Research shows VR is safe and effective for teaching people with autism

Using virtual reality (VR) to teach people with autism – especially children – isn't a new idea.

People have been exploring this since the 1990s, back when VR headsets looked like spacesuit helmets.

The reason is intuitive. Kids with autism need to practice basic life skills in the real world, but that's hard – they need a place to go, someone to take them there, time to learn, and support when it gets too stressful. With VR, we can make a world that's convenient, controlled, and perfectly designed for learning essential skills.

So researchers have been thinking about this for two decades, developing and testing VR simulations with individuals of all ages who have autism. What have they found?

We combed through everything that's out there to answer that for you.

The first question is, can people with autism use VR safely?

Immersive VR can be an intense experience. People who aren't accustomed to it sometimes get nauseous, dizzy, or fatigued when they use it. Autism sometimes comes with hypersensitivity to certain sensations, so it makes sense to wonder if VR is too stimulating for kids on the spectrum.

There are two kinds of immersive virtual environments: headsets, like what we use at Acclimate VR, and caves, which are small rooms with images projected on all the walls. We've looked at all the research on people with autism using these tools, expecting to find major concerns about emotional and physical upset caused by the technology.

Guess what? We were wrong.

Very few participants dropped out of these studies.

Just like normally-developing people, some experienced dizziness or eye-strain and chose not to continue, but the vast majority were just fine. And, just like everyone else, as kids with autism use the VR headset repeatedly, they get more comfortable with it.

Now that we know VR won't hurt them, how do we know they are engaged with the technology?

People with autism often report that their thought patterns are mostly visual, so it makes sense that an immersive visual world would appeal to them.

But autism often comes with difficulty recognizing visual cues that orient the user in the virtual world, like faces or signs. Does this make it hard for them to interact with a virtual environment?

Researchers have asked this question too. They've used not only headsets and caves but also simple desktop computers to investigate how people with autism behave in simulations. They've tested virtual cafés, schools, streets, and workplaces, comparing users with autism to their typically developing counterparts.

As it turns out, they find very few differences.

People with autism are perfectly capable of engaging with VR. As in other (non-VR) activities, some study participants needed guidance to stay on task, and some tended to navigate with little social awareness, invading the personal space of simulation characters.

Most navigated and completed activities with no problems, and one study even showed that with training, the group with autism out-performed the untrained, typically developing group.

Not only did individuals with autism participate fully in these VR simulations, but they also learned from the experience. Several studies show improved judgment and reasoning in social situations after practicing in VR, based on interviews and questionnaires.

So they do learn from VR simulations, but does the learning translate to the real world?

Showing improved judgment in a post-simulation assessment is one thing, but using it in a real-life situation is another. Most studies don't even test this, let alone follow up later to see whether the learning lasts over time.

However, we do get a clue from a couple of research groups that used VR to teach children with autism how to cross the street safely. When taken out to a real intersection after practicing in VR, about half of the children showed significant improvement.

This is a huge step in the right direction!

We now know that, even for the low-functioning children in these studies, training with VR can make a real difference in their independence and safety.

The research says that VR has big potential as a learning tool...but we want to know more.

There is just not enough data out there yet. The studies that have been done so far involve just a few participants, and they don't come close to covering the huge range of possible simulation designs or learning goals.

For example, no study has ever explored the use of 360° video with a VR headset. Here at Acclimate VR, we know that therapists and teachers want more realistic ways for their students to practice, not more computer graphics. But so far, there is no research to support that.

And while cafés and street intersections are a great start, there are so many more situations to consider. Shopping at the grocery stores, talking with the police, taking the bus, getting a haircut, interviewing for a job...the options are endless, and the tasks range from simple transactions to communication of complex ideas.

There is so much more to explore!

That's why we're doing our own study – to make sure that our VR learning tools are safe, engaging, and effective for teaching life skills to people with autism.

Acclimate VR is on the cutting edge of this problem. By following the guidance of real people who live and work with children with autism every day, we're creating innovations that have never been studied before.

We think that will make our learning tools more effective than any that have come before.

But we know that it's scary to leap into the unknown, and even scarier to do it with your kids. If you're going to invest your time, effort, and money into something that will help them, you want to know that it does what it claims.

That's why we partner directly with Wildwood Programs, an organization that supports people with developmental disabilities throughout their lives. They are an integral part of our design process and pilot testing, with us every step of the way as we perfect our software.

With their help, we're creating a tool that is made by people with autism, for people with autism.

And best of all, it's backed by the assurance that we did our homework and showed that it works.