iPad App to Encourage Communication for Autistic Children

Kathy Thiemann-Bourque, assistant research professor at Juniper Gardens Children’s Project, has been awarded a four-year $1.2 million grant from the National Institute on Deafness and Other Communication Disorders to examine how alternative and augmentative communication (AAC) can be used to encourage communication between young children with autism and their classmates without disabilities using a speech-generating application on iPad.

In Communication Intervention for Preschoolers Learning to use AAC (CI-PAAC), approximately 48 preschool children with autism who are nonverbal or minimally verbal, 48 early education school staff, and 144 peers without disabilities will be recruited from the greater Kansas City, Kansas, Kansas City, Missouri and Lawrence, iPad App to Encourage Communication for Autistic Children

Clinical Trial Will Test Book Reading to Treat Language Impairment

A University of Kansas researcher has been awarded a $1.5 million grant from the National Institute on Deafness and Other Communication Disorders to conduct a clinical trial of book reading to help kindergarten children with Specific Language Impairment (SLI) learn words.

Holly Storkel, Ph.D., associate professor and associate chair of KU’s Speech-Language-Hearing: Sciences and Disorders department, will lead the five-year study aimed at developing an effective treatment for children with SLI, a subtle and often undiagnosed language impairment even though it is as common as ADHD - affecting about 7 percent of children.

"Children with SLI have difficulty learning new words which puts them at risk for later reading problems and academic failure," said Storkel. Some research has found that children with SLI need to hear a word in context two to three times more than their peers to learn them, she said.

Determining exactly how many more times chil-
Investigator Highlight

The BNCD is glad to welcome a new researcher, Kathy Thiemann-Bourke. She came to the University of Kansas 12 years ago after graduating from Florida State University. Her current research focuses on iPad App to Encourage Communication for Autistic Children, see pg. 1. To participate in her research, see below:

Project Title: Communication Intervention for Preschooler’s Learning to Use AAC

Does your child have social and communication delays related to autism? Would your child benefit from using a voice output device to help him/her communicate?

The purpose of this project will be to provide preschoolers with autism who are nonverbal or using few words, a speech generating device such as an iPad with voice output App to communicate. We will provide teacher training on the iPad system, and observe interactions in preschool social activities for one school year.

Ages: Preschool age children (age 3-5) with the (1) diagnosis of autism, (2) nonverbal or expressing 15 or fewer words, (3) attending inclusive educational program, and (4) English as the primary language.

Time commitment: Children will participate in weekly social activities for 10-15 min, up to 3 times/week for approx. 28 weeks. Classroom activities and observation times will be scheduled with input by the school staff team. Initial pre- and post-assessment sessions will take place at home (1 hour) and school (1 hour) at the beginning and end of the school year. Participation will be dependent on permission provided by school district administration and interest of the principal.

Benefits: (1) free individualized programming using an iPad with a voice output App to increase communication skills; (2) free in-service training for school staff on the iPad and voice output App and consultation from research staff; (3) opportunity for children to learn critical early communication skills in inclusive settings; (4) An assessment report on social, play, and communication development; (5) compensation for completing 2 questionnaires.

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Kansa. school districts for the study which began July 1.

After the initial staff training, half of the children with autism will be randomly assigned to an intervention condition that incorporates additional teaching strategies using a voice output app for iPad; and the other half will be assigned to a control condition with follow-up observations in the classroom. The intervention will be implemented for one school year.

Nancy Brady, associate professor at the Life Span Institute, is the study co-investigator and directed the development of the Communication Complexity Scale in 2012. The CCS will be modified to measure changes in the children’s complexity of prelinguistic and early linguistic communication with peer partners. The study will also measure changes in peer-oriented play based on commonly used developmental play categories and behaviors.


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(dren with SLI need to hear a word to learn it and the best way to expose kids to words could lead to the development of an effective treatment, something that Storkel said is a critical need.

That treatment could be a modified version of interactive book reading, a research-based strategy in which an adult discusses vocabulary words in a storybook with children before, during and after reading the book by describing or defining the word and showing other ways to use it.

