

A Second Life Within Second Life: Are Virtual World Users Creating New Selves and New Lives?

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ABSTRACT

Virtual worlds such as Second Life (SL) are online computer-based world-like spaces, where users assume virtual selves or avatars to interact with others, create objects, and engage in a variety of transactions. This paper examines SL residents' avatars, activities, and the relation between residents' offline characteristics and online avatars and activities. The authors examined whether there was a relationship between residents' identity style and online beliefs and activities, specifically those related to self-presentation and identity exploration via avatars and relationship formation as they are related to one's sense of self. An online survey of 378 SL residents (age range = 18 - 69) was conducted. Respondents were asked to complete an SL survey (containing questions about their avatars, use, and activities within SL) and the Identity Style Inventory sixth grade reading level (ISI-6G). Results suggested that SL avatars were mostly human, and were of the same gender as the residents' offline self; SL activities were similar to every day offline ones. Latent variable analysis revealed that identity processing styles were partially related to beliefs and activities within SL. The study suggests SL residents may not be creating second lives within this virtual world, but are instead bringing elements of their first or offline lives into this online context.

Keywords: Avatars, Identity Construction, Identity Styles, Online and Offline Selves, Psychological Distance, Second Life, Virtual Worlds

INTRODUCTION

The Internet has become an important tool for information seeking, education, interaction

and communication as well as entertainment. Among adults, some popular interactive digital contexts include social networking sites (e.g., *Facebook* and *MySpace*), online games (e.g., *World of Warcraft*), and virtual worlds (e.g., *Second Life*, *HiPiHi*), which are the focus of

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this paper. Virtual worlds are online computer-based environments or world-like spaces, within which users assume new virtual selves or avatars to interact with others, create objects, and engage in a variety of financial transactions (Messinger, Stroulia, & Lyons, 2008).

In the early days of the Internet, scholars and writers speculated that because online contexts make it possible to leave bodies behind (Kendall, 2003; Stallabrass, 1995; Wakeford, 1999), users could create online selves that were very different from their offline ones (McKenna & Bargh, 2000; Turkle, 1997). Quiet, introverted people could become extroverts, the young could act older, and physically less attractive people could assume a physically attractive online persona. The *New Yorker* immortalized these possibilities in a 1993 cartoon that depicted two dogs in front of a computer with the caption "On the Internet, nobody knows you are a dog" (Steiner, 1993). In this paper, we explore the issue of alternative selves within the virtual world, Second Life (SL) - specifically, we document users' activities within SL and then examine the relation between SL residents' offline and online characteristics, beliefs, and behaviors. The results of the study will enhance our understanding of the relation between SL users' offline and online personas and will help to understand the role of virtual worlds in identity formulation.

Second Life

SL was created by San Francisco based Linden Labs in 2003 – like a Massively Multiplayer Online game (commonly called MMOs), it is a three-dimensional virtual world, with grass, trees, skies, and oceans. Unlike other MMOs, SL does not come with designer created content or a story line (Jennings & Collins, 2008) with specific tasks and goals. Instead, users, or residents as they are called, can utilize the tools provided by the developers to create digital objects, places, and other user-generated content such as hair, dress, accessories, and even weapons, as well as interact and communicate with other residents to form a virtual com-

munity. Key to virtual worlds are the online selves or avatars that residents adopt. Avatars are three-dimensional, adjustable, motion-enabled graphical representations, which can be in the form of a human, animal, or mythical creature/character. Once an avatar is selected, an SL resident can further modify his/her avatars by purchasing or making features such as a "skin," which is the skin color and tone of the avatar, hair color, and even the "shape" of their avatar, which includes the height, weight, muscularity, or even bodily deformities. Using pre-determined key strokes, SL residents can make their avatars walk, run, fly, teleport, swim, chat, engage in sexual activities, purchase or lease islands, barter, buy, or sell goods using offline currency or the SL Linden Dollar. The reader can get a good sense of the kind of avatars and interactions that are possible within SL by turning to Figure 1, which presents the picture of a wedding reception that took place after two SL residents, or their avatars, decided to get married in-world while their closest SL friends attended the virtual party.

In 2011, SL was in its 8th year of operation, and was reportedly one of the largest user-generated virtual economies in the world (US \$700-million-dollars) (Linden, 2010; Rosedale, 2010). It appears that some 13 million people have visited Second Life at least once (Dell, 2008) and a quarterly report published by Linden Labs indicated that at the time the data for the report were collected, there were 795,000 repeat logins and residents spent a total of 105 million hours within SL during the fourth quarter of 2010 (Linden, 2010). Although we could not find recent details of user demographics beyond self-reported gender and geographical location, data released by Linden Labs in 2008 suggest 41% are female, 39% from North America, and 32% from Western Europe (Borst, 2009). Virtual worlds such as SL are believed to foreshadow the interactive contexts of the future (Bainbridge, 2007) and thus are expected to expand and grow given their potential to engage, entertain, educate, and support economic activity.

Figure 1. Picture of a wedding reception in SL

Online Selves, Self-Presentation, and Virtual Identities

To study the nature of online selves, we turn to the construct of identity, which is defined as a coherent or unified sense of an individual's self (Côté, 2006; Kroger, 2000). Formulating a coherent and stable identity is an important task that typically begins during adolescence (Erikson, 1959), but continues into adulthood (Côté, 2006; Kroger, 2006). According to Erikson, exploration and experimentation are key elements as adolescents search for their sense of self; friends and peers play an important role in this exploration as they provide support and feedback when individuals experiment and test different aspects of their self definition (Akers, Jones, & Coyl, 1998). Because many online contexts have the potential for anonymity and disembodiedness (i.e., the lack of readily available information about the body, such as age, gender, etc.), the Internet has been suggested as a promising venue for identity exploration, where users can leave their offline bodies behind (Kendall, 2003; Stallabrass, 1995; Wakeford, 1999) and create and experiment with different selves (Turkle, 1997) within them.

In her now famous account, Turkle wrote about a youth, who adopted four different identities in three different Multi User Dungeons (or MUDs): a seductive woman, a "macho cowboy" type, a rabbit of unspecified gender, and

a furry animal. Even in contexts such as social networking sites, where there is less anonymity and where more information about the body is available, users share self information with the goal of influencing what their audience thinks about them (Manago, Graham, Greenfield, & Salimkhan, 2008) and in the process create a narrative about their selves. These are just two instances of the ways in which individuals may negotiate and present aspects of their self while online.

