

Guest Editorial

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THIS ISSUE OF *CyberPsychology & Behavior* is composed of selected papers from the 1st Annual *CyberTherapy: Advanced Technologies in the Behavioral, Social and Neurosciences* conference. The *CyberTherapy* conference evolved from the Advanced Technologies in Mental Health/Rehabilitation symposium that was held as part of the Medicine Meets Virtual Reality (MMVR) Conference for the past 6 years. Because of the growth experienced by the Advanced Technologies in Mental Health/Rehabilitation Symposium, it was decided that the symposium should be expanded into its own separate conference organized by the Interactive Media Institute, a nonprofit corporation that helps educate the public and disseminate information on the uses of advanced technologies in mental health, rehabilitation, and disabilities and the VEPSY Updated Project. The conference was held January 19–21, 2003, in San Diego, California and was attended by distinguished researchers and clinicians from 13 different countries.

The response to the call for papers for the conference was incredible, causing organizers to extend the conference for a day longer than originally planned. The quality of research was superior, and the topics presented were varied and spanned numerous areas in the virtual reality and mental health field. The array of expertise fostered an environment conducive to active discussion and debate between scientists, leading to a wonderful distribution and sharing of ideas.

The first paper in this issue, by Galimberti and Belloni, is an attempt to develop a new psychosocial model of usability for virtual reality (VR) that will allow general definitions in the context of the VEPSY project by considering areas of VR not yet completely explored from the usability point of view. The model is based on evidence of how people, in specific social situations, are able to solve complex tasks and produce shared meanings while completing these tasks in order to make their actions understandable and successful.

In the second paper, James, Lin, Steed, Swapp, and Slater report on a pilot study concerning the level of social anxiety that can be created within a virtual environment. While using virtual reproductions of an underground train and a wine bar, the researchers inserted avatars with relatively neutral behaviors in the train, and others with more socially demanding actions in the wine bar. The results reveal that social anxiety was created in the wine bar experience, but this anxiety lowered with subsequent exposure.

Next, Sveistrup, McComas, Thornton, Marshall, Finestone, McCormick, Babulic, and Mayhew discuss the effectiveness of the use of VR for rehabilitation as opposed to conventional exercise programs. The paper presents preliminary data from two clinical trials, one for the treatment of shoulder injury and the other to improve balance in patients with brain injury. Though the studies are still in progress, researchers concluded that effective VR-based rehabilitation that is easily adapted for individuals could be used as a supplement or alternative to conventional therapy.

In the third paper, members of the VEPSY project present 6-month follow-up results of their VR Experiential Cognitive Therapy (ECT) treatment for binge eating disorder and compare them to the original results of a randomized controlled trial, which included ECT, Cognitive Behavioral Therapy (CBT), and nutritional counseling groups. Analysis shows that the ECT subjects fared better after 6 months than those in both the CBT and counseling groups.

Following this, a paper by Baumann et al. discusses the development of a VR system of integrated software and hardware for use during fMRI or other neurobiological studies in order to complete scientific research and use in clinical applications. Options for the system allow a head-mounted display, dataglove, simultaneous physiological monitoring, or use within neuroimaging machines such as magnetic resonance imaging (MRI) scanners. Currently,

the software consists of an interactive virtual world of nearly a dozen interconnected environments that the subject can freely navigate. The paper also evaluates the results of a spatial navigation memory task that was performed with the integrated VR/fMRI system, and pilot data show robust activation in multiple cortical areas appropriate to the task.

In addition, DeLeo et al. present a paper on a study that aims to use VR to improve the training of volunteers involved in health emergency situations. The system discussed was designed to confirm health emergency operators' capabilities to adopt correct decision-making procedures, to make optimal use of new technological equipment, and to overcome psychological barriers that may arise in severe crisis situations. The benefits of this program have been verified through the execution of controlled clinical trials.

The next article, by Lee et al., concerns the desire to smoke when exposed to smoking-related cues. It presents a study that tested a VR system for evoking a desire of nicotine, in hopes of extinguishing this desire through repeated exposure. The researchers investigated the effectiveness of the VR system versus photographs. Analysis of results revealed that VR elicits more craving symptoms than the classical devices, implying that VR cue exposure treatment may be more effective than traditional treatments.

