



Anticipating the impact of virtual reality of new technologies.

Immersive Technologies: Are You Ready to Go Live?

By Nan Wodarz, Ed.D.

Making learning more personalized, relevant, and immersive has been a primary goal of education for more than a decade, and technology has helped that mission. Digital media offer educators a wealth of opportunities to create dynamic lessons that take instruction to a higher level.

Immersive technologies such as virtual reality (VR) and augmented reality (AR) are types of digital media that have been around for years, yet they have only recently evolved to the point of being accessible to schools. Now that they have arrived in classrooms, the instructional implications could prove profound.

In the Virtual Trenches

Immersive technologies can help transform students from passive observers to more active participants in the learning process. Students can “travel” to every corner of the earth, into outer space, or to “impossible” places, such as the human bloodstream or the world of ancient civilizations.

These engaging technologies offer students the unique opportunity to experience the topics they are studying. For example, Nearpod (<https://nearpod.com>) is a platform that enables teachers to use tablets to manage content on students’ mobile devices and offers VR lessons that leverage virtual travel along with related activities.

In partnership with Google Expeditions, Houghton Mifflin Harcourt offers curriculum-based virtual reality field trips, such as a journey through prehistoric caves during the age of dinosaurs or a visit to the Everglades to experience the lives of an ancient Seminole tribe.

VR and AR technologies are especially powerful for subjects in science, technology, engineering, and math, where the ability to

GETTING STARTED

These resources can get you started with immersive technology.

Discovery VR app

www.discoveryvr.com

Google Expeditions app

<https://edu.google.com/expeditions>

“360° Videos for Education”— A YouTube Playlist

[www.youtube.com/results?search_query=360°+VIDEOS+FOR+EDUCATION](http://www.youtube.com/results?search_query=360%+VIDEOS+FOR+EDUCATION)

Google Street View app

www.google.com/streetview/apps

New York Times VR app

www.nytimes.com/marketing/nytvr

understand complex topics is critical. For example, students can use AR to witness the impact of a modern catastrophe, such as a hurricane or wildfire, and then connect with those affected by similar events to further analyze the effects.

With the help of VR and 360-degree videos, a panorama of the entire classroom can be streamed to a student in a remote location, making distance learning more seamless and effective.

According to Futuresource Consulting, the number of students using VR and AR will increase from 2.1 million in 2016 to 83 million in 2021. Thus, education will no doubt need to adapt to take advantage of these technologies, leveraging them to improve student performance.

Surprisingly Affordable

As business officials, our first question is, “What will all this cost?”

Let's look at it this way: Consider the costs and resources associated with field trips, including buses and the admission, supervision, food, and personnel costs associated with logistics. These elements can be intensive and sometimes prohibitive. Virtual reality—even at its most basic—can artfully simulate modern-day field trips, or at least complement them, while eliminating many of the expenses.

What about the costs of technology? A virtual field trip does not need pricey goggles or headsets. For example, at about \$15 each, Google Cardboard (<https://vr.google.com/cardboard>) can provide an immersive and relatively affordable experience. And if every other form of technology is any indication, increasingly sophisticated headsets will become more affordable over time. The key is to start with basic immersive technologies, such as Google Cardboard and Google Expeditions, and then move into full sets for multiple classes to use.

Be aware, however, that proper implementation of these technologies requires a stable infrastructure that will support classes of simultaneous users. That might involve upgrading network hardware, including access points and switches, and ensuring that adequate bandwidth is available. In addition, teachers must be trained to use the technology to support student learning.

Words of Caution

When using immersive technologies, the information technology staff should determine which information the programs gather about users. Privacy is a serious concern. To illustrate, in 2016, it was reported that a VR platform acquired by Facebook collected information about users, including their location and physical movements.

Although some of this information is of little use to cybercriminals today, the importance of VR security will grow as the technology becomes



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more sophisticated. In the future, a person's verbal and physical idiosyncrasies will become a part of his or her digital signature. It may become possible for cybercriminals to impersonate an individual and access sensitive information.

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In addition, school administrators should read all legal agreements carefully before using software to assess which information is gathered and may be shared with third

parties. User agreements can be deal breakers when it comes to choosing educational applications. Acceptable immersive technology should never put student information at risk.

Start Early

Immersive technologies have already begun to permeate the healthcare, retail, architecture, aerospace manufacturing, automotive, film, and entertainment industries and are poised to explode in K-12 education. Now is the time for your instructional technology experts to work with the information technology staff to begin to pilot programs and to train early adopters to integrate immersive technologies in ways that meet the district's mission and that prepare students to use these technologies as a viable 21st-century skill.

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