Online selves include both online self-presentation as well as virtual identities (Subrahmanyam & Smahel, 2010). Online self presentation refers to the different ways that individuals present themselves on the Internet to other users. Such virtual representations typically consist of digital data such as a nickname, email address, or even an avatar. In contrast, a virtual identity refers to a user's online identity in a psychological sense and consists of the thoughts, ideas, visions, and aspirations that are attributed to the virtual representation. In other words, it is an individual's online self or persona with both personal and social aspects.

As noted earlier, online self presentation occurs via a variety of online tools such as Usernames, Userpictures, avatars, and even text-based statements (e.g., status updates on *Facebook*). In anonymous online contexts, where basic information about gender, age, and physical appearance is not readily available,

users have considerable choice with regard to the online selves that they create and assume. Nonetheless there appears to be some relation between users and their avatars – among Massively Multiplayer Online Role Playing Game (MMORPG) players, adolescents and adults were more likely to identify with their avatars compared to older adults and often stated that they are the “same as their avatars” (Smahel, Blinka, & Ledabyl, 2008). Much less is known about users’ virtual identities—given that virtual representations cannot really feel or experience anything, it is not clear whether one can even truly talk about virtual identities; even if they did exist, we do not know how stable they are and whether they influence offline identity development (Subrahmanyam & Smahel, 2010). Consequently in this paper we focus primarily on SL residents’ online representations or avatars and their avatars’ activities.

Second Selves Within Second Life?

Although the search for identity begins during adolescence (Erikson, 1959; Kroger, 2003), many young adults are still grappling with aspects of their identities (Cote, 2006). Longitudinal studies have shown that less than half the individuals in late adolescence and young adulthood have actually attained a stable identity (Kroger, 2006, p. 160). There are also indications that opportunities and support for exploration might be less readily available during adulthood compared to the adolescent years. Given these trends, and the fact that virtual worlds make it easy to assume a variety of different avatars, it is important to examine whether virtual world residents actively engage in alternative identity construction. Understanding the relatedness between SL residents’ and the multiple facets of their avatars will help us determine whether individuals take advantage of anonymous, online contexts to create new and different selves, or whether their online selves are more of an extension of their offline selves even within such virtual worlds.

Based on a two year ethnographic study within SL, anthropologist Tom Boellstorff has

argued that for most residents, SL is an extension of their real life (Boellstorff, 2008); he notes that users engage in a variety of real life activities, such as intimate relationships, community development, sexual behaviors, and economic transactions. Boellstorff has suggested that SL is not just a game but an extension of a user’s offline self; “SL is like a stadium - a stadium can contain score keeping games and larger events, but the stadium itself is not considered a game” (Boellstorff, 2008).

Research from other online contexts is relevant to the question of second selves within SL. Users in text-based online chat rooms developed creative ways of sharing their age and gender; for instance, chat nicknames were often gendered and the a/s/l (age/sex/location) code was one of the most frequent utterance in chat rooms (Subrahmanyam, Greenfield, & Tynes, 2004; Subrahmanyam, Smahel, & Greenfield, 2006). A classic paper by Brewer and Lui (1989) showed that age and sex were the primary categories to which people were assigned, and it is very interesting that they were brought to the fore even when users had the opportunity to be anonymous and disembodied within the chat space. Within the anonymous and disembodied space of SL, do residents create avatars that are human or do they take this opportunity to explore different identities and indulge their fantasies by creating avatars that are non-human, robotic, or even from mythical, other-worlds? When their avatars are human, do they resemble them (in age, sex, and appearance) or do they create avatars that are more like an idealized version of who they wish to be? As avatars are virtual representations of online selves, addressing these questions will inform us as to whether users create second selves within SL.

One aspect of SL avatars that we focus on is that of avatar gender. Do residents choose avatars concordant with their offline gender or do they engage in gender swapping, a phenomenon in which an individual’s avatar (or game characters) swaps his/her offline gender roles? Although there has been a lot written about online gender swapping in the press and in the online blogosphere, there has only been limited research on this topic (Bruckman, 1993;

Griffiths, Davies, & Chappel, 2003, 2004; Hussain & Griffiths, 2011; Yee, 2001) and the findings are somewhat disparate. In an unpublished survey study of players of Everquest, a MMORPG, only 40% reported that they had an opposite gendered character, and most of those who did so were male (Yee, 2001). In other studies of Everquest gamers, 16% to 60% reported such gender swapping (Griffiths, Davies, & Chappel, 2003, 2004). Finally, Hussain and Griffiths (2011) have reported gender swapping by 54% of their overall sample of 119 participants surveyed from online gaming forums. All of these studies have been on online gamers and it is unclear how frequent gender swapping will be in a virtual world that does not have the explicit goal oriented features of online games.

Appearance and apparel, which are also closely tied to offline social affiliation and identity construction for both men and women (Frost, 2003; Langman, 1992; Mac an Ghail, 1994; Miller, 1998; Weitz, 1998), may also play a role in the selves that we create online. For instance, MySpace users report that they regulate self-presentation through images and digital impressions (Manago, Graham, Greenfield, & Salimkhan, 2008; Salimkhan, Manago, & Greenfield, 2010). As previously discussed, residents in SL have multiple tools for self-presentation and self-creation; they can modify avatar body shapes, eye color, and hair as if these characteristics were articles of clothing. Through interaction with other SL residents, they can also compare and get feedback about the images they project. In this way, variations in avatar attributes can be 'put on' and 'taken off' to present different, digital impressions of residents' selves.

The Self, Avatar, and the Avatar's Activities

SL residents have a variety of avatars and avatar characteristics to choose from and they are also able to engage in a multitude of social and non-social activities. To understand the relation between an individual's offline self, online avatar, and online beliefs and actions, we start

by considering the activities that they typically engage in within the virtual space. Boellstorff's ethnographic work (Boellstorff, 2008) and reports about the SL marketplace (Linden, 2010) suggests that SL residents engage in many of the same kinds of everyday activities within the virtual space as they do offline, referred to as RL (i.e., real life) in the SL world. However, there is no other empirical research that provides evidence of continuity between residents' SL and "real-world" activities.

