Defining the virtual self: Personality, behavior, and the psychology of embodiment

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ABSTRACT

Although researchers have discussed the existence of a virtual self, or embodiment of human characteristics within an avatar, little known about how the virtual self influences a player's behavior within a virtual environment. To better understand this relationship, *World of Warcraft* game players were asked to complete personality-rating scales for both themselves and their avatars. In addition, in-world behavior was recorded and then analyzed using a behavioral assessment checklist. Results suggested a relationship between personality and behavior within the domain of agreeableness. Based on these findings, the researchers discuss implications for the construct known as the virtual self, as well as the inclusion of psychological systems design into the overall game design process.

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1. Introduction

Complex, real-time, human interaction is no longer limited by the participants' physical location. More frequently, virtual settings are becoming the locale of choice for people to socialize (Childress & Braswell, 2006; Cole & Griffiths, 2007; Martey & Stromer-Galley, 2007; Williams et al., 2006). Although virtual interactions can take place through a broad range of tools such as email, text, and instant-message or social-networking sites, a considerable number of individuals are turning to virtual environments (e.g., online gaming) for a more complex and interactive experience. This shift in interactivity has had an impact on the popularity of these spaces, as illustrated by the success of *World of Warcraft* and *Second Life*. Collectively, estimates indicate that these two virtual worlds comprise approximately 25 million inhabitants from physical locations across the globe (Blizzard., 2008; Linden Labs., 2008a). For example, residents of the *World of Warcraft* come from eight world regions: US/Canada, Australia/New Zealand, Europe, South Korea, China, Taiwan, Hong Kong, and Singapore, (Vivendi., 2006). *Second Life* draws its community from more than 100 countries (Linden Labs., 2008b).

To access these spaces, participants typically create a digital character called an avatar. However, researchers have begun to question whether the avatar is more than simply a tool that bridges physical and virtual realties. Some have suggested the avatar is an alternate extension of self, similar to the way people manifest public and private personas (Gee, 2003; Reid, 1994; Turkle, 1997). This virtual self is typified by visual depictions of emotions (e.g., smiling), verbal and nonverbal communications (e.g., text chat, hand gestures), and/or avatar actions (e.g., dancing) (McCreery, Schrader, & Krach, 2011). Collectively, these characteristics of the avatar have shifted virtual experience away from traditional human–computer interaction to interaction within the space and among its social actors (Talamo & Ligorio, 2001). It is through this lens that the current study was framed. Its purpose was to explore whether a psychological connection exists between players and their avatars; and if these connections do exist, how they manifest in terms of in-world behavior.

1.1. Avatars and the virtual self

Technological advancements allow users to easily customize their avatars. A player assigns a name to their avatar, defines a broad spectrum of physical characteristics (e.g., gender, skin color and hair length), and typically assigns their avatar to a cultural or species group (e.g., orc, dwarf and human) (Steinkuehler, 2005; Williams et al., 2006; Yee, Bailenson, Urbanek, Chang, & Merget, 2007). These choices help to distinguish inhabitants from one another, even though the avatar may or may not accurately represent the physical properties of the player. As a result, an avatar's physical appearance has become increasingly important, and has fostered the perception that one's digital body is the desired rendition of self (Williams, 2007; Yee & Bailenson, 2007). Many users display their avatars in online public spaces to be admired for their visual trappings of success (e.g., equipment they have

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gained) (Ducheneaut, Yee, Nickell, & Moore, 2006). Further, beauty and affluence not only impact social status within virtual environments (Reid, 1994), but an avatar's general appearance has also been shown to influence a player's behavior within these spaces. For example, Yee and Bailenson (2007) found that the more attractive a user perceived his or her avatar to be, the more likely he or she was willing to be virtually intimate with a stranger.

The ability to select an avatar's characteristics appears to facilitate expressions of self, social status, and intimacy. Researchers have also suggested there are more direct connections between the self and the digital embodiments that participants create. For example, Reid (1994) found that "characters are much more than a few bytes of computer data—they are cyborgs, a manifestation of the self beyond the realms of the physical" (p. 69). Turkle (1997) established that online personas created by participants came to represent an externalization of self. Moreover, even in cases where users created multiple avatars or gaming personas, these were not fragmented or disconnected from each other, but functioned more as pieces of a collective self. Gee (2003) suggested that the virtual self has become a new component of one's overall identity, existing in conjunction with the public and private persona. Similarly, Bessiere, Seay, and Kiesler (2007) found that psychologically well-adjusted inhabitants of the online gaming environment *World of Warcraft* (*WoW*) appeared to model their virtual selves on characteristics of their actual selves. Often, players embody their digital likeness, becoming possessive of their avatar's name (Curtis, 1992), and feeling "psychologically connected to their character, . . . keeping the same one for months or years" (Bessiere et al., 2007). Thus, as Webb (2001) suggested, the constraints of a virtual environment coupled with the typical interactions across systems may better suit the exploration of facets of identity, rather than the creation of new identities.

