Chapter 17
Can Virtual Worlds Support E–Collaboration and E–Commerce?
A Look at Second Life and World of Warcraft

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ABSTRACT
Recent years have seen the growing use of virtual worlds such as Second Life and World of Warcraft for entertainment and business purposes, and a rising interest from researchers in the impact that virtual worlds can have on patterns of e-collaboration behavior and collaborative task outcomes. This chapter looks into whether actual work can be accomplished in virtual worlds, whether virtual worlds can provide the basis for trade (B2C and C2C e-commerce), and whether they can serve as a platform for credible studies of e-collaboration behavior and related outcomes. The conclusion reached at is that virtual worlds hold great potential in each of these three areas, even though there are certainly pitfalls ahead.

INTRODUCTION
Virtual worlds can be defined as environments created by technologies that incorporate virtual representations of various elements found in the real world. Among those elements are virtual human beings with whom one can interact, virtual physical environments that include land and oceans, and virtual objects like chairs and tables. Recent years have seen a growing use of virtual worlds for entertainment and business purposes, and a corresponding growing interest from researchers in the impact of virtual worlds on e-collaboration behavior and outcomes (Bessière et al., 2007; Bonsu & Darmody, 2008; Kock, 2008; Mennecke et al., 2008; Pinckard, 2006; Traum, 2007).

Some virtual worlds, like Second Life attempt to replicate elements of the real world with practical applications in mind (Bonsu & Darmody, 2008; Mennecke et al., 2008). Others, like World of Warcraft, are designed with the goal of making people forget about the real world and become immersed in multiplayer games (Bessière et al., 2007; Pinckard, 2006). Users of virtual worlds, sometimes referred...
to as players or characters, appear to each other as avatars, which are virtual world representations of individuals. Most but not all of the avatars have either human or humanoid form; e.g., a wolf-like creature that walks upright and has hands with opposable thumbs.

The emergence and growing use of virtual worlds begs some interesting questions. Can actual work be accomplished in virtual worlds? Can they provide the basis for trade? Can they serve as a platform for the study of human behavior? This chapter tries to answer these questions. User interface problems are discussed through a retrospective look at the emergence of online learning courseware several years ago and the discussion of analogies between that and the more recent emergence of virtual worlds. Human evolutionary arguments are put forth for the qualification of the potential of virtual worlds to support modern trade. A discussion of pros and cons to conducting behavioral research in virtual worlds is also presented.

VIRTUAL WORLDS

Virtual reality technologies (Briggs, 2002; Pimentel & Teixeira, 1993; Sherman & Craig, 2003) and artificial worlds created by such technologies may seem now radically new and cutting-edge to many e-collaboration technology users. Yet, virtual reality pioneer Morton Heilig developed an immersive virtual reality technology in the 1960s called Sensorama (see Figure 1), one of the earliest examples of this type of technology (Packer & Jordan, 2002; Ryan, 2001). Among other unexpected features for its time, Sensorama simulated odors.

Also, several virtual environments have been conceptualized, designed and used since the 1960s and 1970s for a variety of purposes, notably for online learning. Those early virtual environments were definitely low-tech when compared with more modern ones, and even modern ones present a great degree of variability in terms of their technology sophistication and features offered. Strictly speaking, the courseware suites that emerged in the 1990s to support online learning are in fact virtual environments, but fall short of the features that characterize virtual worlds.

Virtual worlds are defined here as virtual environments that incorporate most of the elements of the real world, even if those elements are presented in a stylized and somewhat unrealistic manner. Thus a virtual world would have a terrain, animated things, gravity, and would impose some laws of physics. For example, users could be allowed to fly in the virtual world without the constraints of gravity; but they could also walk, which requires gravity. Two objects would not be allowed to occupy the same physical space at the same time, which is a common requirement for virtual interaction. And so on.

Many virtual worlds exist that can be used through the Internet, each offering different forms of interaction. The underlying technologies are still evolving. Therefore it is difficult to place virtual worlds into clearly defined categories, and most classifications likely would not be useful.