Richmond Times-Dispatch

A Simulated Future

Commentary: In a strained health care system, virtual reality is a game changer

DR. MELISSA J. PERRY | Aug 29, 2023

My patient reports that her throat is itchy and red blotches suddenly appear on her arms.

"I don't feel well," she says. Her husband is agitated and paces nervously just feet behind me. "Remain calm Ms. Bennett," I say as I pick up the stethoscope and pulse ox to get her vitals.

I quickly assess that her airway is closing — she's going into anaphylactic shock. I switch off her antibiotic drip, ask her husband to take a seat on the other side of the room, and place an oxygen mask on her face. I pick up the phone, call the doctor who orders epinephrine, draw the syringe, and administer the medication to my patient's abdomen. After a few tense moments, her breathing returns to normal and her husband lets out a sigh of relief. My heart is racing as I pull off my Oculus VR headset.

I have just successfully completed a virtual reality nursing simulation in the George Mason University Simulation and Virtual Reality lab.

If you have a hard time believing that a simulated emergency like this can actually help prepare clinicians and practitioners for patient-facing care, you are not alone. When I first became Dean of the College of Public Health, I was a skeptic too. How could a fancy gaming gizmo that takes students out of the here-and-now be better than hands-on practice?

Then I put on the headset myself to take (and retake) the anaphylactic shock scenario and witnessed firsthand VR's potential for improving interprofessional health education. I quickly transitioned from doubtful skeptic to passionate advocate and have since launched a bold campaign to integrate VR across our entire curriculum and ensure that every student in the College of Public Health has access to this immersive technology.

VR exponentially expands student training opportunities for managing the most complex public health challenges of our time — including opioid use disorder, mental health crises, elder care and infectious disease prevention. Given the country's shrinking pipeline of health and social services, VR can provide the much-needed capacity to educate more students faster. In fact, since the early days of the pandemic, Mason students relied on VR and simulation technology to fulfill their clinical requirements and graduate on time.

With headsets, well-crafted scenarios and highly trained faculty at their side, students are immersed in real-world interprofessional practice that would be nearly impossible to experience in a traditional classroom or clinical setting. Students can counsel a family of five struggling with opioid use disorder, treat a middle school student who visits the school clinic and goes into diabetic shock, and countless other simulations. Faculty debrief students after each scenario to help identify areas for improvement. This debrief is just as important as the VR itself.

Dr. Melissa J. Perry
Photo Credit: Tani Marku

Many universities and medical schools, including George Mason University's Simulation and Virtual Reality Lab, now use vitual reality in lab work and clinical training.
Photo Credit: The College of Public Health

Compare this approach to how this training has been delivered in the past. While tried and true, standard low-fidelity methods like mannequins or role playing don't place the student in the middle of a highly realistic settings. Mannequins don't pace menacingly behind you or go into diabetic shock. VR creates a nearly real-world, rapid-fire response scenario where students learn to think on their feet and perform under pressure. Through repeated practice, VR is also shown to reinforce essential skills such as critical thinking, conflict management and perspective taking.

There is a growing body of evidence to support VR's effectiveness in the classroom. Recent research from Mason professor and direct of the Virtual Reality and Simulation Lab Dr. Bethany Cieslowski found that immersive VR training is as effective — as inpatients training for students learning to provide care for acute care pediatric patients. Students nurses with immersive VR training performed better overall than those who received inpatient clinical training, and scores increased particularly around infection control, initial assessment and oxygen therapy.

For those who remain unconvinced about VR's ability to develop the workforce of the future, I encourage you to further explore this nascent technology that offers unlimited potential. Our health professionals must be increasingly collaborative, interprofessional and culturally competent to improve the patient experience and outcomes.

Take it from a former skeptic, put on your headset and give it a try.