Language And Brain Lab

DIGEST **FALL 2018**

LAB SPOTLIGHT

DR. EMILY MYERS

Before arriving to the University of Connecticut, Dr. Emily Myers received a Bachelor of Arts in Spanish and Linguistics from the University of Iowa and continued to Brown University where she obtained a Ph.D. in Cognitive Science. Dr. Myers now serves as the Principal Investigator of the Language and Brain Lab and also as an Associate Professor of Psychological Sciences and Speech, Language, Hearing Sciences.

Why did you choose to become a researcher and pursue a Ph.D. in Cognitive Science?

Somewhere in a box in the attic, I have a project that I did in third grade where I asked speakers of many languages to record the sentence "The smart girl ate two cookies" in their language. I'm not sure what the point of that project was, but suffice it to say, I've always been fascinated by languages, especially the sounds of languages. When I went to school at the University of Iowa, I was pre-med -- my goal was to become a Neurologist and help people who had brain injuries and diseases. At the same time, my courses in Spanish and Linguistics began to occupy more of my attention, and I struggled to choose between a career in medicine and a career in language science. In my last year of undergrad, I had an epiphany--I realized that I could combine my interests and study the way language is organized in the brain.

What are your research interests / goals for any current aphasia studies?

I'm excited by some of our recent work where we are trying to discover what kinds of listening conditions are challenging for people with aphasia. We want to understand, for instance, whether people with aphasia are able to adapt to a new "accent" (one we have created by artificially modifying speech). This is important because it could provide ways of making comprehension easier for people with aphasia, and because these results help us understand which areas of the brain allow us to do this important process.

What do you like best about your job?

Hands down, my favorite things is collaborating on research with students and postdocs. My students always bring fresh ideas, and challenge me to think about longstanding problems with new energy.

If you could have any superpower, what would you have and why?

The classic teacher's superpower: the ability instantly take knowledge from my brain and put it in yours. Oh, and flying would be fun, too.

LITERATURE CORNER

ARTICLE FEATURE

Earle, F.S., Landi, N., & Myers, E.B. (2017). Adults with specific language impairment fail to consolidate speech sounds during sleep. Neuroscience Letters. 636. 77-82.

Mozeiko, J., Coelho, C.A., & Myers, E.B. (2015) The role of intensity in constraint-induced language therapy for people with chronic aphasia. Aphasiology. 30(4). 339-363.

Johns, A.J., Skoe, E., & Myers, E.B. (2018). Sensory and cognitive contribution to age-related changes in spoken word recognition. Language and Linguistics Compass. 12(2), 1-25.

Luthra, S., Guediche, S., Blumstein, S.E., & Myers, E.B. (2018). Neural substrates of subphonemic variation and lexical competition in spoken word recognition. Language, Cognition, and Neuroscience.

Xie, X., & Myers, E.B. (2018) Left inferior frontal gyrus sensitivity to phonetic competition in receptive language processing: A comparison of clear and conversational speech. Journal of Cognitive Neuroscience. 30(3), 267-280.

Aphasia is a language disorder that "impairs the ability to speak and understand others" (National Aphasia Association). Though there are many ways that aphasia can be treated, Dr. Jennifer Mozeiko, Dr. Carl A. Coelho, and Dr. Emily B. Myers from the University of Connecticut (UConn) focus on one route of treatment called constraint-induced language therapy, which is meant for people with chronic, or persisting, aphasia. **Constraint-induced language therapy (CILT)** is a form of speech therapy that is based off of three principles: **constraint**, in that the patient avoids using strategies such as gesturing or drawing to communicate rather than talking, **forced use**, in that the patient can only communication through talking, and **massed practice**, in that the therapy is repeated every day for 2-4 hours (strokeassociation.org). The team at UConn focus on how the intensity of the CILT training affects the results of the treatment.

The team hypothesized that because those who received intensive training (CILT-I) had more improvements in communication and scores in standardized tests, those who received a more standard form of the treatment (CILT-D) were less likely to change their ways in discourse and testing. The results were compared based on the patients' scores on standardized testing, how well they are in discourse, and their maintenance of the treatment.

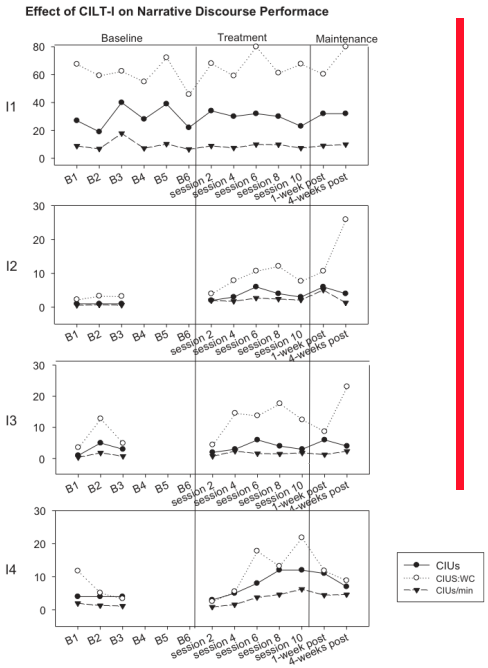

Figure 1. Mean CIUs and CIUs/min are reported at each probe period for each participant who received CILT-I. The proportion, CIU:WC, is shown as the per cent CIUs of total words.

Prior to any testing, there were baseline testing procedures that tested discourse production based on word count. There were three standardized tests involved with this study, but the Western Aphasia Battery-Aphasia Quotient (WAB- R AQ), which quantifies the severity of aphasia in a patient, was particularly important. Using this test, participants were split up into groups. Two males and two females recieved the CILT-I and three males and one female recieved the CILT-D. In order to test the treatment, participants played a game of "Go Fish," where a participant asks another participant for a card that matches one of their own, and if the other has the card, they must give it up, or they "fish" for a new card from the deck. The intensity is varied through how the participant asks for the card. For example, level one intensity would be just a single word response, whereas level three intensity forced the participant to use two adjectives to describe the card needed. The intensity for both the CILT-I and CILT-D groups were the same; however, the difference between the two groups were length and duration of treatment sessions.

It was found that two of the four CILT-I participants and two of the four CILT-D participants showed improvements in discourse, while a third of the CILT-I participants shows improvement but did not reach the minimum requirement to be counted. The improvements overall did not appear to be influenced by the dosage of intensity. It was also suggested by the data that because three of the four CILT-D participants shows positive gains in treatment, the intensity of three hours per week over 30 weeks (CILT-I) is intense enough to show similar results to the standard massed practice schedule which is 30 hours over two weeks (CILT-D). Thus, intensity is suggested to have a role in CILT treatments in chronic aphasia patients.

Created by: Divya Ganugapati and Pavitra Makarla

Would you like to participate in a study?

We are always looking for people with aphasia and adults aged 50-90 for our studies!

Contact Us!

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