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For The Sake Of The Kids

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Faculty members at Kansas State University are leaping academic boundaries to help kids overcome disabilities. In one interdisciplinary project they are teaching magic tricks to help children develop skills and retain knowledge learned during the school year. In another project they are developing tools to help children with daily life.

Magic materializes when communities join forces

Sally Bailey, professor of theatre and director of the university’s drama therapy program, is part of a magical initiative to conjure up executive functioning skills in children with developmental and social delays.

Executive functioning skills are a set of abilities that allow a person to plan, organize, strategize, pay attention and remember details, and manage time and space.

Bailey; James Teagarden and Marilyn Kaff, associate professors of special education, counseling and student affairs; Terri Holmberg, music therapist in the School of Music, Theatre, and Dance; Todd Holmberg, director of McCain Auditorium; The Friends of McCain; and the Manhattan-Ogden school district are working together to add magic to the Flint Hills Summer Fun Camp for children. They are testing whether learning magic tricks will enhance the campers’ executive functioning skills.

“Learning how to do a magic trick affects more than just focusing and social skills; it affects all of the executive functions of the brain,” Bailey said. “Magic involves sequencing, observation, impulse control and a lot of decision-making.”

Aside from entertaining the campers, the magic activities will provide scientific data that may support anecdotal evidence that teaching magic helps children on the autism spectrum or with attention deficit hyperactivity disorder.

Kevin Spencer, international illusionist, developed the camp’s curriculum, which is called Hocus Focus. He approached Todd Holmberg to help him provide scientific data to support his theory that teaching magic tricks improves children’s developmental skills.

“Some of the greatest challenges children on the autism spectrum or with ADHD have are with social interactions and impulse control,” Teagarden said. “The activities of the camp are designed to allow each student to resist the tendency to react, but rather plan their action.”

Teagarden and Kaff will review the children’s developmental achievements using Behavior Rating Inventory of Executive Function, or BRIEF, which is an assessment to determine if the child performs a task. They also are using a measure of social skills development and a measure of persistence to determine
Inclusive research

Several recent student projects have focused on helping children and adults with autism.

• Apparel design students have developed special vests to help children with autism and with sensory integration disorders. These children often have difficulty with or responding to sensory stimulation from multiple sources, such as sights, sounds and movement. The vests provide a calming effect by using small weights placed at various points on the torso.

• Elizabeth Decker, a landscape architecture master’s graduate, recently developed a toolkit to help designers and planners make cities more inclusive for adults with autism. The toolkit focuses on six needs for adults with autism: vocational training, life skills, mental and physical health support, employment, public transportation and affordable housing.

• By incorporating therapies and activities, Chelsey King Raymer, a landscape architecture master’s graduate, created a school yard for elementary schoolchildren with autism. The school yard aims to help children feel comfortable by providing several aspects: clear boundaries, a variety of activities and activity level spaces, places where a child can go when overstimulated and a variety of ways to foster communication between peers.

— By Jennifer Tidball, Division of Communications and Marketing

Developing technology with a heart

Electrical and computer engineers at Kansas State University are developing systems to help children with autism spectrum disorders and other special needs.

Steven Warren, associate professor of electrical and computer engineering, and Punit Prakash, assistant professor of electrical and computer engineering, are collaborating with Heartspring Inc. The Wichita-based nonprofit organization is a therapeutic residential and day school program that utilizes evidence-based and emerging best practices to serve students who often have multiple diagnoses, including autism spectrum disorders, cerebral palsy, speech and language impairments and other developmental disabilities.

The collaborative work is supported by a five-year $125,000 grant from the National Science Foundation’s General and Age-Related Disabilities Engineering program.

The professors are using the grant to teach senior design courses where engineering students develop customized devices and software to help children at Heartspring.

Among the student-developed projects, one project involves a musical toothbrush that tracks brushing activity and plays different songs so children know how long to brush the different areas of their mouths. Another project has developed mattress and bed sensors that track breathing rates, heart rates and movement of children while they are sleeping and potentially can alert paraeducators of seizures and bedwetting.

“The intent of this program is to pursue a specific design for a specific child when possible,” Warren said. “When we are finished with a design, that individual would then get to keep and use a copy of the design. This is research where you can add immediate benefit to these children’s lives.”

— By Stephanie Jacques and Jennifer Tidball, Division of Communications and Marketing