To further understand the relation between a user and the activities of his/her avatar, we turn to Sigel's concept of psychological distance, which refers to "a class of cognitive demands that serve to activate a separation of self cognitively from the here and now" (Sigel, 1993, p. 142). According to Sigel, "Irrespective of the context in which it is used, the meaning of distancing is similar, namely, the interposing of physical and/or psychological space between the person and the event" (Sigel, 1993, p. 142). Subrahmanyam and Greenfield (2008) have proposed that the notion of psychological distance between the self and an event is relevant in virtual interactive contexts especially with regard to the distance between users and the actions of their virtual representations such as nicknames and avatars. If there is considerable psychological distance between an individual and his/her avatar, then the avatar may be very disconnected from the self with regard to characteristics (e.g., age, gender, ethnicity), appearance (e.g., skin and hair color), and activities (e.g., shopping, interacting, forming romantic relationships, etc). On the other hand, if there is little or no psychological distance, then one would expect the self and the avatar to be connected in terms of characteristics, appearance, and activities.

Although we are not aware of research that has specifically examined these possibilities, there is preliminary evidence that is relevant to the issue of psychological distance between the self and the avatar. First, it appears that offline nonverbal social norms and activities may persist in virtual spaces. For instance, in an observational study of SL, Yee and colleagues found that male-male dyads had larger interpersonal distances and less eye contact than

female-female dyads (Yee, Bailenson, Urbanek, Chang, & Merget, 2007). There is also a solid body of developmental evidence which suggests that for youth, online and offline worlds are connected in terms of the themes/issues as well as people they connect with (Subrahmanyam, Reich, Waechter, & Espinoza, 2008; Subrahmanyam et al., 2006). Sexuality and identity are major tasks facing adolescents and research indicates that these issues are prominent in a variety of online forums ranging from chat rooms and blogs to social networking sites. Third, it appears that users' virtual bodies can impact their interactions with other avatars in an online world as well as in subsequent offline face-to-face interactions (Yee, Bailenson, & Ducheneaut, 2009). In the Yee et al. (2009) study, participants in an immersive environment were given avatars (either taller or shorter ones) then interacted with a confederate for 15 minutes in the virtual environment and then face-to-face. In general, taller avatars negotiated more aggressively online, and this effect transferred offline as well. Thus, it appears that there may be less psychological distance between users and their online selves than previously thought, and it is very likely that the particular features of an online context as well as individuals' offline characteristics or traits could influence their online selves, in particular their avatars' features and online activities.

To summarize, three-dimensional virtual worlds are increasing in popularity and may very well foreshadow the virtual communities of the future, yet there has been very little research about their residents and their activities. To better harness their potential for education, social networking, and even business (Shore & Zhou, 2009), we need to understand the different activities that users engage in within them, the kinds of avatars they create, and importantly the relation between their offline selves and online avatars and activities. At a deeper level, these issues are relevant to addressing questions about the psychological distance between individuals and their avatars and whether they create new and second lives within virtual worlds such as Second Life or whether they simply bring parts of their offline selves to these online contexts.

THE CURRENT STUDY

To address these gaps, we conducted an exploratory survey study of SL residents to examine the following research questions:

1. What do SL residents do within SL?
2. Are the characteristics of SL avatars related to residents' offline demographics (e.g., age, gender, marital status)?
3. What is the relationship between SL residents' offline selves and beliefs and behaviors within SL?

Using an online survey, SL residents were asked about their RL and SL demographics, as well as SL avatar characteristics, and activities. Additionally, we assessed identity as the offline psychological characteristic; given that online venues provide opportunities for self exploration and experimentation, we wanted to investigate the relation between residents' identity and their online beliefs and activities, specifically those related to self presentation and identity exploration via avatars (e.g., beliefs about avatar appearance and attractiveness). SL activities related to relationship formation (e.g., creating friendships or romantic relationships) were also investigated as they are important to adults, are commonly found within adult online contexts, and are also related to one's sense of self (Cole & Griffiths, 2007; Subrahmanyam, Reich, Waechter, & Espinoza, 2008).

Identity was operationalized in terms of identity style, which is defined as a preference in the social cognitive strategies used to employ or avoid tasks of creating or sustaining a sense of identity (Berzonsky, 2008). The Berzonsky Identity Styles Inventory written at a 6th grade level (ISI-6G) was used since SL residents come from a variety of countries and we wanted a measure that was appropriate to test participants who would likely vary in their level of English skills. The ISI-6G assesses an individual's score on three identity styles – information, normative, and diffuse. The information identity style is characterized by doubts about self-views, interest in learning

new things about oneself, and individuals scoring high on this processing style are motivated by apparent inconsistencies between personal morals or standards and informed feedback. Individuals who score high on a normative identity style tend to automatically internalize and conform to the standards and expectations of significant others. A diffuse/avoidant style is associated with procrastination and individuals who score high on this dimension avoid identity disagreements and decisional circumstances as long as possible.

Based on the research which suggests that there is not much psychological distance between users and their online selves (Subrahmanyam et al., 2006; Yee, 2001; Yee et al., 2007), we expected that residents' SL activities and avatars would be similar and related to offline activities and demographics such as gender and marital status; specifically we expected that gender swapping would not be too prevalent. Additionally, based on Berzonsky's work (Berzonsky, 2008), we expected that participants' scores on the three identity styles would be related to online beliefs (e.g., avatar attractiveness beliefs) and behaviors/activities within SL (e.g., time spent interacting with other SL residents, time spent role playing, etc). Since the normative processing style is associated with conforming to expectations, we expected that participants' scores on the normative identity style would have a direct influence on their beliefs about avatar appearance and attractiveness as well as their beliefs about the importance of particular avatar features/characteristics (e.g., face, clothes, walk, hair, etc) and their SL activities such as interacting with other SL residents and role playing. Since the information processing style is associated with exploration and information seeking, we expected that scores on the information identity style would be related to more time spent socializing with other SL residents. Finally, the diffuse processing style is associated with procrastination and avoidance and so we expected that scores on the diffuse identity style would be related to lower levels of socialization and participation in role play.

