Tulane researcher ‘will talk to anyone who will listen’ about the brain

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Elizabeth Engler-Chiurazzi, assistant professor of neurosurgery in the Clinical Neuroscience Research Center in the School of Medicine, led a panel at this year's New Orleans Book Festival. It was just one of many forms of outreach she does. (Photo by Ryan Hodgson-Rigsbee)

When it comes to the brain, “I will talk to anyone who will listen,” said Elizabeth Engler-Chiurazzi, assistant professor of neurosurgery in the Clinical Neuroscience Research Center in the School of Medicine.

“I was always kind of interested in psychology, how the brain worked and why people were the way they were,” she said, “and also how we age, how people change cognitively over their lifespan.”

She didn’t get much of a chance to learn about neuroscience in school until college, where she said she was fascinated as soon as she started taking psychology classes. “For the first time, I was really, really engaged. I didn’t dislike learning before, but learning about the brain didn’t feel like work at that point.”

Engler-Chiurazzi studies how the nervous system and the immune system interact, something that has been brought more to the forefront in recent years as more people have had neurological symptoms after coming down with COVID-19.

“I think the pandemic has really illuminated for us now just how interconnected these two systems are with all of the neurological manifestations that people are experiencing with Long Covid,” she said.

She has joined forces with Kevin Zwezdaryk, assistant professor in the Department of Microbiology and Immunology in the School of Medicine, to study how intermittent infections, or multiple infections over many years, affect how cells in the central nervous system age and what that means for how we learn and remember. Their research is looking into whether infections might be a risk factor for dementia.

Working together across disciplines allows them to answer more complicated questions, Engler-Chiurazzi said. “I was not trained as a virologist, Kevin was not trained as a neuroscientist, but when we come together, we can really nicely complement the things that we both know how to do to answer really topical and important questions for human health in a novel and effective way.”

Tulane is a great environment for that kind of transdisciplinary research, especially, Engler-Chiurazzi pointed out, at the Tulane Brain Institute. “You are really able to know a lot of people and foster those transdisciplinary connections in meaningful ways that are much more difficult to do at a larger university,” she said.

Alongside her work as a researcher, Engler-Chiurazzi is passionate about outreach and engagement with her community. “Everybody and anybody should care what is going on in between their ears,” she said.

Engler-Chiurazzi's outreach journey started when she was a student at Arizona State University. Her mentor, Heather Bimonte-Nelson, brought Engler-Chiurazzi and other members of her lab to a local high school to speak with students about the brain and attending college.

"We were visiting hundreds of kids in dozens of classrooms, bringing brains, watching their faces light up, being a positive role model," she said. "It was really meaningful." That experience encouraged her to pursue outreach alongside her research career.

This outreach to students gives her the opportunity to provide something she didn't have as a young student. "I never had somebody come to my classroom and say, 'the brain is really rad, you should learn about it,' and I think it could have been amazing," she said. "It's definitely something that I want to pass along."

As a postdoctoral researcher at West Virginia University, Engler-Chiurazzi developed the Feed Our Brains program for outreach to the local community. "We identified childhood hunger and a lack of food security, which was a big problem for our rural community, as an initiative we wanted to address," she said.

The Feed Your Brains program raised money to pay off school lunch debt for local students and would go into classrooms to teach about the brain and the importance of a healthy diet for learning.

In 2019, Engler-Chiurazzi was named an If/Then Ambassador by the American Association for the Advancement of Science. The aim of this program was to highlight female role models in STEM careers.

"People could then say, 'oh, that person looks like me and they've achieved this, I can, too,'" she said.

One aspect of the program was an exhibit of life-sized orange statues of the ambassadors at the Smithsonian in Washington, D.C. The statue now lives at her home here in New Orleans.

The If/Then program helped provide the funding and support for the Books and Brains initiative, which provides children's books about neuroscience to libraries, to free lending libraries and at events. Engler-Chiurazzi developed the Books and Brains program for Tulane, and it is the signature outreach initiative of the Tulane

Brain Institute.

The idea for Books and Brains came when Engler-Chiurazzi's then-five-year-old daughter asked her school librarian for books about space after a visit to a science museum. Her continued engagement with the material inspired Engler-Chiurazzi, but she had trouble finding books about the brain aimed at children at any local libraries.

The central question of the Books and Brains program was, she said, "How can we impact the most people the most efficiently, on limited resources, and allow them to continue to pursue this knowledge and stay engaged with this content?"

This past March, Engler-Chiurazzi participated in the New Orleans Book Festival at Tulane as a moderator for "Brain Education and Enhancing Diverse Perspectives in Science," a panel with researcher and author Leanne Boucher Gill as well as Tulane researchers India Pursell and Brook Sweeten, and at Family Day with the Tulane Brain Institute and Books and Brains.

"Tulane is perhaps the site where I've had the most support for the types of outreach that we do," she said. She pointed to the funding and structure that the Tulane Brain Institute has in place to support outreach and engagement, which has helped grow programs like the Books and Brains program.

These outreach projects are also an encouraging force for Engler-Chiurazzi herself. "Science is hard, projects don't work, you have rough days like any job, like any pursuit. Outreach and community engagement are two of those parts of this job that are a win every time," she said. "You're going to get to see people get excited about something they didn't know about before, and that is a sure thing, it's a guarantee, and we have very few of those in this business."

Engler-Chiurazzi and her daughter, Isabella Chiurazzi, pose next to her If/Then statue at the Smithsonian. (Photo courtesy of Elizabeth Engler-Chiurazzi)