
February 19, 2004

On the Therapist's Couch, a Jolt of Virtual Reality

By SAM LUBELL

THE red curtain opens to reveal an intimidating auditorium. A bored audience stares back at you. One person in the crowd seems to be falling asleep; another coughs loudly and stretches his neck. You notice that your palms are sweaty. Your stomach is fluttering. You wonder whether you will pass out.

But this is no ordinary panic attack: it is a virtual scene that was created to help people overcome anxiety about public speaking. This slice of virtual reality and other similarly stressful scenes are the work of a Georgia-based company called Virtually Better, which creates virtual environments with 3-D imaging software for use by psychologists, psychiatrists and researchers.

A few years ago, the full impact of a bored audience could only be imagined by a patient with a therapist's help, or in some cases recreated at great cost with mockups and actors. But with recent advances in research and improvements in hardware and software, virtual reality has become a tool to help patients overcome fears and anxieties.

"It's a therapist's dream," said Albert Rizzo, a research assistant professor of engineering at the University of Southern California and a licensed psychologist who has created classroom and party scenes to treat attention deficit disorder and social anxieties. "To help people deal with their problems, you must get them exposed to what they fear most."

While the techniques are beginning to catch on with some therapists and researchers - Virtually Better says that 60 are now using its system, for example, in treatment or study - many mental health experts remain wary. While therapists who use virtual reality systems say they have had success with many patients, they acknowledge that the field is still in its early stages.

"There's not proof that any of this is working," said Joann Difede, an associate professor of psychiatry at Weill Medical College of Cornell University, who has helped create virtual therapeutic scenes. For example, there has been no large-scale study to test the effectiveness of virtual therapy, although some individual therapists, including Dr. Difede, claim a success rate exceeding 90 percent. As with other virtual environments, the scenes created by Virtually Better, Dr. Rizzo, Dr. Difede and others are made by combining video images of real people with effects generated by programs like 3D Studio MAX and DeepPaint. To take them in, a patient wears a helmet with screens extending over each eye that create a lifelike stereoscopic view, and a motion sensor that adjusts the scene to correspond to the head position. The helmet also has headphones that can adjust sound to correspond to movement.

To enhance the realism, some users, like Robert Reiner, a Manhattan psychologist, employ vibrating platforms to simulate movement. And Virtually Better is experimenting with odors created through the use of various chemicals.

Levels of intensity can also be adjusted. A public speaking scene, for example, can be adjusted for the size and attentiveness of the audience, while a virtual airplane flight may be smooth or turbulent. The patients work with therapists before and after the virtual sessions to learn coping techniques.

"The more realistic the environment, the better," said Ken Graap, the chief executive of Virtually Better and a doctoral candidate in clinical psychology at Emory University in Atlanta. Mr. Graap started the company with Larry Hodges, a former professor at Georgia Tech who is now a professor of computer science at the University of North Carolina at Charlotte.

The company has also employed a psychologist, Libby Tannenbaum, who treats patients in conjunction with the virtual reality scenes at the company's offices in Decatur, Ga.

No one would mistake the virtual scenes for reality, but they are convincing enough to evoke patient response. Dr. Reiner said that patients sometimes have panic attacks when they first try virtual reality. He described a patient who ran out of his office still wearing the helmet because a virtual scene had stirred up such intense anxiety.

The problems that can be tackled with virtual therapy are many. Virtually Better has created scenes of a glass elevator and a bridge to address fear of height, an airplane cabin for those who fear flying and a thunderstorm to diminish fear of bad weather.

The treatment of substance addiction, too, is being investigated. Several researchers are testing to see whether virtual exposure to drugs, alcohol and cigarettes can trigger cravings, and thus help patients learn to resist them. Virtually Better has created scenes of a virtual bar and crack house for that purpose.

To treat post-traumatic stress, Virtually Better has programmed a Vietnam scene to help veterans confront memories they may be blocking out. Dr. Difede and others at Weill Cornell, collaborating with researchers and engineers from the University of Washington, have created a re-enactment of the terrorist attacks on the World Trade Center to help those coping with their aftermath.

Such applications give researchers and therapists hope that the technique will catch on. Dr. Difede said that while virtual therapy is now being used as a supplement to therapy that relies on a patient's imagination, it may someday even become the treatment of choice.

Yet proponents acknowledge that some providers of mental health care are wary. "People are weirded out by this," Dr. Reiner said. "If someone's in a comfortable practice and they're not interested in technology, why would they do this?"

Cost is also an issue. Virtually Better leases its software to clinical therapists for \$400 per month. This includes full technical support and upgrades. The company charges researchers a flat fee of \$3,500 to \$10,000 for the software. Headsets with trackers range from \$2,000 to

\$20,000.

Dr. Reiner and his staff at Behavioral Associates offer a sliding scale, charging patients \$75 to \$350 a visit - about 10 percent more than for conventional therapy - based on their ability to pay.

Some patients say that the virtual experience is worth the cost. Jill Greenberg of Manhattan was so fearful of flying that she would rarely board a plane. She once even turned down an all-expenses paid shopping trip to Paris. After 12 sessions of virtual therapy over three months as Dr. Reiner's patient, Ms. Greenberg now steps onto planes without a second thought. "I wouldn't believe it if it weren't me," she said.

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