Mirrored selves: The influence of self-presence in a virtual world on health, appearance, and well-being

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ABSTRACT

Though considerable research has investigated spatial and social presence, little research has examined the influence of self-presence in a mediated environment. The present work is an empirical study of the role of self-presence in a social virtual world on individuals' offline health, appearance, and well-being. Second Life users ($N = 279$) completed an online questionnaire about their experiences of presence in the virtual world, the influence of their avatar on their offline appearance and health behaviors, and their level of satisfaction with the relationships they developed online. It was hypothesized that self-presence would be positively associated with avatar influence on health and appearance and that self-presence would render the influence of spatial and social presence statistically non-significant. Additionally, it was hypothesized that self-presence would be positively associated with satisfaction with relationships developed in the virtual world. Support was found for these predictions. Results suggest that self-presence is uniquely linked to the influence of the virtual self on offline health and appearance and is a significant predictor of the development of satisfying online relationships. Individual differences and potential prosocial effects of virtual worlds are also discussed.

1. Introduction

Participation in virtual spaces for work and pleasure has become increasingly commonplace, making the experience of interacting with an avatar highly relevant. Yet, we still know relatively little about how this experience interacting with our avatar shapes our online as well as offline lived experiences. In particular, the psychological phenomenon of self-presence is understudied. For example, recent research provides some insight into the effects of avatar interaction on communication patterns and task performance (e.g., Yee & Bailenson, 2007), gender-related attitudes (e.g., Behm-Morawitz & Mastro, 2009), and health behaviors (e.g., Fox & Bailenson, 2009b; Fox, Bailenson, & Binney, 2009), suggesting that the avatar may influence one's cognitions, behaviors, and well-being. However, this research does not consider self-presence as a factor in explaining avatar effects, nor does it examine the influence of natural social virtual world play with one's avatar on offline health, appearance, and well-being.

Central to the experience with mediated communication is presence, generally conceptualized as psychological (Lee, 2004) and sensorial (Sheridan, 1992) immersion with media. Most relevant to understanding avatar influence on the offline self is the phenomenon of self-presence, or the effect of the virtual self on "the perception of one's body (i.e. body schema or body image),

physiological states, emotional states, perceived traits, and identity" (Biocca, 1997). As is suggested by this definition, it has been theorized that self-presence in a computer-mediated environment influences one's body-related perceptions and behaviors and general well-being, however, few empirical examinations have studied self-presence as a variable, and very little is known about whether and how this influence may occur.

Thus, the goal of the present study was to test the relationship between self-presence and social virtual world (Second Life) users' reported avatar effects on their offline health, appearance, and well-being. Specifically, the unique influence of self-presence (in contrast to other types of presence) on offline appearance- and health-related behaviors is examined, as well as the association between self-presence and level of satisfaction with relationships formed in the virtual world. Existing Second Life users were recruited to complete an online questionnaire about their motivations for participating in the virtual world, experiences of presence in Second Life, self-esteem, body esteem, perceived influence of the avatar on their offline health and appearance, and satisfaction with their in-world (i.e. Second Life) relationships. It was hypothesized that self-presence would be positively associated with occurrence of avatar influence on the offline self and satisfaction with relationships online. Insight into the conditions under which self-presence may be most impactful is offered with the testing of individual differences as moderators of the relationship between self-presence and health, appearance, and well-being.

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2. Background

2.1. Social virtual worlds

At the heart of the present study is the idea of the convergence of one's virtual life with one's offline life through the experience of self-presence with one's avatar. A social virtual world, like Second Life, is a computer-simulated, persistent, explorable, participatory world populated by users who may communicate synchronously and contribute to the creation of the world (Jung, 2011; Pearce & Artemesia, 2009). Unlike gaming worlds (e.g., World of Warcraft), social virtual worlds do not have a game narrative or game goals, although they may offer game-like activities as part of the virtual experience. Some virtual worlds, such as Second Life, allow users to create highly customizable and realistic looking avatars. Indeed, the options for avatar creation in Second Life are extensive, and one is almost only bound by the limits of the imagination. Over 1 million users log onto Second Life each month, and it boasts a $29 million economy (Linden Lab, 2011) in large part due to users' purchases for their avatars. Arguably, Second Life is currently the most technologically sophisticated as well as popular and active social virtual world. This, coupled with the central importance of the avatar to the experience of Second Life, makes Second Life users an optimal population to study the idea of the reciprocal impact of the virtual and offline selves.

