

## Virtual reality: It's not just for video games

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**The next generation of VR technology could help people manage chronic pain, avoid industrial accidents, and save for retirement.**

By Erik Heinrich



The Oculus Rift headset

FORTUNE -- Virtual reality technology is poised to take off for home entertainment and gaming as inexpensive headsets become commercially available from companies like Sony (**SNE**) and Facebook's (**FB**) newly acquired Oculus VR.

But at the same time, VR's computer-simulated environments are expected to transform key industries such as health sciences, financial services, and manufacturing in new and imaginative ways that experts say will improve our lives and the choices we make.

"Virtual reality transforms relationships that tend to be abstract to become visceral," says Jeremy Bailenson, director of Stanford University's Virtual Human Interaction Lab. "Our research has shown that making this cause and effect relationship perceptual, as opposed to theoretical, changes consumer and other behaviors more than other interventions."

VR can be an effective tool even where cause and effect are not obvious. In a collaboration with Stanford's Department of Anesthesia, Bailenson used the technology to place children with chronic regional pain syndrome (CRPS) -- a disease characterized by severe pain, swelling, and changes in the skin -- in virtual simulations that divert their brains from unpleasant physical therapy and treatment. The children use computer-generated doubles known as avatars, a fixture in VR environments, to perform a simple exercise like popping balloons, distracting them from processing pain signals.

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University of Washington researchers have developed a similar form of therapy known as SnowWorld, in which patients concentrate on throwing snowballs at penguins and mastodons to the music of Paul Simon, rather than focusing on painful wound and burn treatments. The technique is so effective, the researchers say, that it has reduced the need for strong narcotics and other addictive painkillers.

"The experience of being fully immersed in a well-made virtual world is like none other," says Brian Blau, research director for consumer technology at the research firm Gartner. "Your mind is transported in the same way that movies suspend our reality, and that virtual world becomes real."

Researchers in Stanford's Virtual Human Interaction Lab are studying the impact of VR across a number of industries. One

of those is financial services, for which they have developed an immersive experience that introduces people to avatars of their future selves under a variety of financial scenarios.

"People have a hard time tangibly understanding the possible poverty one might have as a senior citizen resulting from not saving money during one's youth," says Bailenson, noting that a simulated environment makes this relationship much more tangible, resulting in higher rates of savings, at least under laboratory conditions.

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The investment bank Merrill Lynch liked the research so much, he says, that it used the technology as the basis for designing its own online app known as Face Retirement, which allows anyone with a laptop camera to create and interact with their future self.

Bailenson has his eye on other industries. Through AppliedVR, a new partnership between Bailenson and the Los Angeles-based market research firm Lieberman Research Worldwide, his aim is to commercialize VR simulations with the biggest business potential.

"Worker safety or weight loss would be first to market," LRW chief executive Dave Sackman says. He added that AppliedVR is also interested in migraine treatment, eating disorders, and drug and alcohol recovery.

The company is currently working with Travelers (**TRV**), the insurance company, on a virtual reality mobile application intended to reduce accidents in manufacturing plants and warehouses. AppliedVR does this by creating a virtual world where people fly through a warehouse like Superman, saving co-workers from hazards such as getting hit by a forklift or falling off a platform without a safety railing.

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"We're finding this to be a fun experience that generates some immediate safety sensitivity," Sackman says. In addition to being entertaining, the game-like experiences make it easier for people to change by engaging their subconscious brains on an emotional level, he adds.

"Training is a great example of a business process that could benefit from VR," Gartner's Blau says. "I think VR will be important to businesses, and its impact will start to be seen over the next five years."

And in the case that VR does not prove to be more effective than traditional approaches to training and behavior modification? Well, at least it will be more fun.