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From the Los Angeles Times

Control a car with your thoughts -- it's therapeutic

When game developers team up with medical researchers, rehab can be fun. So can training.

By Janet Cromley
Times Staff Writer

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A soldier in a Humvee scoots across the desert, warily eyeing the vast, empty plain. A fire appears on the horizon, driving smoke high into the sky. The soldier is alert but calm. There is a rumbling noise, then the rat-a-tat-tat of gunfire from Iraqi insurgents.

Suddenly, the soldier flinches and the scene disappears — quieted by a keystroke. The soldier relaxes and returns to the reality of his therapist's office.

Game over.

For all the entertainment that video games provide, their technology also holds promise for vanquishing some real world enemies — such as (in this case) post-traumatic stress disorder.

"Virtual Iraq," designed by an interdisciplinary team at USC's Institute for Creative Technologies, is just one of many therapeutic and educational interactive games in development that started pulses racing at the Games for Health conference last Tuesday at USC.

Riding a monster wave of advances in game technology, a raucous alliance of researchers, medical professionals, game developers and artists are collaborating on an array of health-related video game projects.

They are shaping the seductive, hypnotic allure of conventional video games into virtual reality tools aimed at treating a host of medical and emotional conditions.

The games are based on the premise — supported by research — that most people, including elderly stroke victims and mentally challenged kids, have a unique capacity to work harder when confronted with an engaging game.

Some of the games in development are designed to improve cognitive functioning in the aging brain; boost motor skills in stroke victims; focus the attention of brain-injured kids or those diagnosed with attention deficit hyperactivity disorder.

Other games use interactive scenarios to walk nurses, trauma physicians and medics through real-life situations including battleground medicine; educate children and adults on diseases and conditions such as diabetes, cancer, leukemia and HIV; and help kids relax before surgery.

Held the day before last week's E3, or Electronic Entertainment Expo — the world's largest video game trade show and super bowl of the video game industry — Games for Health attracted more than 100 game developers and healthcare professionals and researchers.

Lacking big bucks and commercial prospects, this tiny subset of the $11.3-billion U.S. video game market has had a hard time getting traction. But many believe the industry is at a tipping point.

Although few, if any, of these games will ever be available at the neighborhood superstore, they hold enough therapeutic promise to attract support from such diverse institutions as the U.S. Army and Navy, the Robert Wood Johnson Foundation and the Woodrow Wilson International Center for Scholars.

To be sure, conventional game makers aren't losing any sleep that the games will supplant them. And by all accounts, they will never replace physicians, therapists or teachers. But many believe they may one day be important adjuncts.

"We never talk about replacing instructors," says David Wertheimer, executive director of USC's Centers for Creative Technologies. "Instead, we see these as tools, empowering the medical professional in a way that wasn't possible before."

Some of the most promising developments are in these areas:

• Mental health: CyberLearning Technology's S.M.A.R.T. BrainGames system is designed to improve the focus of kids with ADHD.

The system includes headgear with NASA technology originally developed for pilots. The gear provides neurological feedback so that kids learn to control elements of a car race or jumping game simply by concentrating. They can, for example, control the speed of a race car by focusing their thoughts.

• Physical therapy: An interdisciplinary team of researchers at USC is developing interactive games employing such items as special goggles, high-tech mitts, pinching devices and a pencil-like stylus that can be worn or grasped to add the sense of touch to the 3-D experience.

A stroke victim, for example, might hold a stylus in his or her hand and move it through the air, thus controlling the passage of a ball though a maze in virtual space. Completing the game requires the same hand motions that the patient might do in conventional physical therapy.

• Public health: The University of Illinois at Chicago is developing an online disaster simulation game for the Chicago Department of Public Health to train public health workers and allied health and service workers how to handle an aerosol anthrax attack.

Scheduled to be tested in August, it will eventually be used to train tens of thousands of workers in the Chicago area.

Ben Sawyer, co-founder of the Games for Health Project, says the future of the games rests on how well they perform under controlled clinical testing conditions — trials that researchers are in a mad dash to accomplish.

But, he adds, it's safe to assume that if a game can be proven to, for example, stave off the onset of a chronic illness, it might be of interest to large healthcare providers.

Though it may be years before serious health-themed games make tangible differences in patients' welfare, conventional video games have already provided an unexpected bonus in the medical community.

Some surgeons insist — and research supports this — that hours they have spent in front of their PCs wielding their hybrid vampire superpowers against nefarious Nazis, thus saving the Earth realm from domination, have helped them hone motor skills necessary for laparoscopic surgery.

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