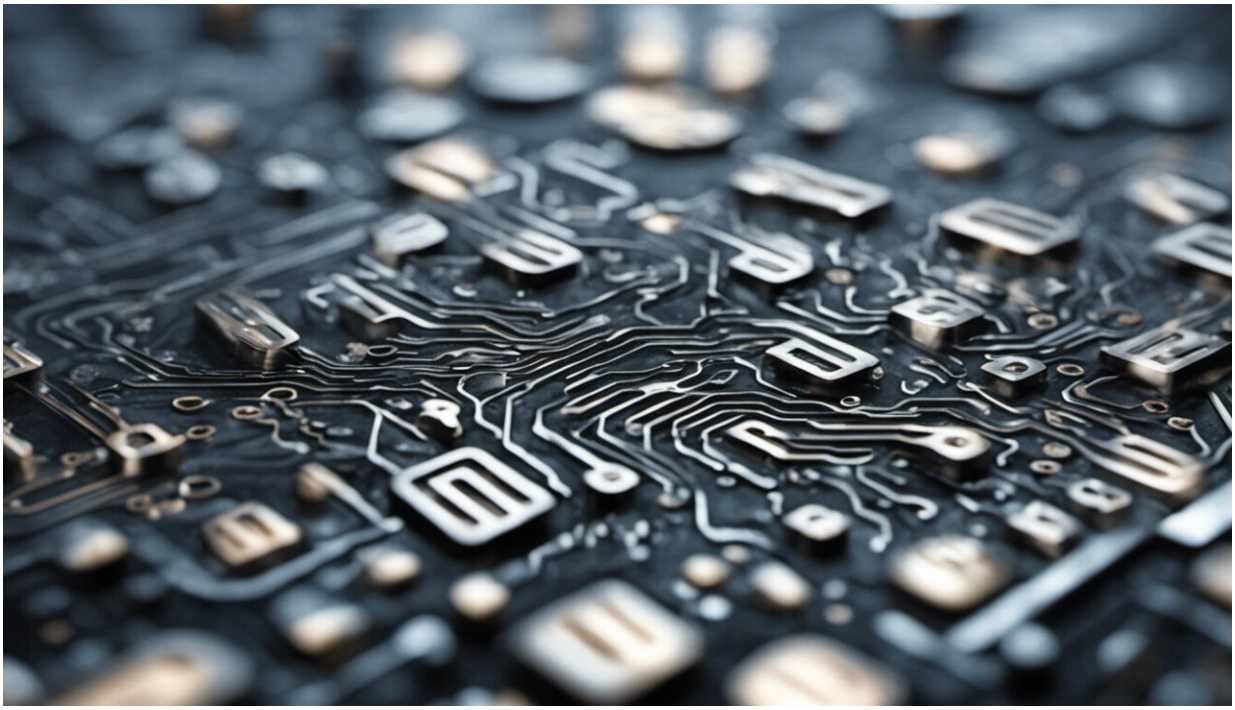
How an ER simulation helps medical and engineering students see new points of view

March 14 2022, by Arianna Mazzeo



Credit: AI-generated image (disclaimer)

Some medical students in Canada are collaborating in a virtual class with design engineering students in Italy. Their mutual goals are to enhance their preparedness and insights regarding their respective real-world professional challenges by working together online in a scenario.

The students log in to an online simulation of a virtual emergency room. The medical students are assigned doctor and nurse avatars, and the engineering students have IT specialist or designer avatars. The scene plays out in response to the collaborative actions the students take.

This is a real learning experience supported by educators at McMaster University's Faculty of Health Sciences. Doctors and nurses are engaged in a continuing professional development course with professor of medicine Teresa Chan, who is also associate dean of continuing professional development.

Learning through scenarios and simulations in fields from health care to education isn't new. But this example provides a glimpse into an expanded future of teaching and learning in post-secondary education in virtual environments.

The 'co-learning' open classroom

I am a design researcher, learning innovator and artist whose research focuses on education technology to look for new ways of learning and teaching.

I see students learning together through scenario-based learning, bolstered by artificial intelligence, as a growing trend, and I am interested in how universities can integrate insights from designers committed to enhancing stronger and more participatory civic engagement. Whether collaborative learning is peer-to-peer or in larger groups, the benefits for participants include enhanced critical thinking.

In order for our society to see innovation in virtual learning, we need good design principles and tools for knowledge, sharing and growing. My research, applied practice and teaching at Harvard University's master's program in design engineeringhas been about developing

collaborative learning or "co-learning" as a methodology and learning style. This learning is based on design principles such as equality, accessibility, diversity, inclusion and collaboration to solve real problems.

Co-learning can unfold in positive when people collaborate either fully online or in hybrid situations (online and in-person).

Co-learning is about setting up ideal conditions for learning in a peer-to-peer context, whether in community or civic settings focused on civic change or innovation in groups or in formal education.

In an online classroom, co-learning involves interactive course content as a way to create scenarios where students can act and perform, improvise and talk about topics of relevance as a group.

The co-learning open classroom provides students with opportunities to observe and for faculty to listen and co-learn at their own pace. Video-based learning activities and interactive virtual spaces foster students' work as a team. Virtual learning affords opportunities for such teams to collaborate across geographies. Collaboration is a mindset and a method.

Virtual teaching assistants

Artificial intelligence (AI) also has a role in future co-learning.For example, a course instructor or facilitator video records a lecture on a subject area they want to share. This allows the same video to be viewed by one student or thousands of students.

Through a common platform, students from different parts of the world could ask for help from a virtual teaching assistant: a chatbot.

The facilitator of the in-person classes could also use the virtual teaching

assistant to help students learn from each other: students could use an app on their mobile devices, while the facilitator can guide, mentor and interact with the groups.

No additional facilitators are needed to teach multiple sections of the same course. The facilitator is both a guide and a mediator.

New levels of collaboration and ways of learning

Using such hybrid methods, people globally could share facts, dialogs, materials and projects on the base of common interest to learn by doing. Stories and insights from science and art could be shared and new insights co-created.

Virtual collaboration could also help break academic silos by bringing together people in different fields to realize applied interdisciplinary approaches.

These design-based research scenarios may redefine the way we can make learning more collaborative, and also increase students' access to talented educators around the world.

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