Digital Assessments Evolve for Students With Autism

Digital assessments for students with autism have progressed with the help of tablets and a plethora of apps that address social skills

By Michelle R. Davis

When teachers in Ohio's Mentor public schools conducted alternative assessments for students with autism last school year, they gathered paper worksheets, devised evaluations they thought students could manage, and recorded results by hand before collating everything into a binder for review.

This school year, students are taking the assessments on computers, they are facing more-demanding evaluations, and the results will be available in digital formats, said Kerry Bowser, a special education supervisor for the 7,900-student district.

In this new environment, students with autism are tested electronically—often by adaptive assessments that adjust the level of difficulty of questions based on how students are answering them—and the assessments and activities are standards-based, Ms. Bowser added.

"Before, all the students used to pass because teachers based the assessments on what they thought the student could do," she said. "It's definitely more of a challenge for the students now."
Assistive technologies for students with autism have progressed with the help of iPads, tablets, and a plethora of apps that address learning, social skills, and communication, according to experts. Built into many of those technologies are new methods of gauging what students know, using adaptive techniques and multimedia features.

Autism is a developmental disorder often characterized by social and communication challenges, as well as repetitive behaviors. According to the U.S. Centers for Disease Control and Prevention, about one in 88 children in the United States has some degree of autism.

Experts say that students with autism are often drawn to technology, and an abundance of high-tech tools and apps have been produced in recent years to help with everything from communication to academics. Though there is a lack of research on this connection between people with autism and technology, the consistency and predictability that technology provides may be part of the attraction, said Andy Shih, senior vice president of scientific affairs for Autism Speaks, a New York City-based advocacy organization.

Identifying Abilities

Because technology can open doors of communication for students with autism and may increase focus, high-tech assessments can sometimes pinpoint students' capabilities in ways that more traditional methods of testing can't, said Terry Walderman, an assistant director of special education for the 84,600-student Jeffco district in Golden, Colo. "The technology maintains their attention more and motivates them," she said. "It can give them an immediate reward in a way that's better than paper and pencil."

Companies developing learning products and services for students with autism are taking into consideration both the connection to technology that many students have and the adaptive nature of assessments. Michele McKeone, the founder and CEO of Autism Expressed, a Philadelphia-based company that provides digital skills training for students with autism, said her product taps into both categories. (Ms. McKeone is a co-writer for The Startup Blog, an opinion blog hosted on edweek.org that chronicles the challenges of launching and sustaining an educational technology company.)

Every Autism Expressed lesson has an activity attached, aimed at measuring how much a student has learned. When a student gets the activity right, he or she is instantly awarded a badge, a strategy that experts say helps keep students with autism engaged. Repetition, an important strategy for students with autism, is built into the program, which also allows students to move through the curricula based on what they've mastered previously, rather than on what an instructor thinks they're capable of.
For example, Ms. McKeone said, a student may watch an animated video about hyperlinks, then be asked to complete an activity identifying hyperlinks on a page to unlock a badge as a way to reinforce the learning. "For our population of students—and for any kid—if they're not into it, you're really not going to be able to see what they're capable of," she said.

Toby Price, an assistant principal at Richland Upper Elementary School in Richland, Miss., has seen that firsthand, but not at his school, which frustrates him. At Richland, teachers still use paper-and-pencil alternative assessments for students with autism. Mr. Price, who has two children with autism of his own, knows that technology can make a difference in detecting a student's abilities. His son was still nonverbal at age six when introduced to the iPad. Within minutes, the boy—who is now 11 and speaks a bit—was on a cake-decorating app, appropriately decorating four different cakes based on the four seasons.

"He couldn't talk, so we had no idea he even knew the four seasons," Mr. Price said. Using technology for school assessments, he said, "would be easier on the teacher and so much more effective at showing what kids can already do."

Other technological developments for children with autism are attracting interest. One such development is the creation of a $5,000, 27-inch talking robot named Zeno, specifically designed to serve the learning needs of students with autism. Fred Margolin—the CEO of Dallas-based RoboKind, which developed Zeno—said students with autism are fascinated by robots and sometimes seem more engaged with the machines than with humans. Experts say that may be because students with autism have difficulty interpreting social cues. RoboKind is drafting 12 learning modules focused on social situations and emotions for use with Zeno, which can be programmed to be more consistent and repetitive with instruction. The robot can also connect to the Internet and work with a tablet, Mr. Margolin said.

The company is working on a number of methods for assessing students, including facial-recognition tools to determine whether they are paying attention, frustrated, or seem to be absorbing the instruction—with the goal of passing that information to teachers. RoboKind is also developing other ways of assessing behavior, such as determining how many times a student looks at the robot's eyes—a skill that is sometimes difficult for students with autism.

The company is working with 10 schools that will pilot-test the robot once the modules are complete, Mr. Margolin said.

Analyzing Performance Data

Technological advances are helping teachers of students with autism use data more effectively. New apps and software can instantly analyze, chart, and graph data on how students with autism have performed on electronic assessments and activities. Educational technology company ABPathfinder, for example, can collect and centralize data from many different activities for students with autism and deliver it to teachers, said CEO and President Jeff Blackwood. Currently, the Overland Park, Kan., company is working with app Brain Parade to incorporate students' results directly into its therapy software. Mr. Blackwood said his company hopes to partner with other apps to achieve similar goals.
Software and other technology tools can also look at data entered by different instructors or paraprofessionals to ensure quality of instruction, said Anne S. Holmes, the chairwoman of the panel of professional advisers to the Bethesda, Md.-based Autism Society of America. "Technology is being used to monitor programs, to ensure consistency, and to look at accountability," she said. "This new technology lets the paraprofessionals enter information into the system, and a supervisor can look at the trends and graphs, even across multiple sites."

But not everyone is enamored with the new technological approaches. Janet Mino, who teaches a class of students with autism who are 18 or older at John F. Kennedy High School in Newark, N.J., said she uses iPads with her students, mostly for communication assistance for those who are less verbal. But for assessments, she prefers to collect her own data and analyze it by hand. Ms. Mino said she feels the more traditional approach helps her develop a deeper understanding of where each student stands in the learning process. "When I assess," she said, "I always go back to paper and pencil"