

# Virtual Worlds as a Healing Modality for Returning Soldiers and Veterans

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**Abstract.** Those who have served in recent conflicts face many challenges as they reintegrate into society. In addition to recovering from physical wounds, traumatic brain injury, and post-traumatic stress disorders, many soldiers also face basic psychological issues about who they are and how to find their place in a society that has not shared their experiences. To address these challenges, we have created a space that provides ongoing opportunities for healing activities, personal exploration and social camaraderie in an online virtual world, Second Life. In such worlds, where each avatar is controlled by a live individual, experiences can be unintuitive, uninviting, considered boring, or difficult to control. To counter this, we are implementing autonomous intelligent agent avatars that can be “on duty” 24/7, serving as guides and information repositories, making the space and activities easy to find and even personalized to the visitor’s needs. We report the results of usability testing with an in-world veterans’ group. Tests comparing soldiers who use this space as part of their reintegration regimen compared to those who do not are being scheduled as part of the Army’s Warriors in Transition program.

**Keywords.** Virtual worlds for healing, PTSD, TBI, Complementary and Alternative Medicine, immersion, interactive agents, agent avatars

## Introduction

Veterans of recent conflicts and soldiers who have temporarily returned from deployment face many challenges when they come home. Not only are they often recovering from physical wounds, they also face psychological issues that may be debilitating. Many of these conditions, such as Traumatic Brain Injury (TBI) and Post-traumatic Stress Disorder (PTSD) may take months to manifest fully, according to recent studies by the Walter Reed Army Medical Center. [1] The Army's Post-Deployment Health Assessment (PDHA) and reassessment (PDHRA) tests, given to soldiers at the beginning and end of a six month period after their return, show that a soldier’s health actually is worse after the six month interval. Yet most soldiers are sent home as soon as their physical injuries have healed.

Many factors inhibit their getting the ongoing help they need, including lack of resources at their home location, perceived stigma for requesting help, and failure to recognize warning signs. What is needed is continued intervention in a form that is safe, enjoyable, and always available.

The rapid explosion of online virtual worlds, such as Second Life® by San Francisco-based Linden Lab, points to a possible solution that can address many of the issues returning soldiers face. Such worlds are persistent and available from the

comfort and privacy of one's home. They can unite geographically dispersed people in a common space, such as unit buddies, or a veteran and a therapist in different cities. They can provide enjoyable activities for those who cannot get out or move about normally. These activities can be both entertaining and healing in nature.

As many virtual worlds are considered overwhelming or boring, a key aspect of this project is providing autonomous virtual avatar agents to assist in the soldiers' successful experience within the space. These avatar agents look and act like knowledgeable guides who can provide information as well as customize the experience for the individual. For example, our first avatar agent walks a visitor through the labyrinth, explaining how it can be used to address issues that person may be experiencing.

## 1. Methods and Tools

To test the efficacy of a virtual world as part of a veterans' reintegration package, we have built a private space in Second Life for this population that focuses on both social aspects of healing and therapeutic activities from the Complementary and Alternative Medicine (CAM) arena. [2] A group of 700 veterans, already formed within Second Life, are serving as our primary usability testers, providing valuable input to the design process. Activities are divided into three categories: social, enrichment and therapeutic.

The center of our social space is *Chicama Lodge* – specifically designed to be warm and inviting, with comfortable seating areas around fireplaces, and two wings with activities such as pool, arm wrestling, and darts. There is an autonomous greeting avatar that is available to the visitors when they first arrive, or that can be approached at any time. This agent can conversationally provide information about what is available in the area.

Enrichment activities include a labyrinth [Figure 2], with an autonomous guide that can be summoned to enable a visitor assistance in the many ways in which the labyrinth can be walked. Among the other enrichment activities planned, we have designed a Warrior's Journey space where a veteran can travel in the shoes of worthy historical warriors, such as the Samurai, or the Cheyenne Dog warriors. This journey takes place within the tower structure pictured in Figure 3. Scenes from the warrior's life are visible along the walls of the curving path inside the tower, with sounds and voice-overs describing the ideals these brave men valued and lived by. At the end of the path is a full sized 3D model depicting a scene from the warrior's reintegration into society, with an autonomous agent avatar that is able to complete the story by talking directly to the participant. We plan to add a question answer function for this avatar in the future.

For the therapeutic aspects, there are areas where veterans can find information and resources on available therapies (in both the virtual and the real world) in a way that is private and therefore mitigates the stigma associated with getting help. For example, through the use of a Second Life HUD (heads up display), data accessed is kept private, with only the individual able to see which topics are being accessed. Two of the initial therapies implemented include Mindfulness Based Stress Reduction (MBSR) and the use of sound and music for healing. These were chosen because the scientific community has validated that these techniques are effective both physically and psychologically. [3,4,5,6,7] We have engaged experts in these disciplines to assist in a design that will be effective within the virtual world space.



**Figure 1.** Inside the central lodge



**Figure 2.** Labyrinth with one form the guide could take



**Figure 3.** The Warrior's Journey tower

## 2. Results

The first usability testing with our in-world veterans' group is providing positive feedback. We are currently setting up further testing at two Army bases involved in the Army's Warriors in Transition program. We expect to yield positive results in the reintegration process for the soldiers who use the space when compared to a control group of soldiers without access. Results will be verified by comparing the scores on the Army's Post-Deployment Health Assessment (PDHA) and reassessment (PDHRA) tests at the beginning and end of a six-month period. It is our hope that this will prove to be a useful tool that aids in the veterans' successful reintegration to the civilian world.

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