Once the researchers know the number of times children with SLI need to hear a word to learn it, they will test whether it is more effective to maximize the number of times children hear the word in a story book or the number of times they hear the book read.

Storkel said that there's some evidence that hearing the book more times might be important in making the treatment effective. "Hearing the book on different days capitalizes on the benefits of sleep for learning," she said, "since it is thought that sleep may help strengthen memories in a variety of ways, leading to better learning outcomes."

While this clinical trial is about optimizing interactive book reading as a possible SLI treatment, and would have to be confirmed in a larger study, Storkel said that she expects to be able to give general guidance to parents and others about how to help children with SLI learn words as a result of the trial.

Research Participation Opportunities

1. How does attention to people and objects impact language learning?

The purpose of this project is to learn about how infants’ attention to social and nonsocial information relates to early language development. We want to learn whether infants’ pay attention differently when they are watching people and objects and if these differences relate to how they learn language.

Age: 6- and 12-month-old infants
Time: One 60-minute visit to the KU Edwards Campus (126th & Quivira in Overland Park, KS).
Benefits: Families will receive $15 for participating in this study.
Contact: KU Infant and Early Cognition Lab; babylab@ku.edu; (913)897-8590


The purpose of this study is to determine if a low glycemic beverage benefits short-term cognitive performance in children.

Age: About 3 years old (33 months to 39 months old)
Time: There are 4 visits over 6 months to KU Medical Center in Kansas City, KS. Caregiver’s answer questions about child’s diet, medical history, and development since birth. Your child would participate in play-like activities to assess thinking and memory skills, as well as other study tasks, including measuring height and weight, blood pressure, and blood nutrient values. Each visit would be between 1 and 2.5 hours.
Benefits: Children will receive a cow’s milk based beverage with vitamins and minerals to consume throughout the study. You may receive a total of $300 if your child completes all study visits.
Contact: Maternal and Child Nutrition and Development Lab; momandbaby@kumc.edu; (913) 588-3781

3. Can the nutrient DHA be helpful for preschoolers’ development?

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4. Does your child have trouble learning new words?

The purpose of this study is to see the effect of interactive book reading on new vocabulary learning.

Age: Kindergarten
Time: About 2 sessions a week for 2-3 months. Visits will last about 15-30 minutes.
Benefits: You will be given a written report detailing your child’s performance on all standardized clinical tests administered. Child may learn some of the 30 words taught.
Contact: KU Word Learning Lab; wrdlrng@ku.edu; (785)864-4428

5. Do you use a cochlear implant device to understand speech? Have you had it for at least 1 yr?

The purpose of this research project is to examine how to reduce noise and reverberation in cochlear implant devices in adults with one or two cochlear implants. This research might help design cochlear implants with better speech coding strategies for the future.

Age: Adults 21-75 with one or two cochlear implants
Time: 1 session lasting 4-5 hours
Benefits: $200 plus travel reimbursement
Contact: Electrical Hearing Lab; kokkinak@ku.edu; (785)864-4835

Language Acquisition Preschool Has Openings

The Language Acquisition Preschool (LAP) is a licensed program that serves children with and without communication disabilities. LAP is a three-hour a day, 4 days a week program (there is a morning class and an afternoon class serving 18 children in each class). The program follows the University of Kansas semester schedule. The head teacher in the class is a speech language pathologist and the assistant teacher is an early childhood educator.

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About this Newsletter:
The BNCD newsletter is designed to keep you informed about the ongoing research projects that are being conducted by BNCD researchers at the University of Kansas. Participants who have been part of recent research projects conducted by BNCD researchers, parents who have expressed interest in participating in future research, and individuals from organizations such as schools and daycare centers that have an interest in BNCD studies will receive this newsletter from time to time to keep them up-to-date about the research activities at the BNCD. If you do not wish to receive future newsletters, please call or e-mail the BNCD to have your name removed from our list.

Research at the BNCD is supported in part by grant number 5 P30 DC05803 from the National Institute on Deafness and other Communication Disorders (NIDCD) at the University of Kansas.

Just for Fun

Help Buddy find his missing dog food.

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