METHOD

Participants

Participants included 378 residents (224 females, 123 males, 31 missing or Other) ranging in age from 18 to 69 years ($M = 30.6$ years, $SD = 10.07$ years). Respondents reported living in a number of countries in North America (57%), South America (10%), Western Europe (25%), as well as Asia (7%), and Africa (1%).

Measures

Second Life online survey. This survey was developed by the research team to assess respondents' SL usage and experiences as well as RL demographics. Participants were asked about their SL avatar(s), beliefs about avatar appearance and attractiveness, frequency and intensity of SL use, as well as the SL activities that they engaged in (e.g., building/scripting, grieving or harassing other users, and working role play), relationship (friendships and romantic relationships) formation within SL. Survey questions about SL activities were based on our own pilot works as well as on prior ethnographic work by Boellstorff (2008). The survey also contained questions about their SL and RL demographics such as gender, marital status, etc.

Identity Style Inventory (ISI-6G). Identity style was assessed using the ISI-6G, the Identity Style Inventory (Berzonsky, 1992) revised to a sixth-grade reading level by White, Wampler, and Winn (1998). We chose this version in order to accommodate the more global nature of SL residents, many of whom do not speak English as their native language. It contains 40 statements that participants respond to on a five-point rating scale ranging from 1 (strongly disagree) to 5 (strongly agree). The ISI-6G helps to identify adult respondents' identity styles on two dimensions: commitment and exploration. It yields scores on three identity styles: Information ("I've spent a lot of time thinking about what I should do

with my life”), Normative (“It’s better to have a firm set of beliefs than to be open to different ideas”), and Diffuse/Avoidant (“I don’t worry about values ahead of time; I decide things as they happen”). In the current study, Cronbach’s alpha coefficients for each of the three identity styles were as follows: Information α .66 (11 items), Diffuse/Avoidant α .76 (10 items), and Normative α .72 (9 items).

Procedure

After obtaining approval from the CalStateLA University Institutional Review Board (University name removed for blind review), virtual advertisements were placed in-world or SL job postings and off-world in *Facebook* SL groups and *Craigslist*, a networking site where people can access information about jobs or personal items for sale. The advertisements contained a link to the online survey hosted at *SurveyMonkey.com*; before participants were directed to the study surveys, they had to first sign the informed consent document. Participants then completed the SL Online Survey followed by the ISI-6G; the measures altogether took approximately 30 minutes to complete and participants were compensated 300 Lindens (the equivalent of \$1.50 USD) for their effort which was comparable to the compensation in SL for surveys similar in length to that of the present study. Upon completing the online survey, participants who wished to be compensated were directed to another link where they were able to record the name of their primary SL primary avatar and within 24 hours a research assistant wired the money in-world to that avatar profile.

Scoring

Following the recommendations and directions of the original developers of the ISI, we computed participants’ total raw scores for the three identity styles and then transformed them into Z-scores (Berzonsky & Sullivan, 1992). Such a Z-score transformation helps to reduce multicollinearity and unequal item balance bias,

since there are different numbers of items across the three identity styles. Rating scale scores for each item pertaining to one of the three identity styles were summed and the total raw scores were subtracted by the mean of the identity it was relevant to and divided by the standard deviation for that identity style as well, thus acquiring Z-scores for each identity style for all participants. Although each individual can be assigned to a specific identity style based on their highest Z-score, we treated the Z-scores as continuous and entered them into subsequent analyses. Due to experimenter error, six items were not included in the online survey for the first 232 participants. Therefore, they were excluded from further analysis involving the Z-scores for the three identity styles; for these analyses we only used data from 148 participants for whom we had complete data on the ISI-6G. Means, standard deviations, and correlations for all variables can be found at the bottom row of Table 1; note that means and standard deviations are not presented for the Z-scores on the identity style scales since the mean is equal to zero and the standard deviation equal to one.

RESULTS

SL Demographics and Use

Respondents reported that on average they had spent approximately 13 months ($SD = 12.5$ months) as a SL resident; 58% reported visiting SL on a daily basis and 68% reported that they spent between one to six hours each time they logged into SL. Time spent on SL and frequency of logging onto SL were significantly related ($r = .30, p < .01$). A majority (74%) reported that English was the primary language they spoke; most (67%) also reported using another social network account such as *MySpace*, *Facebook*, etc. In terms of offline marital status, 53% reported being single, 22% reported that they were married, 21% reported being in a serious relationship, and 4% percent reported “other” or had missing data. In-world marital status was as follows: single (68%), married (16%),

Table 1. Means, standard deviations, and correlations for all variables entered in the SEM analysis

Observed variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
n	150	150	150	150	150	150	150	150	150	150	150	150
1. Time spent interacting with others	1	-	-	-	-	-	-	-	-	-	-	-
2. Time spent shopping	.286**	1	-	-	-	-	-	-	-	-	-	-
3. To spent role playing	.187*	.273**	1	-	-	-	-	-	-	-	-	-
4. Self rating of AV's attractiveness	.335**	.287**	.163*	1	-	-	-	-	-	-	-	-
5. Perceived rating of AV's attractiveness by others	.361**	.280**	.148	.721**	1	-	-	-	-	-	-	-
6. Rating for other's AV attractiveness	.345**	.206**	.046	.372**	.533**	1	-	-	-	-	-	-
7. Importance of facial features	.201*	.319**	.213**	.390**	.356**	.251**	1	-	-	-	-	-
8. Importance of Body shape	.140	.345**	.278**	.399**	.388**	.180*	.658**	1	-	-	-	-
9. Importance of clothes	.246**	.333**	.107	.380**	.399**	.183*	.566**	.618**	1	-	-	-
10. Importance of walk style	.175*	.345**	.187*	.384**	.312**	.178*	.501**	.496**	.559**	1	-	-
11. Importance of hair texture/style	.272**	.324**	.185*	.347**	.325**	.257**	.621**	.655**	.738**	.652**	1	-
12. Interact with human AVs	.390**	.268**	-.017	.255**	.388**	.322**	.250**	.233**	.351**	.199*	.306**	1
13. Information Identity z-score	.211**	.101	.010	.143	.183*	.140	.198**	.239**	.225**	.094	.167*	.169*
14. Normative Identity z-score	.197*	.274**	.114	.050	.208**	.159*	.235**	.209**	.167*	.213**	.144	.126
15. Diffuse/avoidant Identity z-score	.017	.096	.153	.094	.010	.005	.022	.048	-.007	.177*	.083	-.070
Mean	4.01	3.28	2.44	4.04	3.97	3.74	3.56	3.79	3.75	3.09	3.64	4.38
SD	.91	.98	1.29	.89	.88	.94	1.07	1.00	1.04	1.15	1.03	.84

