

# Special Education Professor Casey Clay Awarded \$2M Grant to Create Virtual Reality Teacher Training on Behavior Intervention

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Student demonstrates virtual reality simulation.

Casey Clay, assistant professor in Special Education and Rehabilitation Counseling (SPERC) in the Emma Eccles Jones College of Education and Human Services, is part of a collaborative research project that was recently awarded a \$2M grant from the Institute of Education Sciences (IES), which is housed within the US Department of Education. Using virtual reality (VR) simulations, the four-year project aims to provide training for future teachers so they can effectively assess and provide intervention for students who exhibit challenging behavior such as aggression, anxiety, and obstinance in the classroom. Clay will serve as co-principal investigator for the multi-site project that includes researchers at Vanderbilt University, the University of Virginia, and Mississippi State University.

“We’re seeing increases in challenging behavior in schools across the board,” explains Clay. “Usually, you give teachers a classroom and they’re kind of thrown into the fire. They have to deal with the challenging behavior right there and it’s their first time seeing it. The idea with this project is to put participants in virtual reality and have them experience the challenging behavior long before they walk into a classroom.”

Tom Higbee, department head of SPERC at USU, said, “Every time I meet with teachers or school district administrators, they report that they need additional training and support for students who display significant behavior problems at school. The work that Dr. Clay and his collaborators are doing through this grant will address this critical need by providing teachers with practical tools they can use to effectively support students who display challenging behavior in the classroom. The use of virtual reality to provide this training will allow teachers to not only learn these practical tools but also to practice using them in a safe and controlled virtual environment.”



Casey Clay, assistant professor in Special Education and Rehabilitation Counseling

The trainings in this study will comprise seven scenarios in virtual reality that are supplemented by web-based tutorials. Participants will be pre-service teachers recruited from within their respective universities.

“We’re training the participants to be fluent in the assessment and intervention process,” explains Clay. “They will deliver the right prompts to help the student communicate in a potentially stressful situation, and it will all be done while speaking and interacting in the VR headset.”

He continues, “Everyone is trained to mastery. Pre-service teachers will need to understand their students. What are the characteristics of the student? What is his or her behavior? What triggers the student? Then they will need to implement in virtual reality. The beauty of VR is that we can test if the participant can actually do it; we’re not just testing content knowledge.”

In the simulations, Clay envisions possible scenarios in a classroom, playground, and lunchroom that include students of varying ages who display a range of challenging behaviors. “We’ll get a good range even with just a few scenarios,” he says. The scenarios will incorporate “multiple exemplar training,” which is a method in behavioral science that trains the pre-service teacher to generalize the exhibited behavior and adapt it to any situation or setting.

During the first year of the study, Clay and his team are collaborating with developers at Mississippi State to program the scenarios. At the same time, researchers at Vanderbilt are conducting focus groups. “We’re asking them some common behavioral problems they see and showing them prototypes,” explains Clay. “We want to know if we create a certain thing, would it be valuable for them. In terms of cultural significance and sensitivities, what are some considerations we should keep in mind?”

He continues, “The second and third years will be a series of small pilot projects. There might be five to 10 participants at each site—USU, Vanderbilt, and University of Virginia—that we put through the simulations. We’ll train them to mastery, test how they do in the VR, collect all the data, then pull them out and generalize them in a real-world setting. We plan to do different studies each year.”

In the final year, the research will increase in scope to 20-30 participants per location. In total, approximately 200 participants will go through the training over the four-year period. “The idea is to have an accessible product by the end of the four years that, with our coaching and guidance, we can make available online. It will probably be targeted to specific schools or programs for their use.”

Clay is confident the participants will be positively impacted by the study and can apply their new skillset in their classrooms. “They will be better prepared to go into their jobs because they will know what to expect,” he says. “We might even see after a couple years that they say, ‘This really helped me’ or ‘I can’t remember how to do this. Can I go back into it and experience it again?’ Both of those outcomes would be great.”

Clay also sees benefits for the VR trainings that can reach beyond teachers and school systems to parents and caregivers. “There’s no reason this training wouldn’t be good for parents or anyone who might encounter challenging behavior.” But the principal goal, says Clay, is “to have better outcomes for kids because teachers are better prepared to address their behavior.”