

NEWS

# For children with autism, iPads an attractive option

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Feel me: Children with autism can express their emotions by choosing an icon on an iPad screen.

Leann Henkel of Trinity, North Carolina, bought her son Blake an iPad for his 18th birthday on the first day the device was available. Blake, who has autism, is normally shy, but when he's using the iPad, people approach him and ask him about it.

"It's an opportunity to use his social skills," says Henkel. "When he has it with him, he's just the coolest person around."

For Blake and other children with autism, the iPad is more than just the latest gadget. Compared with other assistive technologies made for people with communication difficulties, the iPad is more portable, less expensive and less stigmatizing.

Parents and teachers report that the devices are making it easier for children with autism to keep track of daily activities, communicate their wants and needs, and act appropriately in social situations. At their core, touch-screen devices like the iPad and vSked seem to help people with autism communicate more effectively, say researchers at **Auburn University** in Alabama and the **University of California, Irvine**.

Besides helping children express themselves, new applications allow them to keep track of their schedules and learn socially appropriate behavior. For example, Henkel was able to customize scheduling applications by adding photos showing Blake doing the activity.

Using the application iEarnedThat, Blake can also keep track of tasks he's working on — such as showering by himself and using an "indoor voice," Henkel says — to earn a real-life reward.

Blake speaks in short phrases, but when he was less verbal, at 4 or 5 years of age, the iPad probably would have also helped him learn to communicate, Henkel adds.

Instead, he used the 'picture exchange communication system,' or PECS, an established method of communication that uses laminated paper cards showing different images. But it was time-consuming and costly to customize the system for him, Henkel says.

Henkel was sure that Blake would adjust quickly to the iPad because he had used iPhone applications to watch videos and play games.

Although a few small studies support the use of touch-screen devices in autism, much of the evidence is anecdotal<sup>1,2</sup>. Neither the iPad nor the iPhone has been rigorously tested in people with autism. Pending larger studies, many scientists are hesitant to advise parents and teachers to invest in the new technology.

"I don't doubt that for certain individuals, they are very attractive and useful devices, but I'm very reluctant to say that they might be this panacea that works for all individuals," says **Gregory Abowd**, professor of interactive computing at the Georgia Institute of Technology in Atlanta.

## Teacher's pet:

Last year, researchers at Auburn University worked with Birmingham-based **PUSH Product Design** to create a basic communication application for the iPad. In June, they tested it on four children with autism, ages 4 to 14.

PUSH designed the application to help the children, who have ten or fewer words in their spoken vocabulary, make requests during snack time. For example, the children selected icon symbols saying 'I want,' as well as the pictures for pretzels and other snacks. The children in the program already use PECS, and the researchers alternated weeks of PECS and iPad use.

"[The iPad application] didn't appear to detract from communication — it was as good as or better for students," says co-investigator **Margaret Flores**, assistant professor of education at Auburn University.

The students appear to communicate faster using the iPad because they can touch the icons,

rather than trying to find the picture card illustrating what they want to say, Flores says.

Flores' team developed the application before the iPad was released but, since then, the number of autism-related applications for the device has grown rapidly. Speech and language pathologists, experts in assistive communication and even parents of children with language delays have helped develop them.

Flores and her colleagues plan to test new applications, such as **Proloquo2Go** and **iCommunicate**, geared to children with autism. They are also planning to test applications that use storytelling and photos to teach socially appropriate behaviors.

These new applications are portable, easily customized, and seem much easier to use than desktop computers and laptops are, researchers say.

"It's actually pretty difficult cognitively to understand that, when you're moving a mouse, that it's moving a cursor on a screen," says **Gillian Hayes**, assistant professor of informatics at the University of California, Irvine.

## Unmet need:

Her group is testing a visual scheduling system called vSked, which debuted last summer, in children with autism. A large touch screen at the front of the classroom links with a smaller handheld device that each student operates.

Although the final results are unpublished, Hayes and her colleagues have reported in peer-reviewed conference papers that most of the children learn to use the system in a day<sup>3,4</sup>. vSked is also popular with their teachers because it saves them from preparing and changing paper-based schedules.

More studies are in the works. For example, Matthew Goodwin at the Massachusetts Institute of Technology is gathering a small team of experts in autism, language development and computer programming to investigate the unmet communication needs of children with the disorder. His plan is to eventually develop those ideas into applications.

Until larger studies are conducted, much of the informal testing will happen in schools like the **Mariposa School for Children with Autism** in Cary, North Carolina, which has incorporated five iPod touch devices into its classrooms for teaching and for tracking behavior. The school is raising money to purchase iPads or similar tablet devices.

Children with less motor control might be able to use the larger devices such as iPads more easily than smaller iPod touch devices.

Still, for most students in the school, the devices are not the first choice to use for communication, notes Mark Stafford, director of programs at Mariposa. "First we're always trying to get a kid to speak, and the second preferred method would be to try to use sign language," he says.

## References:

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