



Do shy people feel less communication apprehension online? The effects of virtual reality on the relationship between personality characteristics and communication outcomes



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ABSTRACT

This study examines the effect of 3D virtual worlds on an individual's communication experience in comparison with Face-to-Face communications (FtFCs). Using 2×2 posttest only group design where subjects were asked to discuss over a given topic. This study investigated whether individuals' different personality characteristics (i.e. shyness) influence communication experiences (i.e. communication apprehension). The data suggest that shy individuals felt less of communication apprehension during the discussion conducted online than FtFC. On the other hand, FtFC turned out to be more effective in influencing individuals' intention to change behavior compared to virtual worlds. The results suggest that lack of visual/auditory cues in virtual reality is the major factor that influenced the outcome.

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1. Introduction

One of the most prominent benefits of the diversification of communication media is the ability to fulfill a variety of interpersonal preferences (Stritzke, Nguyen, & Durkin, 2004). Prior research suggests that many Internet users choose their media based on their interpersonal motives and strategies as well as any expectations about the probable outcome of communication or interaction (Amichai-Hamburger & Ben-Artzi, 2003; Bardi & Brady, 2010; Joinson, 2004). In other words, individuals now can choose the media that makes them feel comfortable in their communication or complement their lack of communication skills. Therefore, researchers have paid much attention to the relationship between media use/preference and communication personality traits such as shyness and communication apprehension (CA), or self-perceived communication competence (SPCC) (Birnie & Horvath, 2002; Campbell & Neer, 2001; Hertel, Schroer, Batinic, & Naumann, 2008; McCroskey, 1984; McCroskey & Richmond, 1982; Saunders & Chester, 2008; Scealy, Phillips, & Stevenson, 2002).

Previous studies found that individuals having communication difficulties due to their personality characteristics (i.e. shyness) tend to prefer computer mediated communication (CMC) over Face-to-Face communication (FtFC) (Caplan, 2003; Hertel et al.,

2008; Joinson, 2004; Saunders & Chester, 2008; Stritzke et al., 2004). It was also found that people disclose themselves more online and are also willing to disclose less socially desirable information in online communication settings compared to equivalent FtFC contexts (Joinson, 2004). These tendencies have been discussed in terms of the heightened anonymity, and the reduced non-verbal and/or demographic cues that online communication has compared to FtFC (Caplan & Turner, 2007; Witzelberg, 1997; Wright, 2002).

In an effort to further explain these phenomena from media perspectives, researchers have paid increasing attention to virtual reality as well as its multiple factors affecting individuals' communication experiences that are quite different from the real world (Steuer, 1995; Stritzke et al., 2004; Suh & Lee, 2005). However, little research has been conducted on how virtual reality affects individuals and their communication experiences. Furthermore, the relationship between individual personality characteristics (i.e. shyness) and their communication experience through virtual reality, in comparison to FtFC, has very little empirical investigation. Until now, the fact that most of the research on media and personality traits remained in the realm of text-based media calls for systematic investigations on how 3D virtual worlds could enhance or hinder individual communication experiences.

In this study, we examined how individuals' communication experiences are influenced by a 3D virtual world (i.e. Second Life) in comparison with FtFC and whether individuals' different personality characteristics (i.e. shyness) influence communication experiences (i.e. communication apprehension). To identify the effects of virtual reality on the relationship between personality

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characteristics and communication outcomes, we invited individuals to discuss a given topic (i.e. college students' drinking issues) in two different settings; Second Life sessions vs. FtF focus groups. In addition, two major dimensions of virtual reality, perceived feeling of presence and interactivity, were also measured.

1.1. Virtual reality reflected in Second Life

Due to its technological origin as well as its influence in communication, virtual reality has been defined in many ways (Bailenson et al., 2008; Steuer, 1995). From technical perspectives, definitions include "a class of computer-controlled, multi-sensory communication technologies" (Biocca, 1992) or "an immersive, interactive medium that relies on computer-mediated manipulations of the visual, aural, and tactile senses to provide learners with the simulated experience in a computer generated world" (Dennen & Branch, 1995). On the other hand, from a user experience standpoint, some argued that virtual reality is more of a psychological concept rather than a technological variable (Biocca, 1992; Steuer, 1995). For example, Steuer (1995) defined virtual reality as "a real or simulated environment in which a perceiver experiences telepresence." Similarly, Biocca (1992) also defined virtual reality as "an environment created by a computer or other media, an environment in which the user feels present."

Due to the nature of virtual reality that combines technological and psychological factors, virtual reality has been studied with various dimensions such as feeling of presence, interactivity, virtual identity, anonymity, synchronicity, and three dimensionality (Biocca, 1992; Blascovich, 2002; Kioussis, 2002; Lessiter, Freeman, Keogh, & Davidoff, 2001; Li, Daugherty, & Biocca, 2002; McMillan & Hwang, 2002; Steuer, 1995). Among these dimensions, two major dimensions have been studied extensively in explaining virtual reality; feeling of presence and interactivity (Blascovich, 2002; Kioussis, 2002; Steuer, 1995).

