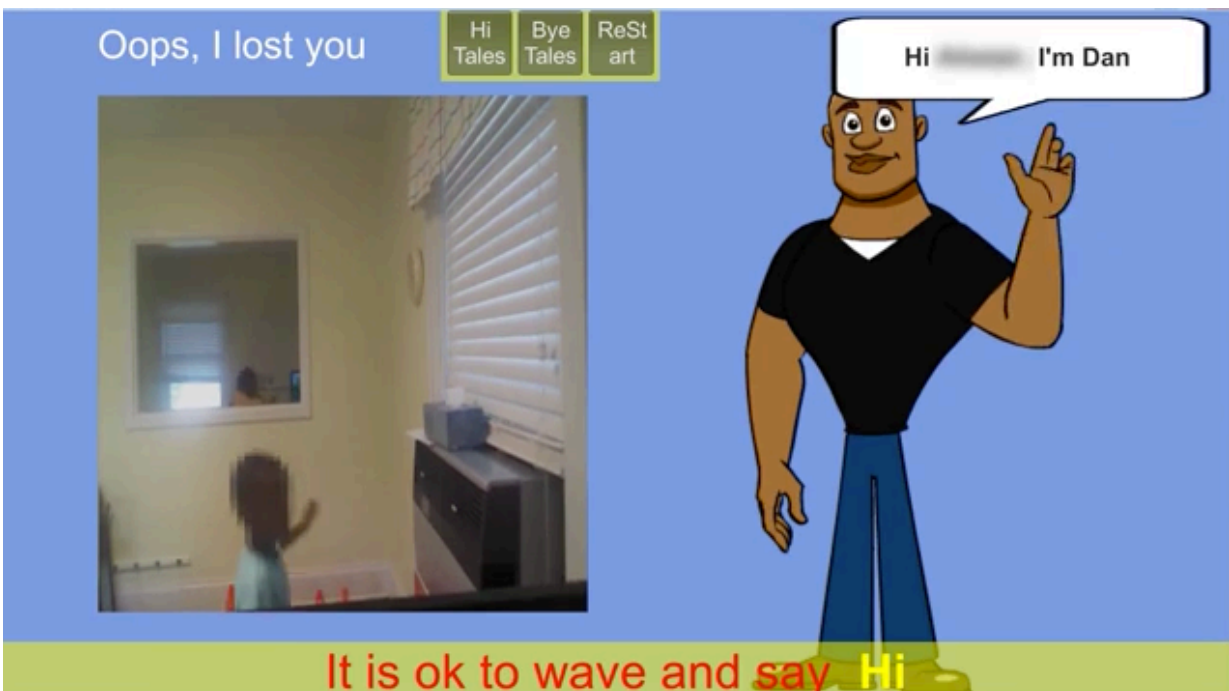# Transforming behavioral therapy with technology

August 24 2015, by Whitney Harder

"MEBook" is a combination of a social narrative and gaming system that psychologists and parents can use as behavioral therapies for autistic children.

From iPods to cell phone networks, power generation to GPS systems, electrical and computer engineers are producing the technologies we depend on every day. But one electrical engineer, a second-year doctoral student at the University of Kentucky, is combining the latest technologies to support young children on the autism spectrum.

Using computer vision, signal processing and privacy protection, Nkiruka Uzuegbunam, along with electrical and computer engineering Associate Professor Sen-ching Samson Cheung, have developed "MEBook," a combination of a social narrative and gaming system that psychologists and parents can use as behavioral therapies for autistic children.

Uzuegbunam and Cheung developed the technology in conjunction with Uzuegbunam's counterpart Wing Hang "Venus" Wong, a Ph.D. student in the College of Education, and Lisa Ruble, professor in the College of Education and autism services researcher.

"They are all necessary for the success of MEBook and have been instrumental in getting it off the ground, tested and continually improved," Uzuegbunam said.

One of the most salient features of autism spectrum disorder (ASD) is impaired social interaction. MEBook technology teaches a child how to interact, but does so in an entirely new way, based on the team's findings.

Research shows that when working with a specific autistic child, using the image of their own face to teach them appropriate behaviors is most effective. Me Book utilizes the child's own image to teach them how to, for example, say "hi" to someone by waving.

"Let's say you want to make the child smile," Uzuegbunam said in the video above. "Take that image, just a simple picture of a child doing whatever they're doing, take that same picture, and make a picture that smiles that looks just like the child when he or she is smiling."

She said the challenge is to create realistic images that children will believe and a simple system for parents to implement. To understand

how the technology could best impact children, Uzuegbunam first spent a year researching the psychological aspects before moving on to the technical aspects of the project.

"My aim, at the end of my two or three years here, is to make a system that parents can take home and build and modify and make bigger as the years go by to suit themselves and to suit the child," she said.

Uzuegbunam also hopes to eventually return home to Nigeria and change the lives of children with autism there, who she says are often undiagnosed, untreated and many times mistreated.

"So if I can begin to make that change back home, that would be my ultimate goal," she said. "And I believe UK has increased my drive to go home and do things like that."

Provided by University of Kentucky

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