Chapter 11
Capitalizing on Immersive Persistence as an Emergent Design Concept (A Position Paper)

Shalin Hai-Jew
Kansas State University, USA

ABSTRACT

In their evolution, virtual worlds have become more persistent. Their three-dimensional (3D) objects are more easily ported and interoperable between 3D repositories and may eventually be portable between synthetic world systems. If trend-lines continue, these synthetic spaces will become more integrated into the fabric of virtual learning and research, community-building, socializing, and digital information archival. Their continuity-in-time adds fresh capabilities for learning (human actualization, long-term virtual collaborations), digital resource protection (digital artifact preservation, long-term and evolving simulations, virtual ecologies), human relationship management (customer relationship management and branding, digital governance), and information exchange and management (international exchanges, and immersive long-term 3D libraries and knowledge structures). However, this immersive persistence must be balanced against the needs of temporality, transience, and forgetting.

INTRODUCTION

Immersive 3D virtual worlds offer multisensory channels for multi-sensory experiential *being*, which may bypass the critical faculties of people and go right to their lived experience memories. The power of immersion is multiplied through live human-embodied avatar interactivity, which strengthens the experience even further.

DOI: 10.4018/978-1-61692-825-4.ch011

With interactivity, now we have the frontal lobes actively colluding in the project of believing; they are trying to solve some puzzle or talk to some character, which is not only interesting but also eats up still more of the resources that otherwise might go to the job of reminding every other structure in the brain that the whole thing is a construct. This job falls even further into the background due to a number of other features that games and only games have, such as sociality (more on that in a moment), and engagement of

other senses, most especially touch ... Simply put, when a person is immersed in pleasurable game play, the mind has no motivation whatsoever to disbelieve any of the information it is receiving (Castronova, 2007, p. 29).

Adding persistence—the power of continuity—synthetic worlds now offer even more complex functions. With the lowering of the costs of re-acclimation, virtual worlds may strengthen virtual collaborative work and shared creativity. The shift has occurred from tele-immersion to tele-existence.

SYNTHETIC WORLDS NOW

Synthetic worlds and 3D spaces manifest commonly on screen-based media: desktop computers, immersive spaces, and mobile devices, with each manifestation more mobile. They may be accessed through augmented reality spaces, with multiple projector and speaker arrays creating 3D experiences, in fixed (and mobile) physical spaces. Mixed reality then builds on people's "pre-existing knowledge of the everyday" of "naïve physics," themselves, the environment, and other people (Jacob, Girouard, Hirschfield, Horn, Shaer, Solovey, & Zigelbaum, 2008, p. 201). These digital and physical installations—which mix digital analogues of material objects, totally imaginary digital objects, and real-world artifacts and spaces--may be especially effective in dealing with psychomotor, cognitive, affective, social, decision-making, and other skills. "Persuasive" 3D exer-games encourage motor and spatial activities to promote health and exercise and cardiovascular fitness (Nadler, 2008), as well as rehabilitation. There are digital experiences activated through location-sensitive mobile devices for more pervasive and available experiences (Walther, 2005).

Research and development (R&D) have enhanced the fidelity of transitions between the visual and auditory information. There's enhanced localization of sound from 3D environments with "spatialized audio rendering" and place-based effects for immersive virtual environments (Naef, Staadt, & Gross, 2002). Physical classrooms have been set up with virtual environments that are navigable through "3D sound to enhance spatiality and immersion" (Moher, 2006, pp. 692 – 693). Aesthetic information may be sonified with socio-spatial and aesthetic information for multi-sensory communications; socio-spatial information is defined as "3D position, velocity, proximity to particular objects and boundaries) and social behaviour (i.e. the number of people, level of activity, clustering, timing of events)" (Beilharz, 2005, p. 12). The locative value of sound in 3D spaces supports those who are blind get a sense of locations of objects in such spaces (Sánchez & Sáenz, 2005). Fixed spaces may offer the consistency of "place presence" with "realistic context, natural engagement, (and) scaffolding" (Sutcliffe & Cault, 2004, as cited in Steed, 2009, p. 19).

There are virtual experiences enhanced by live digital data feeds, which capture information from the world. Innovations in this area include wearable computing and portable devices for interacting with virtual spaces. Cameras are used toread human gestures as inputs for less device-intensive and more human-natural ways to communicate—with 3D spatial gesture as interaction (Payne, Keir, Elgoyhen, McLundie, Naef, Horner, & Anderson, 2006). Human facial expressions and apparent emotions may also be captureable and put into play in interactions with artificial intelligence robots for more high fidelity interactions. There are ideas for nonverbal dictionaries to help read others' nonverbal body langauge via cameras or avatars, building on facial expression dictionaries (Ammar, Alimi, Neji, & Gouardères, 2004, n.p.). The move towards transparent interfaces lowers the awareness of the mediation of the virtual experience and the reality of the construct.

Haptic or touch channels have expanded for a fuller sense of reality and fidelity, to encour-