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The virtual malleable self and the virtual identity discrepancy model: Investigative frameworks for virtual possible selves and others in avatar-based identity construction and social interaction

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ABSTRACT

This article introduces the novel model of "virtual identity discrepancy" as an investigative framework for computer-mediated self-representation and interpersonal communication in avatar-based virtual environments (VEs). Study 1 examined the roles of virtual self-discrepancy and self-presence in intrapersonal virtual identity construction. Study 2 explored the roles of virtual other-discrepancy, social presence, expectancy violation, and uncertainty reduction in animated avatar-to-avatar (AtA) virtual social interaction. Mediation analyses following a bootstrapping procedure indicated that self-presence mediates the relationship between virtual self-discrepancy and flow while social presence mediates the relationship between virtual other-discrepancy and flow. Furthermore, expectancy violation mediates the relationship between self-disclosure and trust in text-based chatting while uncertainty reduction mediates the relationship between nonverbal immediacy and flow in nonverbal communication between avatars.

1. Introduction

Three-dimensional (3D) virtual environments (VEs) are computer-simulated graphic-based interfaces in which users represent themselves via animated *avatars* ("perceptible digital representations whose behaviors reflect those executed, typically in real time, by a specific human being" [Bailenson & Blascovich, 2004, p. 65]). VE users can customize their avatars with various face and body parts. For example, in *Second Life*, the most popular VE, users can construct malleable virtual identities by editing their avatars' eyes, ears, nose, mouth, chin, head, height, body thickness, body fat, legs, and torso, as well as by customizing their attire and profiles. VE users' creative incarnation of the virtual self is closely linked to the concept of identity. Identity construction, in turn, is essential to communication and the evaluation of interactions in VEs (Donath, 1999).

This article presents original theoretical propositions about virtual identity discrepancy as an exploratory framework for studying the dynamics of intrapersonal virtual self-representation and interpersonal virtual communication. Driven by original theoretical foundations, this article reports two empirical studies that leveraged *Second Life* as an innovative apparatus for prompting participants to create their virtual selves and interact with virtual others via metamorphic avatars. The objectives of these two studies were (1) to improve theoretical understanding of virtual self-representation and computer-mediated communication (CMC) in rapidly evolving 3D VEs; and (2) to present the results from empirical investigations of antecedents to virtual identity discrepancy and consequences of versatile virtual identity construction and virtual social interaction via metamorphic avatars.

A recent Hollywood blockbuster, *Avatar*, presents a story in which the human mind is transferred into a genetically engineered body of the Na'vi, a humanoid species indigenous to Pandora. In the movie, the term "avatar" refers to a hybrid entity, grown from a combination of human and Na'vi DNA and remotely controlled by the human mind. This movie touches upon the malleability and multidimensionality of the self-concept by depicting a hybrid form of transformed physical embodiment coupled with disembodied autobiographical memories. This imaginative story about the possible separation between and re-combination of the physical ingredient (body) and mental component (mind) of human identity has enthralled audiences globally.

This fundamental theme of *Avatar* pertains to the strain of research on digital identity construction via avatar creation in technology-mediated environments. The provocative idea of exploring malleable or multiple selves is a radical departure from the notion of an immutable, unitary identity. Creating virtual identities in virtual worlds distinct from the actual identity in real life also touches upon the construction of human culture and the development of identity in social environments (Kafai, Fields, & Cook, 2010). The need to address these emerging and important agendas is an

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impetus for proposing the "virtual identity discrepancy model" (VIDM) that examines the social psychological mechanisms underpinning avatar-based virtual self-representation and virtual communication. To this end, the current article presents two studies that proposed theoretical frameworks about the two levels (*intra*personal level in Study 1; *inter*personal level in Study 2) and corresponding dimensions of identity discrepancy (*self*-discrepancy in Study 1; *other*-discrepancy in Study 2). Each study provided definitions of key terms and basic assumptions of the VIDM and reported empirical support for the theoretical propositions. More specifically, Study 1 examined the roles of self-discrepancy and self-presence in virtual self-representation and Study 2 examined the roles of other-discrepancy, social presence, expectancy violation, and uncertainty reduction in virtual social interactions.

2. Theoretical models of virtual identity construction (Study 1)

2.1. Virtual possible selves and the virtual identity discrepancy model (VIDM)

This article defines the virtual self as "the technology-mediated or mentally processed self present or simulated on computers, computer networks, electronic games, and any other virtual and digital media environments." The self can be viewed as either a chronic and stable identity or a temporarily primed and mutable identity. Markus and Kunda (1986) coined the term "malleable self" to capture this dynamic, multidimensional conceptualization. The malleable nature of the self is germane to virtual self-representation in digital technology-mediated virtual communication including avatar-based electronic game playing, human-computer-interaction (HCI), and computer-mediated communication (CMC)-based virtual social interaction. The *virtual malleable self* is characterized by duality (stability and variability), displaying both chronic identities and temporarily activated states in technology-mediated virtual identity construction and virtual communication. The "working self-concept" is the self-concept that is active at a particular time; it is a subset of the universe of self-conceptions (Markus & Nurius, 1986). Thus, the *virtual working self-concept* is a continually active, shifting array of *virtual possible selves*. An individual's repertoire of possible selves is "the cognitive manifestation of enduring goals, aspirations, motives, fears, and threats" (Markus & Nurius, 1986, p. 954). Virtual possible selves include the good selves, the bad selves, the hoped-for selves, the feared selves, the true selves, the not-me selves, the ideal selves, the ought selves, the individual selves, and the relational selves (Markus & Kunda, 1986) manifested in virtual communication.