One of the central elements constituting virtual reality is the feeling of presence (Bailenson et al., 2008; Steuer, 1995). Although various definitions of feeling of presence exist, the main viewpoint is that the feeling of presence is a psychological construct (Blascovich, 2002) dealing with the perceptual process of technology-generated stimuli (Steuer, 1995). Lombard and Ditton (1997) also define that "perceptual illusion of non-mediation" that occurs "when a person fails to perceive or acknowledge the medium were there.

Comparing virtual and physical environments, scholars show somewhat different perspectives in regards to presence. Blascovich (2002) argues that there is not a significant difference in the level of presence between virtual and physical environments because presence is not total in either environment. Although the more immersive the digital environment may yield a better experience in presence, it is not uncommon for individuals to tune out others even in their physical presence. However, Joinson (2004) argues that social presence in virtual worlds is still perceived lower than Face-to-Face environments (FtFs), and therefore a virtual environment can be a comfortable atmosphere for communication for some people. With the reduced non-verbal and demographic cues, virtual worlds provide sheltering effects to interactants by reducing their social anxiety (Caplan & Turner, 2007; High & Caplan, 2009; Tidwell & Walther, 2002). Therefore, this lower perception of social presence in virtual reality may provide users a sense that the impact of a failure on their self-assessment and communication would be lessened through the lens of mediation, helping individuals from feeling more comfortable in engaging with others, particularly among strangers (Joinson, 2004).

Interactivity is another construct that is closely associated with the feeling of presence (Kioussis, 2002; Steuer, 1995) because it refers to the users' ability to perform and engage in a communication

process (Rafaeli & Ariel, 2007), and also increase their awareness of telepresence (Kioussis, 2002). The definition of interactivity by Steuer (1995) also supports this argument: "Interactivity is defined as the extent to which users can participate in modifying the form and content of a mediated environment in real time" (p.14). Some argue that interactivity is both a media and psychological factor that should be considered in three principle domains: communication technologies, communication contexts, and people's perception (Kioussis, 2002).

In this study, we used Second Life, the best known virtual world which has grown from 2 million residents in 2006 to more than 14 million residents in 2009 (Barnes, 2007; De Lucia, Francese, Passero, & Tortora, 2009). Many potentials of online virtual world have been recognized in the business sectors as well as academic fields. In particular, educators and researchers started to consider this online virtual environment as an effective medium for learning (Bailenson et al., 2008). For example, Harvard University, New York Law School, and National Oceanography and Atmospheric Administration (NOAA) and NASA have richly developed locations in Second Life (Franceschi, Lee, Zanakis, & Hinds, 2009). Educators have been trying to figure out how to motivate students to participate in class, which made Second Life a hot research topic in the education, psychology and communications field.

Studies show that synchronous communication and social interaction supported by 3D virtual environments make a positive impact on motivation and engagement of participants (De Lucia et al., 2009). Also, enhanced communication experience plays a strong role in motivating participants for communication (Zorn, Broadfoot, Roper, & Weaver, 2006). Despite the important influence of online virtual environments on communication efficacy, it has not been thoroughly explicated or studied in the field of communication, specifically as to how communicative experiences could be enhanced by the use of an online virtual environments compared to FtF interactions in general.

1.2. Features and characteristics of Second Life

Second Life has been categorized in several ways due to its various characteristics. From technological perspectives, it is commonly classified as a Multi-User Virtual Environment (MUVE) or Massively Multi-Player Online Role-Playing Game (MMORPG) as a result of 3D graphical environment to allow a large number of simultaneous users to interact synchronously (Salt, Atkins, & Blackall, 2008). However, in terms of the usage, it is also considered as a type of social media such as Facebook and MySpace because Second Life users have the opportunity to meet new people and create new relationships. One of the prominent differences that sets Second Life apart from other social media – which are mostly text-based – is that users are able to shape their own virtual world (Brookey & Cannon, 2009), a pseudo-reality that might be different from or similar to the real world. Second Life's environment resembles the real world in terms of the representation of space and body appearance, but the virtual world also provides users with the experience of a fantasy world such as flying and being transported to a different place.

What made it possible for users to create this virtual world is the richness of the 3D graphical features and the ability for individuals to customize the appearance and behavior of their avatars to interact with the world (Dunn & Guadagno, 2012; Franceschi et al., 2009; Salt et al., 2008). Second Life also provides its users extensive capabilities to create avatars including a broad range of shapes, sizes, colors, and even a gender selection, which allows users to control both of their verbal and non-verbal messages (Bailenson et al., 2008). This added dimension of graphical representation allows people to embody their online identity to represent themselves in a more ideal way (Dunn & Guadagno, 2012).

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