Note. Correlations are based on Spearman's rho correlation matrix. ** Correlation is significant at the .01 level. * Correlation is significant at the .05 level.

in a serious relationship (13%), and other or missing data (6%). Spearman's rho indicated a significant relationship between respondents' offline and in-world marital/relationship status (*Spearman's rho* = .32, $p < .01$). Interestingly 79% of single people in RL were also single in SL; however, 52% of those in a serious offline relationship and 48% of those married offline, reported that they were single in SL. In-world self reported gender was as follows; males ($n = 115$) and females ($n = 238$). Spearman's rho revealed a significant relationship between RL and SL gender (*Spearman's rho* = .88, $p < .01$). Only 6% of females and 7% of males reported that their avatar was of a different gender compared to their offline self. For the most part, our sample was well-educated and over half (66%) reported having completed a two-year college, four-year university, professional, or advanced degree.

SL Activities and Avatars

Respondents reported spending most of their time on SL on the following activities; interacting with other users (74%), modifying their avatars (41%), shopping (38%), role playing (27%), working on SL (26%), building or scripting things (22%), combating others (9%), and grieving (defined as harassing other SL users by any means) (3%) (Figure 2). In addition to asking participants to choose from a checklist of options, they were also asked open ended questions about their activities on SL, for example how they choose who to interact with and why they frequent SL. With regard to SL activities, respondents' answers were coded in the following categories: exploring/hanging out, socializing, shopping, work/building, and dancing. The second open ended question concerning how SL users typically choose who to interact with yielded the following explanations: avatar appearance, communication mode (e.g., if they use voice or any text), type of in-world location they are in, and surprisingly personality characteristics (e.g., humorous, politeness, caring, etc.). The final open ended question asked participants why they went on SL and

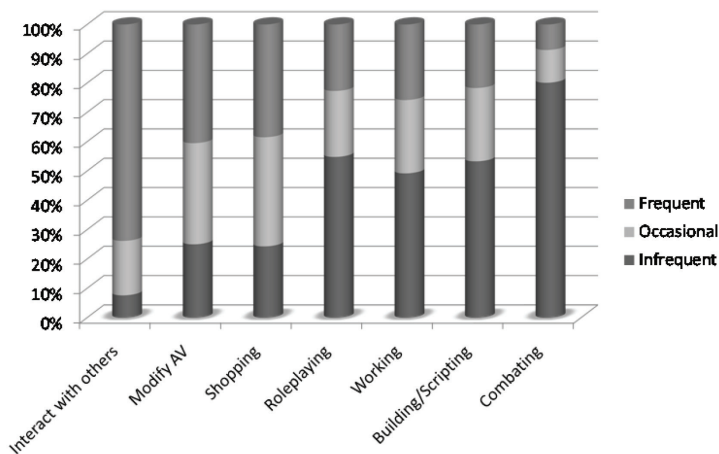
resulted in the following answer categories: socialization (e.g., meet new people), entertainment, learning such as educational activities, SL activities, and alternative to real life (e.g., escape from real life).

Overall, 84% of participants reported their primary avatar was human and 16% reported that their avatar belonged to the "other category" (i.e., animal, fantasy, etc.). A majority (56%) of participants reported that they had modified their avatars to look like their offline selves; 38% had modified the skin color, 32% the body shape, and 38% the facial features of their avatars to look like their offline physical selves. Forty-two percent reported having alternative avatars besides their primary avatars and on average there were two avatars ($M = 2.45$, $SD = 3.58$) per person with most being human avatars. Participants also reported forming friendships (85%) and romantic relationships (50%) with other SL users. Those who reported that they had formed such relationships also reported having at least interacted once with SL users outside of SL (31% online, 16% via phone, and 7% face-to-face).

Identity Style

Gender differences in identity were first examined using one-way between-subjects ANOVAs on each of the 3 identity style Z-scores, with gender as the between-subjects factor. Statistical significance was set at $p < .01$. The results of the omnibus ANOVA indicated that there were no gender differences across all three identity styles [(Information identity style, $F_{(1,150)} = 2.59$, $MSE = .962$, $p = ns$, $n^2 = .02$) (Normative identity style, $F_{(1,150)} = .53$, $MSE = 1.005$, $p = ns$, $n^2 = .00$), and (Diffuse/avoidant identity style, $F_{(1,151)} = .03$, $MSE = 1.004$, $p = ns$, $n^2 = .02$)]. Next, three sets of multiple regression analyses were conducted to explore whether age significantly predicted the three identity style z-scores. The regression analyses revealed that age did not predict the z scores for the information (adjusted $R^2 = 0\%$; $F_{(1,152)} = .06$, $p = ns$) and normative (adjusted $R^2 = 1\%$; $F_{(1,151)} = 1.00$, $p = ns$) identity styles. However, age did account for 6% of the total

Figure 2. Frequency of SL Activities (as reported by percentage of respondents)



variance for the diffuse/avoidant z-scores (adjusted $R^2 = 6\%$; $F_{(1,151)} = 10.62$, $p < .01$). The sign of the regression coefficients ($\beta = -.26$, $t[152] = -3.26$, $p < .01$) indicates that younger respondents had scored higher on the diffuse/avoidant identity style.

Latent Variable Analysis

Questions in the survey about SL user's online activities were created based on our own pilot work within SL and ethnographic work by Boellstorff (2008), which revealed that SL residents engaged in a variety of activities including role playing, socializing with other residents, or shopping; in addition, participants were asked to rate the importance of various avatar features/characteristics (i.e. hair, clothes, etc.: 1 = not at all important, 5 = extremely important), the time spent on specific activities (i.e., role playing, shopping, etc.: 1 = never, 5 = all the time), and the type of avatar they interacted with the most (i.e. human, etc.: 1 = never, 5 = all the time). These items were tested in the model and parameter estimates are presented in Table 2.

