Virtual reality simulates classroom environment for aspiring teachers

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This camera is used to create virtual reality scenarios for the student teacher training program. Credit: Meredith Forrest Kulwicki

Two University at Buffalo education researchers have teamed up to create an interactive classroom environment in which state-of-the-art

virtual reality simulates difficult student behavior, a training method its designers compare to a "flight simulator for teachers."

The new program, already earning endorsements from teachers and administrators in an inner-city Buffalo school, ties into State University of New York Chancellor Nancy L. Zimpher's call for innovative teaching experiences and "immersive" clinical experiences and teacher preparation.

Zimpher recently told The Buffalo News that SUNY teaching programs should be offering on-campus laboratories where students can simulate being in a classroom. The UB virtual reality classroom project directly aligns with this initiative.

A collaboration of the Neurocognition Science Laboratory and the Teacher Education Institute in the UB Graduate School of Education, the virtual reality classroom is meant to supplement existing clinical opportunities, according to Richard Lamb, GSE associate professor and director of the Neurocognition Science Laboratory.

"This is meant as a training simulator for pre-service and in-service teachers to garner experience in dealing with situations such as difficult student behaviors, teaching methods, classroom management in general and other activities as needed," Lamb says. "So when the teaching student steps into the classroom, they have some idea of what to do."

The training simulator Lamb compared to a teacher flight simulator uses an emerging computer technology known as virtual reality. Becoming more popular and accessible commercially, virtual reality immerses the subject in what Lamb calls "three-dimensional environments in such a way where that environment is continuous around them." An important characteristic of the best virtual reality environments is a convincing and powerful representation of the imaginary setting.

"It's not meant to fully replace clinical opportunities for teaching students," says Lamb, who is co-principal investigator of the project with Elisabeth Etopio, director of UB's Teacher Education Institute and interim assistant dean for teacher education. "The virtual reality-based simulated classroom is a tool that provides students repeated practice in an environment—without consequence to actual students—where they can target skills needed for successful teaching in the classroom."

The virtual reality teaching environment created by Lamb and Etopio differs from other teaching simulation platforms in that actual footage of student behaviors occurring within real classrooms will be used, enhancing the authenticity, fluidity and "immersiveness" of the experience. The program is partially funded by a $20,000 grant from the SUNY Innovative Instruction Technology Grant program, a SUNY-wide grant competition that funds campus innovations and initiatives in instructional technology and supports academic excellence and student success.

The team partnered with Crosswater Digital Media to film seventh- and eighth-grade students at Enterprise Charter School using 360-degree cameras to create scenarios for pre-service teachers in handling classroom management. Armin St. George, vice chairman of Crosswater Digital Media, calls this teaching strategy the "next best way to teach." St. George has used similar techniques for medical students when teaching anatomy. A virtual reality cadaver gives the medical students the experience of working on the human body without a real body.

Like medical students, future teachers can use virtual reality exercises "to actually put themselves in an environment to experience what they are going to see in a school before they actually get to a school," St. George says.

Although still only a few months old, the simulated classroom

environment created by Lamb and Etopio has earned high praise from teachers and administrators in Buffalo's Enterprise Charter School, which has used it to train in-service teachers in classroom management and to assist teachers with dealing with behavior management in the classroom.

Rebekah Lamb, a seventh- and eighth-grade social studies teacher at Enterprise, says having this virtual reality tool to supplement her pre-service training while she was in school would have been a valuable way to give education students a more authentic experience of what they will encounter in a real-life classroom.

"When you do student teaching, you have the student teacher and the classroom teacher," she says. "Normally, the classroom teacher will take control of the classroom and won't give it fully to the student teacher.

"So this helps it so the student teacher has the full role of classroom management without the classroom teacher interfering," she says. "Students who want to be teachers get a look inside the classroom without actually having to step inside the classroom."

Lamb's supervising administrators at Enterprise Charter couldn't agree more.

"Young teachers need to step back and understand that children's behaviors are a socioemotional response, not to be taken personally," says Julie Schwab, superintendent of Enterprise Charter. "The behavior could be related to an event that happened the prior night, or on the school bus.

eventh- and eighth-grade students at Enterprise Charter School played the roles of disruptive students in the video that is being used in the virtual reality training program. Credit: Meredith Forrest Kulwicki

"Virtual reality is a tool that can expose new teachers to some of these behaviors and give them practice responding in real time and honing the explicit language needed to gain understanding of what caused this child to be where they are at this time."

Michael Radosta, director of learning technology at Enterprise Charter School, notes that in a real classroom, teachers have to get their students to value what they are saying.

"This is a skill often lacking in new teachers," Radosta says. "So direct

practice using responsive language within virtual reality environments has enormous potential."

The fact that the seventh- and eighth-grade students at Enterprise Charter School had so much fun playing the part of unruly students while filming the pre-service video was a bonus, according to the school's teachers and administrators. The four students who simulated disruptive students for filming the virtual reality program were chosen by Rebekah Lamb the same morning Crosswater Digital recorded their role-playing behavior on camera. And for these students, the bad behavior went against their nature, Lamb says.

"These are students who generally do what they are supposed to," she says.

The potential and promise of this method of simulating classroom situations for prospective teachers are profound, the educators say.

"Early virtual exposure with targeted practice of management skills could help young teachers pause, avoid potentially harmful responses with real children, and provide confidence in responding to students in sensitive and beneficial ways," Schwab says.

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