

Children with autism may learn from 'virtual peers'

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Virtual peer Sam, designed to look around eight-years-old and is gender ambiguous, is projected on a large screen. A dollhouse with moveable furniture and figurines sits between the child with autism and Sam. Sam engages the child with autism in conversation and play while a researcher observes their interaction. Credit: Northwestern University

Using “virtual peers” -- animated life-sized children that simulate the behaviors and conversation of typically developing children -- Northwestern University researchers are developing interventions designed to prepare children with autism for interactions with real-life children.

Justine Cassell, professor of communication studies and electrical engineering and computer science, recently presented a preliminary study on the work at a meeting of the American Association for the Advancement of Science.

“Children with high-functioning autism may be able to give you a lecture on a topic of great interest to them but they can’t carry on a ‘contingent’ -- or two-way -- conversation,” said Cassell, director of Northwestern’s Center for Technology and Social Behavior.

Cassell and researcher Andrea Tartaro collected data from six children with high-functioning autism aged 7 to 11 as they engaged in play during an hour-long session with a real-life child, and with a virtual peer named Sam.

In an analysis of those interactions, they found that children with autism produced more and more “contingent” sentences when they spoke with the virtual peer, while their sentences did not become increasingly contingent when they were paired with the real-life children.

“Certainly we’re not saying that virtual peers make the best playmates for children with autism,” said Tartaro. “The overall goal is for the children with autism to generalize the skills they learn in practice sessions with virtual peers to meaningful interactions with real-world children.”

Nor are Northwestern researchers saying they can teach “contingency” -- appropriate back and forth conversation -- in a single session. But their findings hold promise that virtual peers can be useful in helping children with autism develop communication and social skills.

And virtual peers have some distinct advantages over real-life children when it comes to practicing social skills. For starters, children with autism often like technology. “It interacts to us,” said one child with

autism upon first meeting a virtual peer.

What's more, said Cassell, virtual peers don't get tired or impatient. "We can program their conversation to elicit socially-skilled behavior, and we can vary the way that they look and behave so children with autism are exposed to different kinds of behavior."

Cassell and Tartaro's study is part of larger efforts taking place in the Articulab, the Northwestern University laboratory where Cassell and colleagues explore how people communicate with and through technology.

In the Articulab, Cassell, who was trained as a psychologist and linguist, and Tartaro are teaming up with psychologist Miri Arie to develop assessment and intervention procedures that they hope will give them a better understanding of peer behaviors of children with autism.

A major challenge for children with autism is learning the rules of social behavior that typically developing children seem to learn intuitively.

"Although children's play appears spontaneous and wild, it follows certain basic social rules," said Arie. "We hope virtual peers like Sam will allow children with autism to practice the rules behind joining a game, holding a conversation and maintaining social interaction. Then they can apply their newly acquired skills to real-life situations."

Source: Northwestern University

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