Virtual reality helmets help in the treatment of phobias

By Yuval Dror

What kind of treatment should a patient who suffers from anxiety in social situations undergo? What about a person who fears flying? Until now, therapists treating such people had to reconstruct, together with the patient, the moments the patient feared most in order to treat the problem. But in recent years, new developments in the area of virtual reality have allowed people to enter a virtual environment, a virtual world that is, in which they can give free expression to the problems that brought them for treatment.

Some 10 different companies and researchers presented projects based on virtual reality technology yesterday at an exhibition organized by the Institute for Interdisciplinary Applications of Computer Science of the University of Haifa.

Virtual reality technology has been in existence for about a decade, however only a small number of inventions have become commercially viable. Among the reasons for this is the high cost of equipment and the need for a powerful computer to create the sensation of a realistic virtual environment.

Sonarion Hadassah has developed digital engines to simulate land and water for the purpose of easing pain. "The patient puts on a helmet that contains a surround-sound system and enters a virtual world of water mountains, snow, and soothing music," Ehud Dayan, founder of the company, explained. Moving the helmet simulates changes in the landscape changes as if the person is actually in a beautiful park. "The pictures keeps the patient's brain busy. It allows the patient to disconnect from his or her pain." Dayan says the system is still in development.

Prof. Albert "Skip" Rizzo of the University of Southern California, is developing virtual reality applications for rehabilitation. Rizzo and his team have developed a tool that allows a student with attention span deficiency to enter a virtual classroom, with a teacher and other students. Rizzo can decide where the student will "sit" in the "class" and what kind of disruptions he or she will have to deal with, such as a sneeze, a shout, or talking, and how often they occur. A diagnosis can be made according to how the student responds.

Another application places a person who suffers from social anxiety into a virtual party situation. In this case too, the patient puts on a special helmet with lenses that depict scenes in which the patient is approached by people who speak to him or her. "The goal is to bring the patient into contact with the situations he or she experiences every day, so the therapist can help, but on the other hand, the environment is safe and there are no immediate implications to the responses of the patient," Rizzo explained.
Dr. Helena Wallach presented a system produced by Virtually Better, which deals, among other things with fear of flying. The person puts on the helmet, and sits in an airline chair. From this moment, the person experiences everything he or she would in real flight. From a standstill, the "plane" begins to taxi down the runway. The scenery changes and the chair shudders as it would during a real take-off.

"This is classic behavior therapy. Usually we would need volunteers who would sit in a room and put on a show for the patient. Now, by means of a virtual environment, that problem is solved," said Wallach.

Danny Golan, director of GolanTech, presented an invention which is used by the Israel Air Force. It involves an integrated helmet system that shows data regarding the plane to one of the pilot's eyes. A transparent mirror is placed about two centimeters from the helmet that transmits the information directly to the retina. Thus, the pilot can look out of the plane and have visual access to essential data simultaneously. Although most of his company's income is from sales to the military, Golan stresses that the technology has civilian applications as well. "A surgeon can see medical data without taking his eyes off the patient or the need to hear them from a nurse."