LoPioire et al. examine the use of Immersive Virtual Reality (IVR) systems, instead of paper and pencil (P&P) tasks, for the cognitive rehabilitation of dysexecutive syndrome, usually caused by prefrontal brain injuries. It is thought that IVR may produce a more intense sense of presence than classical P&P and flat screen computer rehabilitative tools due to its high realism, creating a more effective treatment. In a pilot study using V-STORE (a new VR-based rehabilitation tool for executive functions), results showed that the immersive group had a significantly higher physiological response during tasks.

The following article is the second wave of results from Optale et al. regarding VR treatment for male sexual dysfunction. Results gathered 1 year after immersive therapy displayed that many subjects retained positive results 1 year post-treatment.

In his contribution, Riva examines ambient intelligence (AmI), a new paradigm in information technology that empowers users through a digital environment that is aware of their presence and is sensitive, adaptive, and responsive. His paper outlines the possible role of AmI in health care by focusing on both its technological and relational nature.

After that, a paper by Schneider et al. examines the effects of VR distraction intervention on chemotherapy-related symptom distress levels in older women. In a controlled study, researchers used a head-mounted display to block negative stimuli during chemotherapy infusion. Results show a significant decrease in anxiety immediately following treatment, but no change in symptom severity. However, evaluation indicated that women thought the head-mounted device was easy to use, they experienced no cybersickness, and 100% would use VR again.

Tarnanas and Adams's article reports on the results of a research project that compared a virtual collaborative environment with a first-person virtual immersion and another with a sound-kinetic virtual representation to the user, and their effect as a stress-coping environment for real-life situations. The results showed that the second group performed notably better in terms of cognitive appraisals, emotions, and attributions in both phases of the study. These outcomes indicate that a virtual collaborative environment seems to be a consistent coping environment, suggesting that a great advantage of the virtual collaborative environment with the behaviorally enhanced sound-kinetic avatar is the consideration of team coping intentions in different stages.

The next paper involves the use of visual stimulation as pain relief for patients undergoing painful leg ulcer treatments. In it, Tse et al. provide the results of a study in which subjects alternated between wearing an eyeglass display with or without images while enduring wound treatment. Results showed a significant reduction in pain during the sessions with images, advocating the use of visual stimulation for pain distraction in such procedures.

A paper by Vincelli, Anolli, Bouchard, Wiederhold, Zurloni, and Riva puts forward a new treatment protocol (ECT) for panic disorder and agoraphobia, which integrates the use of VR and traditional cognitive-behavioral treatment (CBT). Using this protocol, results of a controlled study revealed that both CBT and ECT could significantly reduce the number of panic attacks, level of depression, and both state and trait anxiety in subjects, but ECT required 33% fewer sessions than CBT to produce this result. This data suggests that ECT, through its increased cost efficiency, could justify the addition of VR equipment in the treatment of panic disorders.

In the next article, Walshe et al. present a study that investigates the effectiveness of combining computer-generated environments involving driving games (GR) and a VR driving environment in

the treatment of driving phobia following a motor vehicle accident. Results indicate that half of the subjects became immersed in the driving environments, and those who were completed the exposure program. Post-treatment questionnaires showed significant reduction of anxiety, avoidance, and maladaptive driving practices, indicating a promising future for the use of GR and VR in the treatment of driving phobia.

Finally, this issue ends with a pilot study by Weiss et al. that examines possibilities that VR provides for positive and enjoyable leisure activities for adults with cerebral palsy, potentially leading to increased self-esteem and a sense of self-empowerment in the subjects. Results indicated that participants demonstrated an exceptional degree of enthusiasm during each VR experience.

Be sure to see the next issue of *CyberPsychology & Behavior* for the second half of the selected papers from the CyberTherapy conference. I am sure you will find them just as enlightening as the first. For more information about next year's CyberTherapy conference, please visit www.vrphobia.com/imi. My sincere thanks to all of those who participated and helped to organize this year's meeting.

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