Virtual identities in avatar-based VEs are even more malleable because users can dramatically alter their avatars' photographic and behavioral attributes. VE users undergo multiple metamorphoses by transforming various attributes of their avatars such as gender, ethnicity, body shape, face, hair color, and attire. *Second Life* players can even choose to represent themselves with robot, animal, or insect-like avatars, thus incarnating virtual identities beyond simple modifications of anthropomorphic characteristics (Jin & Bolebruch, 2009). These metamorphic avatars function as virtual possible selves (Comello, 2009) in VEs.

Virtual identities entail physical and symbolic dimensions. The virtual physical self involves two different sub-categories: the *embodied* self and the *disembodied* self. The embodied virtual self is composed of physically or visually manifested attributes whereas the disembodied virtual self comprises psychologically imagined or textually described physical attributes of the virtual self. For example, *Second Life* users construct *embodied selves* in multi (graphics/video/audio)-modal self-representation via avatar creation, whereas MUD (Multi-User Dungeon) users construct *disembodied selves* in uni (text)-modal self-representation via role-play at the intrapersonal level. Thus, modality, which refers to the main avenue for sensations, determines the type (embodied versus disembodied) of virtual physical self. The virtual symbolic self involves three different sub-dimensions: *social, moral,* and *competence* dimensions. Via metamorphic avatars, Second Life users present a moral, socially acceptable, polite, or competent virtual self versus an immoral, inappropriate, disrespectful, or incompetent virtual self. For example, avatar users present an immoral self when they deceive and abuse virtual others in social networking or online dating, an inappropriate self when they use profane or violent language at virtual parties, and an incompetent self when they fail at a given task in virtual learning. These variant forms and functions of metamorphic avatars epitomize the malleable essence of virtual identities.

VE users manifest *virtual malleable selves* by modifying physical and symbolic attributes of their avatars, including appearance (Jin & Bolebruch, 2009), social identity (Jin, 2012a), social skills, abilities, and moral standards (Jin, 2011a). To examine the social psychological mechanisms underpinning people's perception of and responses to the virtual malleable self, Study 1 posed the following research question (RQ1): "What are possible *antecedents* to the discrepancy between the actual self and the virtual self?"

This research proposed modality switching as one key antecedent to virtual identity discrepancy. Modality switching refers to the shifting of interactions from one communication channel to another (Ramirez & Wang, 2008). When people migrate from the real world to an avatar-based virtual world, they may perceive a discrepancy between the actual self and the virtual self (i.e., virtual self-discrepancy) in virtual identity construction. Inspired by Higgins (1987), this study conceptually defines "virtual self-discrepancy" as "the extent to which the virtual self deviates from the actual self" within the newly developed framework of the "*virtual identity discrepancy model*" (VIDM). In Second Life, "virtual self-discrepancy" is operationally defined as "the degree to which a user's virtual identity represented in the form of an avatar in the VE deviates from the user's actual identity in the real world." Study 1 posited the following theoretical proposition about virtual identity discrepancy at the intrapersonal level.

Proposition a. In virtual identity construction at the *intra*personal level, modality switching from the real world to the avatar-based virtual world results in a virtual *self*-discrepancy.

Based on this theoretical foundation, Study 1 proposed hypotheses about the roles virtual self-discrepancy plays in avatar-based virtual identity construction (H1, H2, and H3) and empirically tested the hypothesized relationships between virtual self-discrepancy and various social psychological consequences. To accomplish these goals, the second research question (RQ2) was posed: "What are the social psychological *consequences* of a virtual self-discrepancy in avatar-based self-representation?" Study 1 proposed feelings of self-presence and flow as important consequences of a virtual self-discrepancy.

2.2. Virtual self-discrepancy and feelings of self-presence

Feelings of presence reside at the heart of virtual self-representation and virtual communication. Defined as "a psychological state in which the virtuality of experience is unnoticed" (Lee, 2004, p. 32), presence has been investigated as a significant factor in understanding user experience in 3D virtual reality (VR) interfaces (Kartiko, Kavakli, & Cheng, 2010), electronic games (Jin, 2011b), and human-computer-interaction (HCI) (Lee & Nass, 2005). Presence plays an integral role in a variety of virtual interfaces in which users explore virtual environments (spatial