Sheryl Flynn, PT, PhD, Develops Video Games to Make Physical Therapy Fun for Patients, Their Families, and Friends

Children are often asked time and time again: “What do you want to be when you grow up?” For Sheryl Flynn, PT, PhD, the answer was plain and simple: a physical therapist. Ever since the 4th grade, Flynn knew the career path that she wanted to take, and today, she is making strides in research, combining her love of technology with physical therapy using video games.

Flynn had a blast from the past when a friend uploaded an 8th grade school picture of her on Facebook with the caption “physical therapist.” Knowing from such a young age that she wanted to be a physical therapist made it easy when she had to make plans for college. After graduating and working as a clinician for a few years, Flynn had the urge to go back to school to gain a better understanding of the nervous system in order to better serve her patients. Under the protective wing of Andrea Behrman, PT, PhD, FAPTA, Flynn continued on with her education and won a 1998 Promotion of Doctoral Studies (PODS) II scholarship and a 1999 PODS II scholarship for a total of $30,000. She received a PhD in motor control and learning from University of Florida (UF) with an emphasis on neuroplasticity, the neurophysiological process underpinning development, learning and repair after nervous system injury.

During her time at UF, she caught the research bug and decided to stay for another three years to complete a post-doctoral fellowship in neuroscience at the UF McKnight Brain Institute studying the effects of locomotor training following mid-thoracic spinal cord injury and enriched environments following cervical spinal cord injury. Her focus has since returned to investigating the potential for video games to help rehabilitation. Most recently, she started Blue Marble Game Company based in Santa Monica, CA, which is currently in start-up mode. Blue Marble’s tag line is “getting the world to play” because Flynn believes that “a game can be built for anyone, anywhere—we have the technology.”

What sets Blue Marble apart from other game companies is their use of built-in assessment features and user-centered design that is intended to personalize the experience for each player. Flynn’s company was awarded a large grant from the U.S. Department of Defense to build video games for troops returning from the war in the Middle East with mild traumatic brain injury (TBI) who eventually want to return to their jobs. Flynn also consults with colleagues Belinda Lange, PhD; Albert “Skip” Rizzo, PhD; and Carolee
Winstein, PT, PhD, FAPTA, at the University of Southern California (USC) on a National Institute on Disability and Rehabilitation Research (NIDRR)-funded Rehabilitation Engineering Research Center (RERC) grant to build a “Virtual Toolbox” containing a suite of video games for clinicians to choose from, each with built-in assessment and reassessment components to allow patients and clinicians to track their progress.

One important factor that Flynn always wants to keep in mind when designing all of the games is making sure that they’re fun for everyone. “People who are disabled don’t want to play video games built specially for them; they want to play video games that they can play with their families and friends. Building video games with “universal design” is the slam-dunk solution to bridging the standard vs. rehabilitation game. We are part of the movement that wants to design video games so that they can be used for rehabilitation if you have an impairment, but if you don’t have one, you can just enjoy playing the game,” said Flynn.

Although Flynn herself doesn’t have a computer programming background, she works with a team of highly-skilled game designers and developers at Blue Marble and is continually fascinated by the design process. Although the games for the U.S. Army are geared toward a mid-20s age group, they can be modified to suit the interests of other age groups. “The really cool thing about games is that they can be ‘reskinned,’ meaning that you can change the graphics and music to make it much more appealing to a different age group. Once we have the game built, we’ll be able to tweak it for a variety of different populations, but it’s about getting the mechanics of it right first,” said Flynn.

In addition to starting a business and consulting with universities, Flynn also finds time to work part-time as a clinician at Precision Rehabilitation in Long Beach, CA. Precision, owned by two forward-thinking clinicians, Christy Malonzo, PT, and Manjiri Dahdul, DPT, specializes in the treatment of individuals with nervous system injury and disease. Malonzo and Dahdul have been very instrumental in helping Flynn develop a deeper understanding of the use of video games by providing her with space to set up a “Virtual Rehab” clinic. Within this space, you can find clients playing many different off-the-shelf video games or trialing beta versions of video games currently being developed by students at the USC engineering and computer science departments. Last year, Drs. Lange and Flynn mentored 12 USC students to develop video games or game interfaces. Word spread quickly and this year, they are mentoring 46 students with over 12 projects. At Precision, “subject matter experts” (clinicians, physical therapists, speech pathologists, and neurologists) as well as potential end-users and clients, try alpha and beta versions of the games and give feedback. The feedback is then used to tweak the games to find out what people with disabilities really want in them and what they hope to gain from them. “Patients always tell me, ‘if I could have a video game that could help me improve my life, I’d play that game every day,’” said Flynn.
Enthusiasm for what the video game world calls “serious games” is quickly growing, specifically in support of Flynn’s efforts. Flynn was invited to speak on a panel at the Serious Games Summit at the Game Developers Conference in March 2010 to promote the agenda for video games for rehabilitation. Blue Marble is also conducting a worldwide online survey of people with disabilities asking if they’ve ever used a video game for rehabilitation and what they think about the idea of using a video game. Respondents continually rave to Flynn about how excited they are that there are people dedicated to this research topic. In May 2010, at the Games for Health Conference, Flynn and other selected experts will be organizing an entire day of games for rehabilitation.

Flynn fondly recalls how being a Foundation funding recipient has set her on this track for her career: “It was my very first step into hardcore research. I’m grateful for the support.” This funding mechanism enabled Flynn to spend more of her time concentrating on her research instead of having to work in the clinic.

“The Foundation and its donors, along with my advisors, really helped launch my career. It’s been really helpful to bounce my ideas off of the other funding recipients as researchers and get feedback from the Foundation’s Scientific Review Committee (SRC). I’m grateful for the opportunities and experiences that I’ve had.”