

A Working Guide to XR

XR, or “extended reality,” is an umbrella term that encompasses any computer-generated environment that merges virtual and physical worlds, enhances the physical world, or pulls participants into an immersive virtual world. This includes:

- **Virtual reality (VR):** Fully immersive virtual environments that participants enter using dedicated gear, including headsets. A convincing VR experience creates a sense of “[presence](#)”—experiencing the virtual environment as if it is real.
- **Augmented reality (AR):** Computer-generated enhancements to the physical world that layer virtual objects or information displays on top of the physical world. AR can feature text, video, audio, and 3D virtual objects.
- **Mixed reality (MR):** A blend of real and virtual worlds that allows physical and virtual elements, including avatars and human participants, to interact. In an MR environment, participants can manipulate virtual objects that appear to be in their physical spaces.



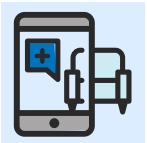
How XR Impacts the Workplace

The effects of XR are most notable in entertainment and marketing, but [XR is and will increasingly affect other businesses](#):



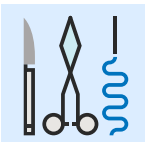
Armchair travel

From remote meetings and commute-free working to virtually visiting the deep seas, the peak of Mt. Everest, or Mars, virtual travel using VR or MR environments could replace much actual travel—or entice people to visit places they’ve experienced virtually.



Try before you buy

Immersive experiences that allow consumers to try on clothing, virtually interact with products, and see rental properties or vacation destinations before making a decision are already changing the way people shop—and the way people market products and services.



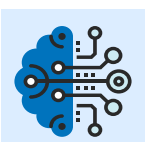
[Reduced-risk skills training](#)

From surgeons to fire fighters and athletes to airline pilots, people in risky professions (or those that require a tremendous amount of practice to perfect) are increasingly turning to VR- or MR-based training. They can hone skills through repeated practice more easily and with far less risk of injury than practice in the physical world would entail.



Preparing for unusual yet critical events

Walmart has rolled out the largest-scale VR-based training to date, using 17,000 headsets to train more than a million employees in difficult-to-reenact scenarios, such as preparing for Black Friday shopping crowds. The use of VR to simulate and prepare for rare events that require a polished response can extend to any industry.



Changing behavior

The potential of VR and MR experiences to [change behavior](#) is vast. It’s being used to [treat anxiety](#) and pain, provide soft skills training, build empathy, prepare for potentially stressful events, and more. In a virtual environment, people can practice responses and experience the repercussions of their actions safely, allowing them to try out different approaches and practice the desired behaviors over and over, until they become ingrained.

Why L&D Should Pay Attention to XR

Although XR technologies are still in their relative infancy, the possibilities for how they can be leveraged in L&D are creating excitement, and for good reason.

Virtual reality, currently further along in terms of adoption than augmented reality, presents a powerful solution to a long-challenging problem: providing a safe place for practice when the costs of failure are high—often the difference between life and death. VR will never likely be a broadly-used tool that replaces other methods, and I think that's a good thing. VR's value is as a solution to problems we can't solve any other way.

In many ways, augmented reality is the opposite of VR. It is behind VR in terms of current adoption, but has a much broader scope of potential applications for usage in the long term. AR has the ability to support a number of key shifts in L&D, including increased focus on performance metrics and the ability to support people in the context of work ([workflow learning](#)). To truly understand the transformative power of AR, L&D professionals would be wise to look beyond the current smartphone-based AR applications and toward the emerging AR headset marketplace. It is via headsets—and more importantly, the potential for hands-free use—that the true power of AR for learning and performance emerges.

—David Kelly

Learn More:

[Augmented and Virtual Reality for Behavior Change](#), by Julie Dirksen, Dustin DiTommaso, and Cindy Plunkett

[Create Compelling eLearning with Immersive Storytelling](#), by Pamela Hogle

[Don't Break the Spell: Creating Presence in Virtual Reality](#), by Matt Sparks

[Metafocus: XR Lessons I Wish I Had Learned in 2014](#), by Matt Sparks

[VR Training Ideal for Dangerous or Impossible Experiences](#), by Julie Dirksen and Pamela Hogle

[What's Your Reality? AR and VR for Learning](#), by Jane Bozarth



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