

Technology helps teach kids with autism

September 2 2009, by Jennifer Fitzenberger

(PhysOrg.com) -- As a child, Gillian Hayes fainted a lot. Doctors asked her to write down how she felt and what she was doing each time she became woozy.

"I thought it was the most ridiculous thing I'd ever heard. The solution is to create and track a bunch of records?" says Hayes, UC Irvine informatics assistant professor. "There had to be a better way."

The experience piqued her interest in computerized recordkeeping, particularly in the areas of healthcare and education. Today, Hayes designs computerized devices that help teachers work with children who have autism.

One device, called Selective Archiving, records video of a classroom. If a child with disruptive or dangerous behavioral tendencies acts up, the teacher presses a button to save that section of video, as with TiVo. He or she can then watch the recording after hours, when there are fewer distractions. If the button is never pressed, nothing is saved, which protects privacy.

Teachers of children with autism are required to document and analyze disturbing behavior over weeks or even months to determine trends and monitor progress. "Using our system, teachers at a test school went from a nearly 74 percent undocumented rate to just above 41 percent, which is pretty good when you consider how much happens in a busy classroom," Hayes says.

Another device, Visual Scheduler (vSked for short), takes children with [autism](#) through exercises in which they identify the day of the week, the month, the weather outside and other things a teacher might ask in a typical [elementary school classroom](#). On a handheld touch screen, they press a button to choose an answer. If they pick the wrong one, the correct button shakes and turns colors, eliminating the need for a teacher to physically point to the right answer.

Previously, the [children](#) stuck answers to a laminated folder using Velcro - a system that wasn't able to track trends like always choosing the option on the left. "Those kinds of patterns are really hard to see in the analog, paper-based world, but they're easy to spot with a computer," Hayes says.

She's also interested in recordkeeping for people with chronic illnesses or conditions such as asthma and obesity, which can occur episodically throughout an individual's life.

"We need to start thinking about healthcare over a lifetime and not just the acute moments of having the flu or breaking a leg," Hayes says. "If we have data when we're healthy, we'll know much more quickly when we start to decline. The earlier we're diagnosed, the better the outcome is going to be."

Computing, she says, can be applied to most problems.

"Everything has computers - your car, the lights in your house, your microwave," Hayes says. "By combining the things computers do well with human ingenuity, we can address almost any societal issue, from education to healthcare to the environment."

Provided by University of California, Irvine

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