of Washington, will begin work in our lab as a research assistant on the face processing experiments. **Leigh Borum**, who joins us from Amherst College, will be working on several different projects within the Lab, including projects in the Language and Social Communication Program and in the Social Perception in People with Developmental Disorders project. We are eagerly looking forward to working with these new team members.

RECRUITMENT UPDATE

Kelley Larrow, Family Coordinator for the Language and Social Communication Research Program, has attended several conferences in recent months in an effort to share information about our study with families in the area. She has been happy to see many of our currently enrolled

families at these events! She has also met many new families interested in the study.

We are still enrolling children, **ages 7-16** in this study. Children with **autism**, children with **language-based learning difficulties**, and **typically developing children** are invited to participate. If you or friends of your family are interested, please contact Kelley at 617-414-1304 or via e-mail at klarrow@bu.edu. This program investigates how children process language and social information that they read from another person's face; it also examines the brain structures involved in language- and face-processing. We especially need **typically developing children** to participate in our studies!

Participation involves 2-3 visits to Boston University School of Medicine. Parents receive full written evaluations of standardized testing, and children receive a choice of a gift certificate (e.g., to movies, Amazon.com, Omni Theater). A travel reimbursement is offered, and the cost of parking is covered.

Kelley will be contacting many of you soon about new projects that will be beginning in our Lab this summer and fall. Thank you for your continued participation in our research!

NEW BRAIN IMAGING PROJECT

We are finally ready to begin our studies exploring brain structure and function in all the children we have seen over the past two years! We had hoped to start this work several months ago, but it always takes more time than anticipated getting the machines that we use for our work up and running. The new Center for Biomedical Imaging at Boston University School of Medicine is finally open, and our research project will be one of the first to get underway here.

Sometime in the next few weeks, we will be sending you a letter that describes our plans in more details. We will follow up with personal contacts to each of you to see whether you and your child would like to participate in this part of our research program. We will be hiring a new project coordinator, who will work with Kelley Larrow, our family coordinator, and Kelli Dominick, our MD/PhD student, to run this project. *(cont. on back)*

(cont. from front)

Our goals are to collect images of children's brains using non-invasive, safe technology: magnetic resonance imaging (or MRI). We will be investigating the size and shape of different areas of the brain (for example, regions that are specifically related to language ability) to explore individual differences. We will be most interested in relating the brain findings to some of our behavioral studies and other measures that we have completed on the children already. We will also investigate how different parts of the brain, all known to be important for processing language, or processing faces, are connected to one another. This part of the project uses exciting new methods, called diffusion tensor imaging (or DTI).

We look forward to being in touch with you soon about these new projects!

LANGUAGE PROCESSING STUDY UPDATE

We are excited to share some of our research findings that were presented at the *International Meeting for Autism Research (IMFAR)* held in Sacramento, CA in May 2004. Researchers from our lab investigated how well children with autism understand sarcasm. We were interested in understanding the contribution of intonation, the rise and fall of pitch in a voice, and content, the meaning of the words in a statement, to the comprehension of sarcasm in children with autism, with and without language impairment. Over 40 children have participated in this study. All the children were sensitive to intonation. Only children with autism and language impairment had difficulty understanding sarcasm; children with autism without language impairment performed like typically developing children of the same age.

Many children participating in our studies completed a task that involved looking and listening to a video recording of a man saying different syllables like, /ba/ and /da/. This was our facial speech study. We presented our findings from this study at the IMFAR conference as well. Earlier research has shown that children with autism are good at processing social information from the face, like face identity, but only when the important information is in the area of the mouth. In this project, we investigated whether children with autism are also good at processing *linguistic* information from the mouth, which we call "facial speech." We found that children with autism, like typically developing children, perceive speech more accurately when they are provided with both auditory (heard) speech and facial speech. However, we found that some children with autism are less able to integrate these two kinds of speech information when the heard and seen information are mismatched. We are continuing to investigate why children with autism have difficulty integrating mismatched auditory and facial speech information by

analyzing how much time the children spend looking at the mouth region of a face while they complete this task.

