

Why Use Extended Reality (XR) in the Classroom?

Published 5/20/2022 by [Ashley Ribbel](#)

[View all the Teaching & Learning Centre Spark Plugs!](#)

by **Elisheva Lightstone, Professor in the School of Nursing and the Teaching & Learning Centre**

Not long ago, using Extended Reality (XR) in the classroom seemed like something from a sci-fi movie that would happen in the distant future. However, the use of XR in higher education is growing across the globe, and coming soon to classrooms at Seneca.

What is the difference between VR, AR, and XR? VR is the use of computer technology to create a simulated environment, often using a headset such as Oculus or PlayStation VR (Bardi, 2022). Instead of sitting in front of a computer, the user is immersed and interacts in a 3D environment. XR is the umbrella term that combines VR (immersing in the environment), augmented reality (AR) (adding to the user's surroundings), and mixed reality (MR) (a combination of VR and AR) (Gerencer, 2021). To learn more about XR, check out the [XR guide](#).

Experts predict that in the next few years there will be more wearables and fewer handheld devices (Bardi, 2022). For example, smartglasses and smartwatches will replace smartphones. These wearables will allow for more use of XR. Also, headsets will decrease in size (Bardi, 2022). Here's an example of what a [typical day](#) may look like with smartglasses in the future.

But why use XR in the classroom? What are the advantages of XR?

1. XR empowers and engages learners by giving them more control over their learning process and turns the role of the educator from imparting knowledge into guiding students to explore and learn (Boyles, 2017).
2. XR allows students to learn experientially, and according to [Dale's Cone of Experience](#), people remember and retain 90% of what they learn from doing as compared to 10% of what they read (Dwyer, 2010).
3. XR helps students learn abstract concepts by allowing them to visualize them in the

virtual environment (Boyles, 2017).

4. XR is very useful for skills training, especially those requiring complex decision-making that require lots of practice and the ability to make mistakes in a safe environment without harmful consequences.
5. The immersive nature of XR allows students to concentrate and block out other distractions (Boyles, 2017).

What are the disadvantages of XR in education?

1. Cost of the VR headsets and other associated devices, such as haptic devices (technology that allows users to experience touch). Although it is anticipated the costs will decrease with advances in technology and demand.
2. Heaviness and bulkiness of the headsets. While Google cardboard glasses are lightweight and inexpensive, they do not provide the same immersive experience as the headsets, which can limit how much a user may use and wear them due to their weight.
3. Time required to learn how to use and navigate the virtual world (Boyles, 2017).

Currently, there are two XR projects in the development stage at Seneca in aviation and nursing. These projects allow students to practice skills, problem-solve, and use critical thinking to navigate a variety of scenarios all while being immersed in a 3D environment.

XR can help prepare students for work life after graduation through practicing in immersive environments that mimic real-life situations. Also, XR is a lot more fun than just looking at a computer screen, which encourages students to practice again and again to hone their skills.

References

- Bardi, J. (2022, April 28). *What Is Virtual Reality: Definitions, Devices, and Examples*. 3DCloud Marxent. <https://www.marxentlabs.com/what-is-virtual-reality/>
- Boyles, B. (2017). Virtual reality and augmented reality in education. *Center For Teaching Excellence, United States Military Academy, West Point, New York*.
- Dwyer, F. (2010). Edgar Dale's Cone of experience: a quasi-experimental analysis. *International Journal of Instructional Media*, 37(4), 431–437.
- Gerencer, T. (2021, April 3). *What Is Extended Reality (XR) and How Is it Changing the Future?* HPTech Takes. <https://www.hp.com/us-en/shop/tech-takes/what-is-xr-changing-world>

[**View all the Teaching & Learning Centre Spark Plugs!**](#)

tags : course-design, extended-reality, spark-plug, teaching, teaching-and-learning, teaching-and-learning-centre, teaching-ideas, xr