In a virtual world, the avatar (i.e. a graphical representation used to represent oneself in a virtual environment) is an individual's embodiment in the virtual space, and a user experiences the world through this extension of their self. In social virtual worlds, "avatars produce a sense of virtual physicality" (Green-Hamann, Eichhorn, & Sherblom, 2011, p. 468). Indeed, Hayles (1999) argues that the virtual is never independent of the body. The body, then, is at the heart of all experiences (both online and offline), and our virtual experiences are grounded in and inextricably linked to our physicality. To varying degrees, this virtual embodiment is meaningful to individuals' offline behaviors and well-being. The avatar links the virtual to the physical body, and, through this interplay of one's online and offline identities, the virtual may become meaningful to the physical body and self.

2.2. Effects of the virtual on the offline self

Keeping Hayles' notion of virtual embodiment in mind, presence with one's avatar may facilitate and be uniquely linked to avatar influence on the offline self. Research (e.g., Fox et al., 2009) confirms speculation that avatars may indeed affect our health behaviors. Further, researchers (e.g., Behm-Morawitz & Mastro, 2009; Fox & Bailenson, 2009a, 2009b) have mapped social cognitive theory onto understanding virtual influence on cognitions and behaviors. From the social cognitive perspective, level of identification with one's avatar helps to explain how virtual modeling (e.g., an avatar exhibiting exercising behaviors) may influence attitudes, beliefs, and behaviors. Related to this approach, Chandler, Konrath, and Schwarz (2009) consider "closeness" with one's avatar as a predictor of the virtual embodiment on online gamers' body image. These approaches generally conceptualize and measure the relationship with one's avatar as one's ability to relate and feel connected to the avatar from a third person point of view.

More than just a media model or a virtual "other" to be observed, the Second Life avatar is virtual embodiment, and it is predicted that the convergence between the online and offline bodies may be influential on virtual world users' care of the body offline. Additionally, the social function of virtual worlds in providing opportunities for the development of meaningful relationships (Gilbert, Murphy, & Clementina Ávalos, 2011) may be facilitated

by users' experiences with their avatars. Relationships formed in-world may provide enjoyment and support for individuals, such that their lives (online and offline) are improved. Thus, the virtual self may have positive influences on a person's well-being in the domains of both mental and physical health. The concept of self-presence, as well as presence more generally, provides explanation for this potential influence of the avatar on social virtual world users' appearance- and health-related behaviors and satisfaction with relationships developed online.

2.3. Presence

Presence may be thought of as "the perceptual illusion of non-mediation" (Lombard & Ditton, 1997) experienced while interacting with a mediated environment. In other words, presence is the feeling of the virtual being real and no longer mediated (Steuer, 1992). This is possible, in part, due to humans' extended consciousness, which allows one to suspend disbelief and experience the virtual as a possible reality (Riva, Waterworth, & Waterworth, 2004). In this study, presence (spatial, social, and self) is conceptualized from a user rather than medium perspective. Presence has been approached as both the technological ability of a medium to provide immersion for its users and as the level of psychological and sensorial immersion of an individual in a virtual environment (Schrader & Bastiaens, 2012). This study adopts the latter approach by considering the individual's experience of presence, rather than the technical features of a medium that may enable presence. Thus, it is assumed that the level of presence will vary by an individual's investment in the virtual experience and ability to become immersed in the virtual world.

Evidence from video game studies suggests that presence is positively related to effects from virtual play. For example, findings from Tamborini et al.'s (2004) study on video game violence reveal increases in aggression following violent/aggressive video game play to be positively related to the gamers' experience of presence during game play. In general, the more present an individual is with the video game play the more likely they are to identify with the characters and to be influenced by their gaming experience (Kiousis, 2002; Pinhanez et al., 2000). In relation to the current investigation, presence provides an explanation for how the virtual self may impact the offline self. Specifically, presence would be thought to increase the potential influence of the avatar on the offline self. Most closely related to the idea of mirrored selves is self-presence, however it is the least studied and understood type of presence one may experience in a virtual world.

2.3.1. Spatial presence

The most commonly referenced and studied type of presence is "spatial," "virtual," or "physical" presence, where one feels like they are "there" in the mediated environment (Tamborini & Skalski, 2006), or physically located in a virtual place. Spatial presence is often discussed in terms of the level of immersion one has in the mediated environment (Biocca, 1997; Schrader & Bastiaens, 2012; Tamborini, 2006). Immersion may be experienced at both the psychological and sensorial levels (Lee, 2004; Sheridan, 1992). Psychological immersion relates to the cognitive and emotional engagement of the individual with the virtual environment, whereas sensorial immersion describes the engagement of the senses (e.g., hearing and sight) in the virtual place. The graphics, sounds, and variety of actions a person can perform in a virtual environment (e.g., a virtual world) may help to facilitate feelings spatial presence (Schrader & Bastiaens, 2012).

The measurement of spatial presence most often includes items about how involving various aspects of the online world are for users and how well users are able to navigate and interact with the online space. Although scholars have a tendency to equate