

People with autism face special risks dealing with police—virtual reality program could help

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Skylar Armstrong, a 17-year-old high schooler from North Philadelphia, has been fielding a lot of attention from police lately.

Officers on the beat have been peppering him with all sorts of questions: "What are you doing here?" "Can you tell me your street address?" "Can you show me your ID?"

But Skylar hasn't been perturbed by any of this. Quite the contrary.

"It's fun," said the student at Jules E. Mastbaum Area Vocational/Technical School.

He is part of an ongoing, \$1.7 million federally funded study that one day may affect how young people like him learn. It may also save lives.

Skylar, who is on the [autism spectrum](#), is learning how to interact with [police officers](#) through the use of virtual reality. The Children's Hospital of

Philadelphia's Center for Autism Research (CAR) and the creator of Floreo, an immersive viewing/education system, are examining whether virtual reality can be an effective tool to teach people with autism how to respond to law enforcement officers they may encounter in the real world.

A 2016 Florida case that almost ended in tragedy was the inspiration for the Floreo system. In an incident that drew national outrage, a North Miami police officer fired three times at an autistic man holding a silver toy truck, which the officer said he mistook for a weapon. The shots missed the autistic man, but struck and wounded his caretaker, who was on the ground with his hands raised, shouting at the officer not to shoot.

Many police officers receive training in dealing with emotionally disturbed people. However, far less common is instruction about autism, the fastest growing developmental disability in the United States. A person with autism may not make eye contact or even look away in an uncomfortable situation. To a police officer, that may seem to be evasive. The person with autism may not answer a question or even have the verbal capacity to answer the question. Or put hands in the pockets, possibly leading an officer to think they're concealing something, or worse, going for a weapon. Or may simply walk away, even after being told not to. Any of that can end in disaster.

Virtual reality training, researchers hope, can help people with autism learn to handle difficult encounters. A virtual encounter with an officer has the person with autism getting experience being questioned—What are you doing here? What is your name? - and give appropriate verbal responses. (Some programs go so far as to advise people with autism to come out and say it to an officer.)

"A virtual interaction is a really useful tool because people on the spectrum need more practice than other people, and police officers are not readily available to handle that," said Joseph McCleery, a lead researcher with the study and executive director for academic programs in the Kinney Center for Autism Education and Support at St. Joseph's University.

For people on the autism spectrum, technology can be an especially appealing way to learn.

"Ever since the first computers came out and people with autism were very drawn to them, people have been trying to figure out what it is about technology that's so motivating for people with autism spectrum disorder," said Julia Parish-Morris, another leader of the CAR study and a research assistant professor of psychology with Penn's Perelman School of Medicine. "Maybe it's that technology is more predictable. It's a more controlled way to learn. Other people have said it's about novelty—trying new stuff."

Still others have suggested that technology, as a means of learning and communication, acts as a bridge for people on the autism spectrum—an engaging, comfortable link between the autistic brain and the neurotypical world.

Research has found that technology-based learning can be appealing to people with ASD for several reasons. It's consistent. It can provide a specific focus of attention that reduces distractions from extraneous sensory stimuli, as well as freedom from social demands.

And as Skylar, a video game aficionado, found, virtual reality can be a lot of fun.

Manoj Ravindran thinks so, too. A few years ago, Manoj, then a 6-year-old with ASD from the Washington area, was so intrigued by Google Maps and navigation that his father, Vijay Ravindran, a software engineer and former Amazon engineering director, introduced him to virtual reality.

"He really enjoyed that, and he started engaging in pretend play, which was a big developmental milestone that is often delayed with kids with

autism," said Ravindran, a member of the board of managers of the Lenfest Institute for Journalism, which owns The Philadelphia Inquirer.

That led Ravindran and Manoj's mother, Vibha Sazawal, a computer scientist, to develop Floreo. Manoj, now 9 and an enthusiastic partner in Floreo, helps introduce other children to VR at exhibitions. The Floreo system has been put to use as a learning tool in schools, autism programs, and homes.

Concern about the safety of her son and young people like him helped convince Skylar's mother, Sheila Armstrong, to have her son take part in the study.

"I have an African American male teenager," said Sheila Armstrong, a city probate clerk and education advocate. "It's scary because my son is special needs, and I didn't know if he knew how to react if he was stopped and frisked. If you look at my son, he looks like a million other African American boys."

Armstrong said her hope is that the study can be a learning experience for people with autism as well as for police.

"I look at this as one of many tools that can be used to bridge communication and understanding for both groups," she said.

Even though police training is not a goal of the study, Capt. Michael O'Donnell, commanding officer of Philadelphia's 17th Police District, saw its potential for both police and people on the spectrum, and got his officers involved.

"It's giving them good training and cues to look for when they're dealing with people with [autism](#)," O'Donnell said. "Instead of escalating a situation, they can recognize those cues and actually de-escalate a situation more quickly."

In the study, participants on the spectrum are randomly assigned to one of two groups. The VR group gets three Philly-centric lessons with the Floreo device. The other group also gets three lessons, but with more conventional materials, such

as a video, verbal instruction, and worksheets. Each then gets to practice what they've learned with a real police officer.

This summer, the study is being conducted at CHOP, but the plan is to expand it to such community settings as schools. The researchers are still looking for participants, age 12 to 60, and partner institutions for both legs of the study.

"Our hypothesis is not that VR will be better for everybody," Parish-Morris said, "but that these different programs will help different people."

If so, this study may be able to show that virtual reality can also be a promising tool for people on the spectrum to learn other skills.

Skylar, who is in his Kensington high school's culinary program, said he'd like to try virtual reality cooking lessons.

His mother wonders whether [virtual reality](#) might be a safe way to start learning the basics of another skill Skylar is eager to acquire: driving a car.

For now, though, Skylar seems to have gotten a kick out of his law enforcement learning experience. Even before the study, he was a fan of such cop shows as "Blue Bloods" and "Criminal Minds," and he has chatted with the officer at his high school.

"He knows a lot about police officers," said Linda Nagle, one of the officers helping with the study. "I was impressed."

And young people such as Skylar may have their own lessons to share.

"That's why I told him, 'Son, it's important for you to do that study,'" Sheila Armstrong said. "You see the world differently, and we need that."

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