

How Virtual Reality Enriches Learning and Development

Technology has enabled education and skill building in many ways. Search engines help learners to access information fast and easily, while mobile technologies facilitate learning anytime anywhere. However, the one technology that enriches the learning process in completely new ways is Virtual Reality (VR). VR creates a virtual world and helps users to learn by being immersed in it.

How the Virtual World is Created

VR is a fully immersive and experiential platform in which customized videos, applications or games are projected through head-mounted devices. As the display is a life-size and 3D environment without the boundaries of TV or computer screens, it helps to create a perception of reality. Headphones deliver positional audio that further enhances the experience of immersion into this virtual world. Tracking devices, such as controller wands or gloves, translate the user's movements into controls in the virtual environment and allow interaction.

Why Learning with Virtual Reality is Powerful

VR transforms the way educational content is delivered and absorbed.

1. **Visualization:** Learning from written descriptions in books is not always interesting or engaging for learners. Learners may feel burdened with information overload and absorption may be low. With VR, learners can actually see what they are studying. They can virtually get inside a cell to see photosynthesis, or visit another planet, or look inside a combustion engine. As they can see how things work and how different parts fit together, learning comes naturally.
2. **Engagement:** The experience of actually being in a particular environment engages the mind in a way that other teaching methods cannot. This feeling is difficult to forget, so the content is retained better.
3. **Simulation:** VR helps students to learn by doing and put their lessons into practice. Healthcare professionals can be trained to perform certain procedures in simulated exercises. Simulations have applications in many other fields such as engineering, navigation, aviation, and sports. Simulation offers a safer, faster and more economical option to on-the-job training.

4. **Evaluation:** VR can be used to evaluate training effectiveness by conducting tests in a contextually relevant environment. It offers a convenient manner to test the learner's ability to apply knowledge in a practical situation.

Applications of VR for Training

From teaching schoolchildren to surgeons to fighter pilots, VR is now an integral part of widely diverse programs.

Military organizations have adopted VR to train personnel to prepare for a variety of challenging situations. VR flight simulators replicate the ergonomics of the aircraft, and also recreate a war scenario. A huge advantage is the ability to observe the trainee's responses in real time. Customized visual, auditory and sensory stimuli help to prepare for a variety of terrains and environments.

In school education, students can travel virtually to any place in the world to experience it and learn. Virtual science labs can provide more students access to sophisticated, well-equipped labs, and at a lower cost than setting up actual labs.

VR helps medical students to study the body in 3D and see how different parts fit together. Healthcare professionals and surgeons learn and practice how to conduct medical procedures and operations on virtual patients. Here, haptic feedback or 'haptics' helps to recreate the physical experience closely. Haptic feedback consists of vibrations or physical resistance that engages the learner's sense of touch.

In sports, VR is used to provide players with a virtual ground to test their skills and game to build their instinct. Teams encourage prospective team players to play a live match simulation so that they get used to playing before a crowd. This builds both physical and psychological preparedness.

A Very Real Future for Virtual Reality in Learning and Development

The adoption of VR for learning and development is growing rapidly. A report by Futuresource Consulting predicts that over 15 percent of U.S. schools will have VR classroom kits by 2021, while research by Technavio says that the global VR market in the education sector will grow at over 59 percent until 2022.

While we see a number of interesting as well as successful applications of VR in learning, there is potential for a much larger impact. Widespread adoption of VR for teaching and training can enhance knowledge and skill building for learners everywhere. In the future, education professionals will need to further their understanding of what is possible with VR and more learning content for this platform will be needed. VR will continue to transform learning in many new ways.