Structural equation modeling (SEM) was used in the current study to evaluate the relationships between identity styles and online beliefs and behaviors. More specifically, SEM

allowed us to test the hypothesis that offline identity styles predict online beliefs about avatar appearance and attractiveness as well as SL activities such as socializing or role playing. All analyses were performed using the SEM software *Mplus* 6.0. The Maximum likelihood (ML) estimator was used to accommodate the observed variables as they were treated as continuous since they were scored on a five-point rating scale. To evaluate how well a model fit the data, we used the following goodness of fit indices: the Root Mean Square Error of Approximation (RMSEA) (Browne & Cudek, 1993), the Comparative Fit Index (CFI) (Bentler, 1990), and the Tucker-Lewis Index (TLI) (Tucker & Lewis, 1973), which compensates for complex models and penalizes for freely estimated parameters that do not improve model fit. For the RMSEA, ideal values are $\leq .06$, however values between $\leq .08$ and $\geq .061$ are acceptable (Browne & Cudek, 1993). Values that are $\geq .95$ for the CFI and TLI indices are considered a good model fit although values in the range of .90-.949 are acceptable (Marsh, Hau, & Wen, 2004; Tabachnick & Fidell, 2001).

Multiple fit indices are used when evaluating models in order to account for more conservative and accurate evaluation of a model fit

Table 2. Unstandardized parameter estimates [95% CI] standard error, z-score, and critical value two-tailed test at .05. (n = 146)

<i>Parameter Estimate</i>	<i>Unstandardized</i>	<i>Standard Error</i>	<i>Est./S.E. (Z-score)</i>	<i>p</i>
Measurement Model Estimates				
Importance of appearance → facial features	1.00	.000	-	-
Importance of appearance → body features	.994 [.80, 1.19]	.097	10.201	<.001
Importance of appearance → clothes detail	1.054 [.85, 1.25]	.102	10.329	<.001
Importance of appearance → walk style	1.006 [.78, 1.23]	.113	8.65	<.001
Importance of appearance → hair detail	1.156 [.95, 1.36]	.103	11.264	<.001
Av attractiveness beliefs → Rating of avatar's attractiveness	1.00	.000	-	-
Av attractiveness beliefs → Rating of avatar attractiveness by others	1.091 [.91, 1.28]	.095	11.500	<.001
Av attractiveness beliefs → Rating of attractiveness for other resident's AVs	.789 [.59, .99]	.104	7.619	<.001
Time spent socializing → Time interacting w/ others	1.00	.000	-	-
Time spent socializing → Interacting w/ human AVs	.939 [.62, 1.26]	.162	5.808	<.001
Engaging in role playing behaviors → role playing game	1.00	.000	-	-
Engaging in role playing behaviors → shopping	1.574 [.46, 2.69]	.568	2.772	<.01
Structural Model Estimates				
Normative → Importance of appearance	.145 [.02, .27]	.064	2.270	<.05
Normative → Av attractiveness	.143 [.02, .27]	.062	2.310	<.05
Importance of appearance → Engaging in role playing behaviors	.243 [.02, .47]	.115	2.121	<.05
Av attractiveness beliefs → Engaging in role playing behaviors	.170 [-.01, .35]	.091	1.861	>.05
Importance of appearance → Time spent socializing	.128 [-.03, .28]	.080	1.610	>.05
Av attractiveness beliefs → Time spent socializing	.602 [.40, .81]	.106	5.702	<.001
Av attractiveness beliefs → Importance of appearance	.519 [.32, .72]	.102	5.066	<.001
Residual for Importance of appearance	.486 [.30, .67]	.093	5.229	<.001
Residual for Av attractiveness beliefs	.516 [.34, .69]	.091	5.681	<.001
Residual for Engaging in role playing behaviors	.132 [-.02, .28]	.076	1.742	>.05
Residual for Time spent socializing	.092 [-.02, .20]	.057	1.620	>.05
Note: $\chi^2(58) = 112.378, p < .001$; CFI = .936; TLI = .914; RMSEA = .078 95% CI [.056, .099] $p = .020$				

(Jaccard & Wan, 1996). With regard to missing data, *Mplus* 5.0 and later versions now employ the COVERAGE option used to specify the minimum acceptance level of missing data for each case. In this study, the COVERAGE option was set to 10, implying that if all variables and pairs of variables had at minimum 10% of data missing, then the model would be estimated without the cases that had 10% or more of the data missing (Muthén & Muthén, 2010). Out of the original 156 participants, 149 were used because they had less than 10% of their data missing. Skewness and kurtosis for all observed variables ranged from -1.43 to 1.78, indicating that non-normality of the data was not an issue. Table 1 presents the correlations, means, and standard deviation for all observed variables used in the SEM analysis.

