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Virtual Worlds and Well-Being:
Meditating with *Sanctuarium*

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ABSTRACT

This article describes how a growing recognition and desire exists to leverage technology in new ways to achieve increased well-being. However, designing and evaluating technology for well-being support is complex. Using an exploratory formative approach, this study created and evaluated the meditative virtual world *Sanctuarium* to gain a richer understanding of engagement and the human experience of technology-supported meditation. Experienced meditators with no previous use of virtual worlds interacted with Sanctuarium to perform meditation. Meditators described a positive experience and rated it as successful and engaging. Phenomenological analysis provided a rich description of the meditation experience. Participants perceived Sanctuarium as a restorative environment and described the experience as unique but also facilitative, similar to guided meditation. Participants also identified Sanctuarium as a good tool for novices. The aim of this article is to promote more well-being through innovative design and use of technology. Virtual world technology is a prime candidate for this purpose.

KEYWORDS

Engagement, Positive Technology, Technology-Supported Meditation, Virtual Worlds, Well-Being Technology

INTRODUCTION

Meditation is an ancient practice that has become a modern phenomenon. People are increasingly turning to well-being activities such as meditation to relax and relieve stress or to seek balance and wisdom. Pickert (2014) reported on the rising interest and practice of meditation by individuals, organizations, and researchers including the combination of technology and meditation. This combination, or technology-supported meditation (TSM), is the research focus reported in this paper. Study participants interacted with *Sanctuarium*, a meditative virtual world (VW). Innovators in meditation technology predict technology will improve learning and access to meditation (Laurinavicius, 2016).

Sander (2011) reasoned that technology was uniquely situated to increase well-being and promote flourishing in effective, scalable, and ethical ways. Vidyarthi and Riecke (2014) advanced technology as a well-being enabler. A growing recognition and desire exists to leverage technology in new ways to achieve increased well-being (Botella, Riva, Gaggioli, Wiederhold, Alcaniz, & Baños, 2012; Calvo & Peters, 2014; Laurinavicius, 2016; Riva & Gaggioli, 2014). Consequently, researchers and industry have begun studying and creating well-being technologies. Positive technology, and the related concept of positive computing, are newly minted research areas that combine positive psychology and technology (Calvo & Peters, 2014; Riva & Gaggioli, 2014). Positive psychology focuses on

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well-being and the science of human flourishing. Technologies targeted for supporting well-being include multimedia computing, the Internet, custom applications, and virtual reality/worlds (Riva, Baños, Botella, Wiederhold, & Gaggioli, 2012).

The Problem Space

Adding to this context is the unresolved impact of positive technology (Riva et al., 2012) and the open question of the effectiveness of self-managing well-being with technology (Gaggioli & Riva, 2013). While the potential for positive technology has been recognized, designing and evaluating technology for well-being support is complex, multi-layered, and challenging (Botella et al., 2012, Calvo & Peters, 2014; Coyle, Thieme, Linehan, Balaam, Wallace, & Lindley, 2014; Diefenbach, Hassenzahl, Eckoldt, Hartung, Lenz, & Laschke, 2016). Several facets may be involved such as experiential, cultural, social, ethical, and psychological factors. More specifically, although virtual worlds have been identified for, and used in, positive technology applications, measuring and understanding the experience of engagement remains an open question (Jensen, 2012; O'Brien & Toms, 2010; Wasko, Teigland, Leidner, & Jarvenpaa, 2011). Further, using 3D VWs for mind-body activities like meditation has not been systematically investigated (Hoch, Watson, Linton, Bello, Senelly, Milik, Baim, Jethwani, Fricchione, Benson, & Kvedar 2012).

In surveying the literature of human-computer interaction (HCI), virtual worlds (VWs), and information systems (IS), two common themes emerged: the nature of engagement and experiential approaches. Engagement is a critical element in HCI (O'Brien & Toms, 2010; O'Brien & Cairns, 2016), positive computing (Sander, 2011), and VWs (Jensen, 2012). HCI and IS literature emphasizes the need to better understand how humans engage with VWs, information systems, and technology (Boyle, Connolly, Hainey, & Boyle; 2012; Wasko et al., 2011; Yoo, 2010; Zhang, Scialdone, & Carey 2009). Researchers and practitioners are advocating for experience-driven design and third wave HCI that focuses on multi-dimensional, interpretive, situated, and phenomenological aspects. Third-wave HCI goes beyond cognition to include emotions, values, culture, and experience (Bødker, 2006). Experiential approaches will help address the need to advance beyond the instrumental value of technology to how technology can enhance the inherent value of human activities and experience (Bødker, 2006; Hassenzahl, 2013; Yoo, 2010). A combination of challenges in the fields of positive technology, virtual worlds, and HCI bounded the problem space for *Sanctuarium* research.

Meditation and the Positive Technology Framework

The positive technology framework (Figure 1) provided the theoretical lens for studying engagement and experience with TSM in VWs (Riva & Gaggioli, 2014). Meditation may be concisely defined as a concentration-based activity involving self-regulation of attention and awareness associated with well-being and self-actualization (MacDonald, Walsh, & Shapiro, 2013). Self-actualization includes personal growth. The framework blends personal growth and positive change and how technology can support that change. A central tenet is the notion of presence, real or virtual (Riva, 2014). A high degree of presence leads to a more optimal experience which in turn results in a greater likelihood of positive change and transformation. Being present in the moment is a fundamental concept in meditation (Fontana, 2015).

Positive technology theory focuses on leveraging technology to support and enhance well-being. It starts with three well-being constructs - subjective, psychological, and social - then maps technologies to create three levels: 1) hedonic – using technologies to promote pleasure and positive emotions, 2) eudaimonic – using technologies to support engaging and self-actualizing experiences, and 3) social and interpersonal– using technologies to help people socially integrate and connect. *Sanctuarium* is an example of positive technology at the eudaimonic level. It uses virtual world technology to support meditation, a well-being activity aimed at self-actualization.

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