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Teachers eye potential of virtual reality to enhance science instruction



Feb. 20, 2017
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Jada Ikharo, a 5th grader at Lincoln Elementary in Manteca, gets a virtual reality lesson from Mark Andersen, co-founder of Lifelique.

If you can't afford a field trip to the [International Space Station](#), donning a boxy black headset might be the next best thing. To take advantage of the latest in 3-D technology, teachers are increasingly expressing interest in using virtual reality to enhance science education.

There are no firm numbers about how widely virtual reality is being used in the classroom, but teachers interviewed by EdSource believe it can be an effective way to hold the attention of students accustomed to video games and digital media, as well as provide innovative ways to learn about the natural world.

Although the equipment needed to use virtual reality technology in the classroom can be expensive, David Evans, executive director of the [National Science Teachers Association](#), expects prices to fall and virtual reality to eventually become a staple of science classrooms. "It's just a matter of time," he said. "We're just at the very beginning of this."

To help teachers learn how to use virtual reality, a panel at the National Science Teachers Association [conference](#) in late March will be devoted to "Virtual Reality's Emerging Future in the Science Classroom."

As California schools implement new science standards known as the Next Generation Science Standards, adopted by the state in 2013, some teachers are also finding that

virtual reality applications are helping them introduce the standards into their classrooms, especially as software companies begin to align their products with the standards. “I have found this technology to be extraordinarily helpful in the classroom. Extraordinarily,” said Tammy Dunbar, a 5th-grade teacher at Lincoln Elementary in Manteca in San Joaquin County, whose students have used virtual reality as well as 3-D computer models to study science. “Is it the future? It has to be.”

In Dunbar’s class, students use a computer application called [Lifelique](#) (pronounced “lifelike”) that includes more than 1,000 3-D images of plants, animals and natural features like volcanoes and rivers. Using laptops provided by the district, students can click on a beetle, for example, and zoom in, turn it around, read descriptions of the wings, thorax and other parts, and even move the beetle into a science report or photograph.

A school-wide subscription to Lifelique costs about \$5,000 annually, which allows all students at the site to use the software. That compares with the \$119 annual subscription that individual consumers would pay. Lifelique offered Dunbar’s class subscription for free because she teaches at a Title I school, where most students come from low-income families. Virtual reality lessons and gear were also provided for free as a trial.

Last week, Mark Andersen, the co-founder of the San Francisco-based Lifelique, went to Lincoln Elementary to give Dunbar’s students a virtual reality science lesson. Andersen brought a headset, controllers and other gear so each of Dunbar’s 30 students could have a five-minute opportunity to inspect a grazing dinosaur, swim along an ocean floor, wander around the inside of a plant cell, explore the International Space Station or embark on other virtual science adventures.

Julio Meza was the first to give it a try. While he moved around a prehistoric jungle, the images he viewed in the headset were broadcast on a large screen so the other students could watch. “Oh, God, it feels weird! It’s so cool,” Julio said as he climbed a virtual palm tree. “It’s kind of scary. It’s like you’re actually there.”

Lifelique is one of several companies offering virtual reality and 3-D software to schools. Nearpod, Facebook’s Oculus and Google’s Expeditions are some of the more popular platforms, used in schools around the world to provide virtual field trips to natural history museums, tours of the solar system and human bloodstream, and other science-themed experiences.

While virtual reality will never replace real-life field trips or science experiments, it can be a useful supplement in the classroom, Evans said, especially in schools where money for field trips is scarce and chemistry labs might be less than state-of-the-art.

“Suppose you walked into a virtual lab, and you could pour chemicals from one beaker to another, or take a tissue sample and isolate the DNA,” he said. “A combination of virtual reality and real-life science experiments could end up being a very powerful tool.”

At West Adams High School in central Los Angeles, engineering and architecture teacher Katherine Simon just received a grant to purchase two Oculus virtual-reality sets for her students. By connecting their computerized drawings to virtual reality, the students will be able to walk through buildings they’ve designed, viewing their work in immersive 3-D.

The technology will not only help them be better designers, but will prepare them for careers in engineering and architecture because some firms now use virtual reality to showcase drawings for clients, said Simon, who worked as a civil engineer before becoming a teacher three years ago.

“It’s really exciting. The students are so creative – this really allows them to see their work in a new way,” she said. “It’s a learning process for me, too, though. The technology is so new. If this is what we’re doing now, then what’s the future? Holograms? It’s changing all the time.”