Direct Paths

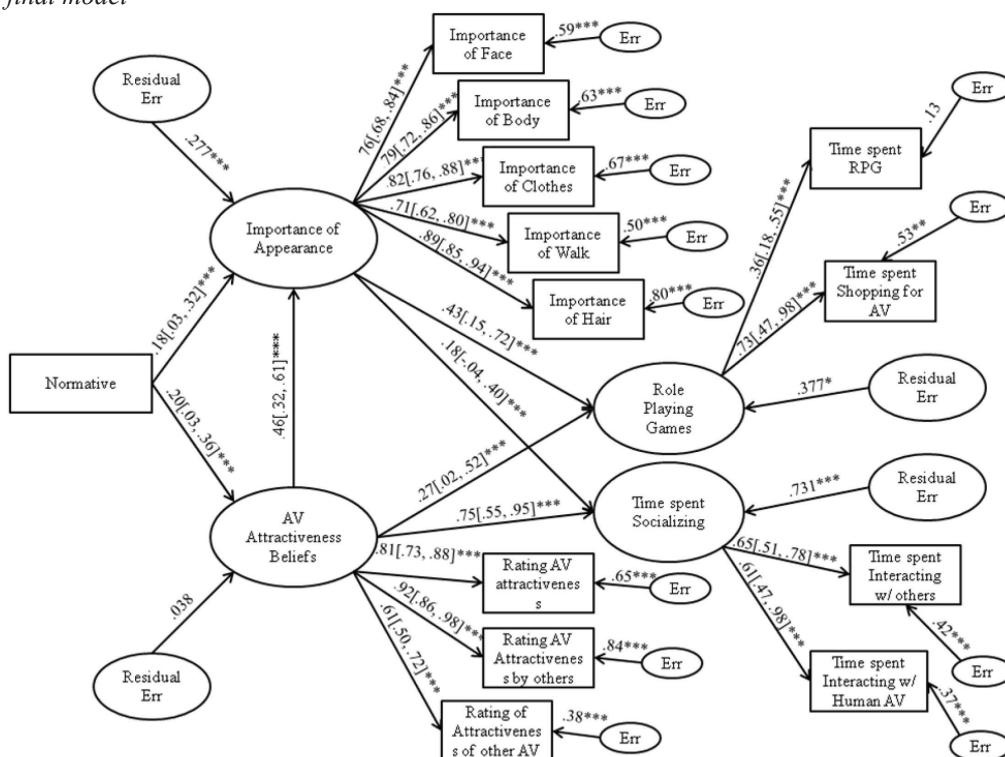
We hypothesized that offline identity development would directly influence SL users' online beliefs and behaviors. More specifically, higher normative identity Z-scores would predict stronger beliefs about the importance of users' online appearance as well as about avatar attractiveness. Normative identity development would also have an indirect influence on time spent socializing and role playing via online attitudes. Higher Z-scores on the information identity style would be related to more time spent socializing with other SL residents. Individuals who score higher on the diffuse/avoidant identity style would spend less time socializing and more time role playing. Age would have an influence on the diffuse/avoidant identity such that older adults will score lower on the diffuse/avoidant identity style.

After evaluating the hypothetical first model based on fit indices, it appeared that the first model did not fit the data well; $\chi^2(94) = 215.03, p < .001$, RMSEA = .093 95% CI [.077, .109; $p < .001$], CFI = .86, TLI = .83. Scores on the diffuse/avoidant identity scale were not a significant predictor of time spent socializing and role playing, and therefore it was dropped from the model. The second model without the diffuse/avoidant identity was slightly improved

but still unacceptable; $\chi^2(70) = 158.22, p < .000$, RMSEA = .092 [.073, .1011; $p < .001$], CFI = .90, TLI = .87. Because socializing regressed onto information identity was not significant, $p < .001$, a third model was employed without the information identity style; $\chi^2(59) = 141.50, p < .001$, RMSEA = .095 [.075, .116] $p < .001$, CFI = .90, TLI = .87. Modification indices (M.I.) suggested that regressing importance of appearance onto avatar attractiveness beliefs would enhance the model and therefore M.I.s were honored. Model 4 fit the data the best; $\chi^2(58) = 112.38, p < .001$, RMSEA = .078 [.056, .099] $p < .05$, CFI = .94, TLI = .91. There were no M.I.s observed for the final model. Unstandardized parameter estimates with 95% CI, standard errors (S.E.), residual variances, estimates divided by S.E. z-scores, and critical values of a two-tailed test at the .05 level are presented in Table 2. Standardized parameter estimates [95% CI], residual, and standard errors for the final model are presented in Figure 3.

The foregoing analyses suggest that identity styles partially accounted for online beliefs and behaviors among our SL respondents. Our hypothesized model was not confirmed and therefore modifications to the model had to be made. More specifically, identity styles such as information and diffuse/avoidant did not have an impact on online behaviors such as socializing with other SL residents and time spent engaging in role playing behaviors. Model two estimated the hypothesized model without the diffuse/avoidant identity style scores and again showed a poor model fit and therefore the information identity style was dropped as well. Model three dropped the information identity style scores; although the resulting model fit indices were improved, modification indices showed that the model would have a better fit if the importance of online appearance was regressed onto avatar attractiveness beliefs. Lastly, model four took into consideration the modification indices results from model three and the model fit the data well. However, beliefs about the importance of appearance did not significantly influence the time spent socializing with other SL residents, $p > .05$, and avatar

Figure 3. Standardized parameter estimates [95% CI], residual, and standard errors for the final model



*** Significant at the .001 level, ** Significant at the .01 level. * Significant at the .05 level.

attractiveness beliefs also failed to significantly influence role playing behaviors, $p > .05$.

Overall it appears that scores on the normative identity style scale were statistically significant in influencing online beliefs. For every one unit increase in normative identity Z-scores, beliefs about importance of avatar appearance increased by .145 units, $p < .05$. Furthermore, for every one unit increase in normative identity Z-scores, avatar attractiveness beliefs increased by .143 units, $p < .05$. Beliefs about the importance of avatar appearance had a positive effect on engaging in role playing activities and for every one unit increase in beliefs about appearance there was a .243 unit change in time spent engaging in role playing behaviors. Moreover, avatar attractiveness beliefs had an effect on time spent socializing. For every one unit increase in avatar attractiveness beliefs there was a .602 unit change in time spent socializing with other

SL residents. Modification indices were used to determine a better model fit and as described before, importance of appearance was regressed onto avatar attractiveness beliefs. For every one unit increase in avatar attractiveness beliefs there was a .519 unit change in beliefs about the importance of avatar appearance. Unstandardized and standardized parameter estimates are presented in Table 2 and Figure 3.

DISCUSSION

Although virtual worlds such as *Second Life* have become quite commonplace, few systematic studies have been done within them. We conducted this exploratory online survey study of SL residents to determine what they do within them, the kinds of avatars they create and present to others, and the psychological

distance between residents' offline selves and SL avatar, beliefs, and activities. Answers to these questions are relevant to the deeper issue of whether adult users in anonymous virtual worlds create second lives that are separate and different from their offline ones or whether they bring parts of their offline lives with them to this online venue.

Given that our study was conducted entirely online (respondents were recruited and completed the survey online), it is important to start by comparing the distribution of our sample with demographic data about SL users (Linden Labs report, 2008). As befitting the global phenomenon that is Second Life, our sample was also an international one and respondents were from all over the world. The distribution of the country of residence that was self-reported in our survey was similar to user demographics reported by Linden Labs—82% of our respondents were from North America and Europe compared to 83% as reported by Linden Labs (Linden Labs report, 2008). Majority of the respondents also reported that they spoke English as their primary language. With regard to gender distribution of respondents, 59% of our sample reported they were females whereas only 41% of SL users are reported to be female. Anecdotal observation and published research suggests that women are often over represented in survey and other studies that draw from offline psychology subject pools and the trend in our own study could be reflective of this general trend in sample composition.

