

Health and Medical Uses of Videogaming

Elisabeth Hayes and Lauren Silberman explain in their article “Incorporating Video Games into Physical Education,” that educators recognized that technology can support physical education in schools. The technologies can include digital video clips, web quests, and video games. The games offer practice with mental training skills, information gathering, and actual physical activity.¹ The final report of the *Summit on Educational Games: Harnessing the Power of Video Games for Learning* held in 2006 addressed the issue of how videogames like *Dance Dance Revolution (DDR)* are being used for non-recreational purposes. They are used extensively in physical education classes for youth.

Wii games are becoming increasingly popular in nursing homes and are used as a tool by physical therapists. For people who need to do repeated movements to recover from a stroke, videogames can take the tedium out of the exercises.² According to a *Wisconsin State Journal* article, the popularity of Wii among seniors has spread to Wisconsin. Seniors in Milton, Edgerton, and Clinton gather to play Wii. Videogames get seniors active and moving. Teens in some locations help seniors learn to play as part of their school volunteer requirements. One of the seniors said she appreciated the help from the students, saying they were very nice, helpful, and they didn’t laugh at the seniors. The students appreciate the chance to work with the seniors. One student said the students enjoyed talking with the seniors.³

A *Washington Post* article indicated that seniors happily accept gift cards to Target as their prizes in Wii bowling tournaments, but the winners are often chided that they can win against other seniors, but not their grandchildren. Data indicates that a quarter of adults in the U.S. over the age of 50 played video games in the past year, primarily because of the Wii. It provides a gentle, low-impact exercise for people who have limited movement due to injury or aging. Sometimes the games get rowdy. One woman who had trouble correcting a hook when she used the Wii, explained she always had a problem with a hook with she played in a real-life bowling league.⁴ Amy Kane reports in a *seacoastonline* article that seniors are passing up casino trips to play in virtual bowling leagues. They use a cane when they walk but they have no trouble using a Wii to bowl.⁵

Computer and videogames are being used in the medical field in various other ways to help children and teens deal with a variety of medical issues or learn important medical information about their conditions. Young burn victims who play videogames during their painful bathing and skin scraping procedures have a significant reduction in pain.

Betsy Streisand reported on a new game in a *U.S. News and World Report* article.⁶ “Re-Mission” was developed to help cancer patients understand what chemotherapy and antibiotics do in the body and to reinforce the importance of continuing their treatments. The results of a year-long study done by the makers of the game, Hopelab in Palo Alto, California, indicate that cancer patients ages 13-29 who played “Re-Mission” took their pills 15% more

¹Hayes, Elisabeth and Silberman, Lauren. “Incorporation Video Games into Physical Education.” *The Journal of Physical Education, Recreation & Dance*; March 2007, 78(3), pp.18-24.

²Summit on Educational Games: Harnessing the Power of Video Games for Learning. Federation of American Scientists. 2006. Washington DC.

³Vogel, Stacy. “Video Games a Striking Hit.” *Wisconsin State Journal*. March 4, 2008.

⁴Greenwell, Megan and Shaver, Katherine. “A Wii Bounce in Seniors’ Steps.” *Washington Post*. May 31, 2008.

⁵Kane, Amy. “Seniors Get into Swing of Wii Bowling.” *Seacoastonline.com*. March 23, 2008.

⁶Streisand, Betsy. “Not Just Child’s Play.” *U.S. News & World Report*. August 14, 2006. 141:6.

often than patients who didn't play the game. In addition, the levels of chemotherapy drugs in their blood were 20 percent higher than the non-playing group. Players reported the game gave them a sense of empowerment against their cancer.

According to Streisand, Nintendo Game Boy has worked with medical professionals on a game called "Glucoboy." The game attaches to a Game Boy console. The more often a player tests his or her glucose level and keeps it within an acceptable range, the greater the rewards in terms of access to special games. The games the player accesses have information about managing diabetes and tips on diet, exercise and blood sugar monitoring.

Streisand also discussed a game for burn victims called "SnowWorld." In SnowWorld, users wear goggles and enter a computer-generated universe that is so distracting it eases pain and anxiety. The value of this virtual environment game is that the deeper someone is absorbed in the game, the less able they are to focus on their physical pain. In SnowWorld's icy land, users negotiate snow and ice with penguins, igloos, and snowmen. In a study underway by the *Clinical Journal of Pain*, burn patients who play SnowWorld reported significantly lower levels of perceived pain during treatments in the scrub tank and other procedures than those who didn't play the game. The players rated their pain as moderate, while the non-playing group rates the pain as severe. The study indicated that the parts of the brain that register pain were less active when the users were playing with the game.

Videogames are also being used to address Post Traumatic Stress Disorder (PTSD). Streisand said that soldiers with PTSD are fitted with a combat helmet equipped with virtual reality (VR) goggles. The helmet and goggles are used in conjunction with a vibrator that simulates riding in a humvee or tank. There is also a special machine that creates realistic smells such as burning gasoline. Patients can slowly be returned to the traumatic event in this virtual reality simulation, but can be quickly backed out if the experience creates too much anxiety.

VR is also being used to help people with anxiety and phobias such as claustrophobia. Streisand reports that claustrophobia results in 20 percent of all MRIs being aborted and it is hoped VR will help decrease this percentage.

Ken Schroeder reported in his article for *Education Digest* on a substance abuse program, Generation Rx, used in Kentucky schools. It was created in Eastern Kentucky as part of a substance abuse prevention program. The game is designed to improve critical thinking, judgment, and decision-making, and seems to be effective in changing behavior and enhancing positive decision-making. It is a cross between a film and a videogame. Users role-play lead characters in a live-action movie that depicts real-life decisions with consequences for poor decisions. It is designed to teach users how to think, rather than what to think.⁷

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