



# EDUCATION IN XR

## WHAT IS THE XR ASSOCIATION?

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The [XR Association](#) promotes the dynamic growth of the XR industry. We convene and educate policymakers, thought leaders, researchers, developers, civil society, and the public on XR's infinite potential and serve as the premiere resource for anyone interested in learning about the applications of immersive technologies. Our member companies are united in our mission to champion the responsible development and thoughtful advancement of XR solutions that foster positive societal outcomes. Let us help you explore the endless potential of XR.

## WHAT IS XR TECHNOLOGY?

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XR is an umbrella term encompassing virtual, augmented, and mixed reality technology as well as other forms of alternate, expanded, or immersive technology applications.



### Virtual Reality (VR)

VR replaces or occludes a user's reality with a new virtual environment like a factory floor or replication of the solar system.



### Augmented Reality (AR)

AR layers digital content onto a user's view of the real world, thus providing a composite view.



### Mixed Reality (MR)

MR allows users to experience simulated content within their physical worlds and to manipulate and interact with virtual elements in real time.

XR is changing the way we learn, do business, and provide essential human services. By delivering efficiencies in manufacturing, enhancing workplace safety, accelerating learning and job training, providing risk-free first responder training, improving healthcare and medical services, and providing rich experiences to individuals living with disabilities, XR is poised to become a part of daily life for users across the globe. XR is the technology of the future—today.

## XR IS ENHANCING EDUCATION AND IMPROVING LEARNING OUTCOMES

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XR is revolutionizing education for both students and teachers by transforming traditional teaching methods. By leveraging virtual and augmented reality, students are empowered to explore lifelike simulations, encounter creative challenges, and grasp complex concepts, fostering deep understanding and improved classroom engagement. To understand the intricacies of using XR in education, including the necessary precautions to protect student privacy, XRA developed the guide "[Designing Immersive Learning for Secondary Experiences](#)," a toolkit arming developers with best practices when creating immersive experiences for the classroom. [XR enables personalized and self-paced learning, catering to different learning styles and preferences, and encourages collaboration.](#) XR is poised to fundamentally transform how students connect with classroom material, marking a significant advancement in education.



### Education Subjects

XR offers students the opportunity to engage with many subjects and academic disciplines. Through VR, students can explore scientific concepts by conducting virtual experiments, exploring distant planets, or visualizing molecular structures. And in creative fields like the arts, VR can help students sculpt, paint, and design in 3D environments. History can be brought to life as students can visit ancient ruins, explore virtual museums, and witness pivotal historical events.



### Remote Learning

XR is revolutionizing remote learning by bringing immersive and interactive experiences to students regardless of where they live. By breaking down physical barriers to access learning, XR has the potential to connect students to classroom material in new ways and facilitate an alternative form of "face-to-face" teaching. Learning in VR can reduce education inequality and provide students with rich, interactive, and inclusive education by improving the distance and virtual learning paradigms.



### Career and Technical Education

XR can simulate realistic work environments, allowing students to explore future careers and technical professions. Immersive technologies can give students exposure to high-paying and in-demand jobs, allowing them to refine their career aspirations. Secondary school students can live the day-to-day experiences of doctors, see what it's like to be an electrician or mechanic, and explore other potential career paths. Medical students can learn on-the-job requirements through simulation before stepping foot into an operating room.



### Supporting Diverse Learners

XR can provide personalized learning experiences to cater to the unique needs of each student. Students can explore interactive environments at their own pace, while educators can tailor content based on individual student needs. Students with learning disabilities can set the pace of their own learning fostering a more inclusive and accommodating environment.



### Improving Learning Outcomes

XR helps teachers engage students on a deeper and more experiential level. Students using immersive technology have shown significantly improved comprehension and knowledge retention. In fact, studies have shown that VR learners train four times faster than in a traditional classroom, are more confident in applying what they are taught, and are more focused.