PUBLICATIONS AND PRESENTATIONS

Recent Publications

- Hadjikhani, H., Chabris, C. F., Joseph, R. M., Clark, J., McGrath, L., Aharon, I., Feczko, E., Tager-Flusberg, H., & Harris, G. J. (2004). Early visual cortex organization in autism: An fMRI study. *NeuroReport*, *15*, 267-270.
- Joseph, R. M., & Tager-Flusberg, H. (2004). The relationship of theory of mind and executive functions to symptom type and severity in children with autism. *Development and Psychopathology*, *16*, 137-155.
- Ozonoff, S., Cook, I., Coon, H., Dawson, G., Joseph, R. M., Klin, A., McMahon, W. M., Minshew, N., Munson, J. A., Pennington, B. F., Rogers, S. J., Spence, M. A., Tager-Flusberg, H., Volkmar, F. R., & Wrathall, D. (2004). Performance on CANTAB subtests sensitive to frontal lobe function in people with autistic disorder: Evidence from the CPEA Network. *Journal of Autism and Developmental Disorders*, *34*, 139-150.
- Hadjikhani, H., Joseph, R. M., Snyder, J., Chabris, C. F., Clark, J., Steele, S., McGrath, L., Vangel, M., Aharon, I., Feczko, A., Harris, G. J., & Tager-Flusberg, H. (2004). Activation of the fusiform gyrus when individuals with autism spectrum disorder view faces. *NeuroImage*.

Recent Presentations

- Condouris, K., Joseph, R.M., Erhman, K., Connolly, C., and Tager-Flusberg, H. (2004). *Facial Speech Processing in Children with Autism*. 3rd International Meeting for Autism Research, Sacramento, CA.
- Dominick, K., Killian, R., Harris, G.J., and Tager-Flusberg, H. (2004). *Repetitive Behavior in Autism Spectrum Disorder: The Relationship Between Brain and Behavior*. 3rd International Meeting for Autism Research, Sacramento, CA.
- Hadjikhani, N., Chabris, C., Joseph, R.M., Clark, J., McGrath, L., Aharon, I., Feczko, E., Tager-Flusberg, H. (2004). *Early Visual Cortex Organization in Autism: an fMRI Study*. 3rd International Meeting for Autism Research, Sacramento, CA.
- Hodge, S.M., Markris, N., Harris, G.J., McGrath, L., Steele, S., Kennedy, D.N., Caviness Jr., V.S., Frazier, J., and Tager-Flusberg, H. (2004). *MRI-Based Parcellation of the Cerebellum in Autism and SLI*. 3rd International Meeting for Autism Research, Sacramento, CA.
- Joseph, R.M., Ehrman, K., Connolly, C. and Tager-Flusberg, H. (2004). *Face and Gaze Processing in Children with Autism*. 3rd International Meeting for Autism Research, Sacramento, CA.
- Ozonoff, S., Coon, H., Dawson, G., Joseph, R.M., Klin, A., McMahon, W.M., Minshew, N., Munson, J.A., Pennington, B.f., Rogers, S.J., Spence, A., Tager-Flusberg, H., and Volkmar, F.R. (2004). *Performance on CANTAB Subtests Sensitive to Frontal Lobe Function in People with Autistic Disorder: Evidence from the CPEA Network*. 3rd International Meeting for Autism Research, Sacramento, CA.
- Pearlman-Avni, S., Condouris, K., Evancie, L., Ehrman, K., and Tager-Flusberg, H. (2004). *Intonation and Content in Sarcasm Understanding by Participants with Autism, with and without Language Impairment*. 3rd International Meeting for Autism Research, Sacramento, CA.
- Tager-Flusberg, H. McGrath, L., Cook, E.H., Dawson, G., Dunn, M., Hyman, S., Lord, C., Rodier, P., McMahon, W., Minshew, N., Sigman, M., Spence, A., Williams, D. and Volkmar, F.R. (2004). *A CPEA Study of Language History and Language Outcomes in Autism Spectrum Disorders*. 3rd International Meeting for Autism Research, Sacramento, CA.