1.2. Personality

Although there has been considerable speculation about the existence and nature of the virtual self, measuring it as a construct has been somewhat challenging. As a result, researchers have turned to the construct of personality to measure facets of self. A recent review of a personality textbook (Cervone & Pervin, 2008) revealed that there exist more than 15 theoretical perspectives addressing one or more aspects of personality. However, the Five Factor Model (FFM) stands out as the exemplar of personality that coalesces concepts of human universals with idiosyncratic behaviors known as individual differences. The work of Allport and Odbert (1936), Cattell (1943) and Cattell, Eber, and Tatsuoka (1970) led to this classification. Human mannerisms and conduct are characterized as hierarchical (i.e., behavioral domains down through simple traits) and measured in terms of strength (i.e., a bipolar continuum as opposed to dichotomous). Although some of the specific factor labels have changed, the underlying composition has remained stable (John & Srivastra, 1999). The FFM is a taxonomic structure derived from factor analytics consisting of five bi-polar dimensions that categorize the fundamental facets (traits) of human personality. Over time, the FFM has become the primary exemplar for the explanation and prediction of behavior. The acronym OCEAN represents the five domains of personality:

1. Openness (was Culture) – curious, imaginative, artistic.
2. Conscientiousness – efficient, organized, thorough.
3. Extroversion (was Surgency) – sociable, energetic, enthusiastic.
4. Agreeableness – forgiving, warm, sympathetic.
5. Neuroticism – tense, irritable, moody.

Although the FFM is arguably the most comprehensive model of personality, it does have limitations. Numerous issues have been cited regarding the narrow focus of the model, including: (a) the failure to provide causal explanations (McAdams, 1992), (b) lack of account for situational (Mischel, 1968) or motivational influences (Dweck & Leggett, 1988), and (c) the reliance on self-report instrumentation (McAdams, 1992). Even with these limitations, the FFM holds up to scrutiny and transitions well from conceptual to applied settings. It is the only model to date that, when integrated into personality instrumentation (e.g., NEO-PI, NEO-PI-R, NEO-FFI, BFI, TDA), has consistently provided both psychometric (Botwin, 1995; Costa & McCrae, 1992b; John & Srivastra, 1999), and predictive (Digman & Takemoto-Chock, 1981; Wiggins & Pincus, 1989) evidence regarding human personality. An extensive body of work based on this model has substantiated its validity (Costa & McCrae, 1992a) and propelled its application well beyond personality psychology to areas including counseling, clinical psychology, well being, behavioral genetics, and aging. Cross-instrument convergence of short-form inventories (e.g., Trait Descriptive Adjectives, Goldberg, 1992; Big Five Inventory, Wiggins & Pincus, 1989; NEO-FFI, Costa & McCrae, 1992b), in addition to replicated empirical findings across subjects, raters, and data sources (i.e., lexical and questionnaire), have further cemented the FFM as the primary descriptive research model of personality (John & Srivastra, 1999).

However, despite this extensive body of work, a review of the literature found no previous research that examined whether physical-world personality influences virtual-world behavior. As a result, this research was designed to explore the interplay between physical and virtual realities embodied in the virtual self; specifically, merging existing personality research with the virtual world in order to understand interaction within that space. Therefore, the following set of research questions was designed to address the relationship between personality and behavior that can be observed within a virtual environment.

H1. Is there a relationship between an individual's personality and his or her general behavioral patterns within a virtual environment?

H2. How much of one's virtual behavior can be attributed to an individual's personality versus the personality of the avatar?

2. Methodology

2.1. Participants

In order to recruit sufficient participants, an email was sent out to all students and staff at a large southwestern university. Each participant was notified that involvement in the study required playing *World of Warcraft* (*WoW*) with his or her own avatar (i.e., digital embodiment). The selection criteria included player expertise within *WoW*. An expert player was considered to have at least one character that had reached level 80, the maximum level available to players at the time of the study. Due to ongoing changes in the virtual environment, only players who had active accounts were selected.

A power analysis employing Cohen's (1992) methodology for the behavioral sciences indicated that a minimum of 30 subjects (i.e., large effect) was necessary for a sufficient sample to complete the most complex question of the study. Forty participants took part in the study; one (a male White) was excluded due to technical problems with the video. Using the demographic categories defined by the United States Census Bureau. (2000), 34 participants