# George Mason-led study highlights how XR is reshaping health care training across the country

*Extended reality can give students experiences they might otherwise miss, but its success depends on thoughtful design, accessibility, and support.*

FAIRFAX , VA, UNITED STATES, February 4, 2026 /EINPresswire.com/ -- Extended reality (XR) can give students experiences they might otherwise miss, but its success depends on thoughtful design, accessibility, and support.

Immersive technologies like virtual and augmented reality are no longer experimental. They're redefining how future health professionals learn. A new national study led by George Mason University's Bethany Cieslowski



Nursing students use virtual reality to learn hands-on skills in George Mason University's Lab for Immersive Technologies and Simulation. Photo by George Mason Univrsity Office of University Branding

offers the first comprehensive look at what's working, what's not, and where the field needs to go next.

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>
> *Bethany Cieslowski, DNP*

"The pace of advancement has been surprising," said Cieslowski. "XR technologies are evolving quickly, and aligning more closely with educational needs. What's most exciting is how ready educators are to embrace the tools and build the evidence to support what we're already seeing in practice."

Cieslowski, chief innovation officer for immersive technologies at the College of Public Health, co-authored the Nurse Educator paper with George Mason colleagues Deb Derner, Janine Doran, Andrea Landis, and Corbin

Rickerby, as well as collaborators from Johns Hopkins, the University of Central Florida, and other major institutions. The review synthesizes more than 100 studies to gauge how extended reality (XR)—an umbrella term for virtual, augmented, and mixed reality—is changing the ways health care professionals train and learn.


College of Public Health logo

XR lets students step into realistic clinical scenarios: inserting IV lines, communicating with patients, observing changes in the skin, or practicing pediatric triage in a 3-D emergency room. It can also bring rare experiences, like mass-casualty training or interprofessional teamwork, into accessible virtual formats.

But the authors caution that integrating XR into the classroom is far from straightforward. Poorly designed programs can overwhelm students with sensory input, increasing cognitive load. Some learners experience motion sickness or can't comfortably use headsets. Privacy is another concern, as some XR platforms collect detailed user data. Successful use also demands trained faculty, strong technical support, and sustainable funding to keep pace with constant updates.

Beyond those logistical hurdles, the paper highlights a larger issue: the field still lacks long-term data. Early results are promising—showing strong engagement and skill transfer—but few studies have measured how immersive learning translates to real-world outcomes.

The study also maps out the next frontier. Artificial intelligence can tailor simulations on the fly, while new haptic technology lets users feel texture, weight, and resistance. And lighter, more ergonomic headsets will make immersive learning more adaptive, natural, and realistic.

"These technologies are quickly becoming fundamental to the field," said Landis, associate professor of Nursing and Certified Healthcare Simulation Educator. "When they're used with intention—not just for technology's sake—we're seeing them improve knowledge retention, skill development, and collaboration."

The full article, "Extended Reality in Health Care Simulation: Current State, Challenges, and Future Directions," appears in the October 2025 issue of Nurse Educator and is available for free online this month.

About the College of Public Health at George Mason University

George Mason University's College of Public Health (CPH)—the first college of public health in Virginia—enrolls more than 1,900 undergraduate and 1,300 graduate students in its nationally

recognized programs, including five undergraduate degrees, seven master's degrees, four doctoral degrees, and 10 graduate certificate programs. The college is comprised of the Departments of Global and Community Health, Health Administration and Policy, Nutrition and Food Studies, and Social Work, and the School of Nursing. The CPH faculty conducts integrated research that seeks to understand the complex factors that influence individual and population health and well-being across the lifespan. With more than 500 partners, CPH serves the community and engages its students through research, practice, and clinical care. CPH is home to the Lab for Immersive Technologies and Simulation, the only research center of its kind to be accredited by the Society for Simulation in Healthcare.

About George Mason University

George Mason University is Virginia's largest public research university. Located near Washington, D.C., George Mason enrolls more than 40,000 students from 130 countries and all 50 states. George Mason has grown rapidly over the past half century and is recognized for its innovation and entrepreneurship, remarkable diversity, and commitment to accessibility. In 2023, the university launched Mason Now: Power the Possible, a $1 billion comprehensive campaign to support student success, research, innovation, community, and stewardship. Learn more at GMU.EDU.

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