

# The Bristol Press

## We have the tech: City firm builds robot that helps teach autistic kids

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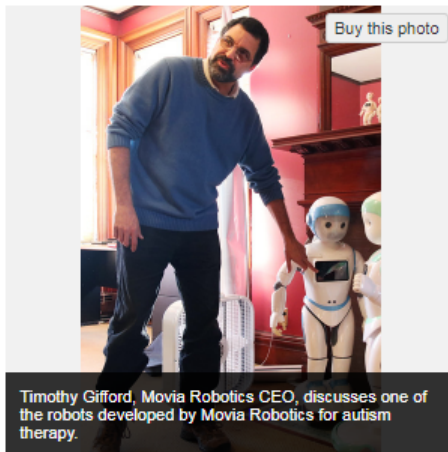
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Timothy Gifford, Movia Robotics CEO, discusses one of the robots developed by Movia Robotics for autism therapy.

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BRISTOL - Harry the Robot, seated on a table, stood up and said, "Hello" to the Board of Education.

The board members and audience laughed and some responded "Hi Harry."

"Thank you for having me here tonight," said Harry, a foot-and-a-half humanoid creation with a smooth white exterior accented in bright blue, and a friendly, child-like face and voice.

"It is very humbling to be able to speak to you and answer any questions you may have about our goals."

Harry is a product of Movia Robotics, which moved to the city in 2017 after winning a business grant from the city. The firm approached the school district with an innovative plan to use robots to interact with students with autism, explained Michael Dieter, district director of special services.

Dieter said the district got funding for the project through the Stocker Foundation, the Barnes Foundation and the Main Street Community Foundation.

The Movia team ran a pilot program for about eight weeks at Hubbell and Stafford elementary schools, twice a week, with Chris the robot (Harry's twin) and a human facilitator teaching social pragmatic skills to a small group of children in different grade levels. The program ended right before the mid-winter break.

"The students were learning primarily social skills - basic greetings like saying 'hello,' shaking hands, reciprocal conversation like 'Hello, how are you?' 'I'm fine, how are you?' those types of things," he said.

As Harry described it, "we apply evidence-based practices into how we teach students activities that build off the students' Individualized Education Plans. So we stick to our goals and adjust them to the students' level of learning."

Dieter said he has been pleased with the collaboration and is interested in understanding the long term benefits as data on effectiveness is tested going forward.

The facilitators who went into the schools with Chris were Rob Parenti, Movia's vice president for business development, who has a background in special education and two young children in local schools. Sherry Wong, who is completing certification as a Board Certified Behavior Analyst, also went.

Movia, located in the Walter Ingraham House on Federal Hill, was the \$50,000 first place winner in the Bristol Development Authority and StartUP Bristol Task Force business plan competition held last July.

The company got its start about eight years ago as a research entity in partnership with the University of Connecticut, funded with a \$1.5 million grant from the National Institutes of Health. Chief Technology Officer Timothy Gifford was researching the pioneering concept of using robots in special education, working with schools in the Storrs area and in West Hartford.

Within a few years it grew into a startup business located in Hartford, as entrepreneur Adam von Gootkin and others got involved. Von Gootkin had lived in Bristol so he felt it was a good community to move to.

Movia uses robots from various Chinese manufacturers. The robots are mostly similar looking to Harry, and range from about eight inches to three feet in height. The company uses its own WOZ software, named for "The Wizard of Oz," to control the robots.

"Through our research we have found that children on the autism spectrum see the robot as its own social entity - not as a teacher, not as a parent, not as another peer," Parenti said. "The amazing thing is the software allows us to completely customize the education and delivery of social skills lessons to the autistic students in a fun and motivating way."

Children with autism have a hard time with social cues such as body language and voice inflections and tones, he explained. The robot can deliver a lesson in a patient, consistent, non-judgmental way, without triggering the anxiety these children often feel.

"It can ask a question and wait two minutes for a response, and repeat as often as needed," he said. "It doesn't get frustrated or tired, so it takes a lot of the variables out. There are some autistic children who do not like high or low pitched sounds, so we can control the way the robot talks. A lot of these kids have language processing issues, so 'talking... like... this...' would drive me crazy but for a child on the spectrum that may be how he or she needs the robot to talk."

"By no means are we advocating to replace teachers and language therapists," Parenti emphasized. "Our goal is to help reduce the timeline for progress, which is exactly what our trial in Bristol just showed us."

Parenti described the brief trial Movia did last spring at Hubbell, which convinced the school district to do the pilot program. He said some of the teachers commented "what you were able to do in 20 minutes we couldn't do in almost 100 school days."

"We had non-verbal autistic students stringing together five and six word sentences to communicate. Sherry would have the robot ask students questions, and their eyes just lit up. As we know, when you can engage a child, and motivate them to want to be better at interacting, that's half the battle in getting them to learn," he said.

"We are the only company that can do what we do," he continued. "We can take IEP goals and build curriculum and games in a fun and engaging way to teach students on the spectrum necessary social skills, so that maybe they can walk into class one day and wave or start a conversation with a peer."

Parenti said he and his colleagues are analyzing the results of the pilot and will be presenting their findings to the board in 2018.

He said Movia is constantly working to improve the software.

Building STEM curriculum around the robot, so that peers build it and deliver instruction to autistic students is a goal

Movia is also working on robots programmed for home use. Von Gootkin said the company has had calls from families interested in being able to continue their child's robot interaction special education beyond the school day.

"We are now working diligently on finishing up the home product, to make it more affordable," he said.

For more information about Movia Robotics, there are two videos available:

<https://www.fastcompany.com/3065528/change-generation/how-to-ensure-your-product-fits-the-customers-needs> and <https://www.fastcompany.com/3065525/change-generation/teaching-autistic-children-with-robots>.