Second Life: Avatars as Second Selves?

As we noted in the Introduction, scholars have touted online venues as spaces where individuals can engage in identity exploration and experimentation. In particular, because users are often disembodied while online, it is suggested that they can leave their physical bodies behind, and create new selves and new lives (Kendall, 2003; Turkle, 1997; Stallabrass, 1995; Wakeford, 1999) while online. Given that identity development continues into adulthood, online

contexts, particularly ones that afford anonymity, might be a perfect venue for adult users to experiment with their online self presentation via their avatars and create new and alternative selves. Consequently, an important research question that motivated this study concerned the relation between SL users and their online avatars and activities.

With regard to SL activities, the most popular activity was interacting with others; less frequent but also popular were modifying one's avatar and shopping. Interestingly, combating residents, grieving (or harming others), and other aggressive activities were not that frequent. Communication and interaction with others has been found to be a dominant use in young people's use of many online applications from chat rooms (Subrahmanyam et al., 2006) to social networking sites (Subrahmanyam et al., 2008) and our results suggest that it may be the case for adults as well. It is equally significant that even within an anonymous context such as Second Life, with its affordance for pretense and some fantasy, the most common activities were interaction and shopping, activities that are a big part of offline lives. Avatar modification is a uniquely SL activity and seems to be a big part of SL life; much of the shopping reported by respondents likely centered on buying accessories for their avatars. Indeed the Lindens that we compensated our respondents were probably utilized to buy items for their avatars. Physical appearance is important in offline life and here we see an interesting example of a familiar activity taking on a new form within the affordances of an online context (Subrahmanyam, 2007).

A majority of the respondents reported that their primary avatars were human. It is remarkable that in a world of seemingly infinite possibilities, most participants reported that their primary avatars were human; 56% even said they had modified their avatars to look like themselves and 38% reported using similar skin color and facial features. Even more remarkably, gender swapping was not very frequent in our sample and was much rarer compared to prior research that has found varying (15.5 to 60%) extents of gender swapping among players of

Everquest, an MMORPG (Griffiths, Davies, & Chappel, 2003, 2004; Hussain & Griffiths, 2011; Yee, 2001). One possible reason for this difference is that most of those who reported gender swapping in the previous studies were male gamers, whereas our sample consisted of many more women. Additionally, games are typically set in game worlds that are based on fantasy; in contrast, virtual worlds are three-dimensional online spaces without a firm story line, and where the emphasis is on creating digital objects and a sense of virtual community. Thus it is possible that gender swapping when it occurs, is more common among males and in fantasy-based settings. Relationship status was similarly correlated between RL and SL, although this was largely because single people in RL were also single in SL; in fact a little less than half of those who reported being married or in a serious relationship in RL reported that they were single in SL.

These results suggest that even within an anonymous context such as SL, residents' avatars and their avatars' activities resemble offline ones. Consider the SL activity of modifying one's avatar; although this latter activity is specific to SL, it is not an entirely new behavior since offline, people spend a lot of time, effort, and money on their physical appearance. Such connectedness has its limits as in the case of residents who reported that offline they were married or in serious relationships, but were single in SL. Our results suggest that online virtual worlds do enable identity construction but not via the creation and experimentation of new and different selves in the manner that scholars had initially envisioned. Instead, the responses of the SL residents in our study suggested they were creating avatars that were similar and connected to their offline selves. Much of the residents' time and efforts were also directed toward refining and modifying their avatars, presumably as a way to obtain feedback and cues from other residents. Our results are consistent with those found in other online contexts, where users similarly seem to engage in online selfrepresentation and presentation (Subrahmanyam & Smahel, 2010). Future

research must directly observe and measure SL residents' offline selves and compare with their online selves to ascertain whether online avatars are authentic, idealized, or even false versions of resident's offline selves. Additionally, we need to understand how such online self presentation and in particular, the feedback from other residents, influences an individual's overall identity development.

Identity Styles, Beliefs about Appearance, and SL Activities

In order to examine the relation between SL residents' offline selves and online beliefs and behaviors, we focused on SL residents' identity styles as well as beliefs about avatar appearance and attractiveness. Identity styles are the preferred social cognitive strategies that individuals adopt to create and sustain their sense of identity. In our sample, we found no age differences in scores on the information and normative identity scales, but age did predict the scores on the diffuse/avoidant identity scale, with younger SL residents scoring higher than older SL residents. This trend is as expected, since it is likely that older individuals are more self-aware and less prone to avoiding self-evaluation. No gender differences were found in the Z-scores for the information, normative, and diffuse/avoidant identity style scales. Previous research in offline contexts has generally found no gender differences in the Z-scores for the information and normative identity style, although males tend to score higher in the diffuse/avoidant identity style (Berzonsky, 1992). It is possible that because of the anonymity within SL, female respondents were more uninhibited compared to offline contexts and thus might have scored higher on the diffuse/identity scale questions (Smahel & Subrahmanyam, 2007; Suler, 2004). More research is necessary to understand whether this is an isolated finding or part of a general trend in the narrowing of gender typing within online contexts.

Our first proposed model of the current study was that offline identities would directly influence SL residents' attitudes and activities

within SL such as the time spent socializing or on role playing games. Our findings partially supported this hypothesis, and only scores on the normative identity scale appeared to predict online beliefs and indirectly influenced online behaviors. Furthermore, higher Z-scores on the normative identity scale predicted SL residents' beliefs about the importance of the appearance of avatars as well as beliefs about the attractiveness of avatars. Note also that SL users' avatar attractiveness beliefs also served as a moderator between normative identity and beliefs about the importance online appearance. Scores on the normative identity style scale indirectly influenced time spent role playing and socializing on SL; this effect was mediated by beliefs about the importance of online appearance and about avatar attractiveness.

In line with our predictions, scores on the normative identity style, which is characterized by the internalization of socially-defined standards and expectations directly predicted beliefs about avatar appearance and attractiveness and through these beliefs was associated with SL activities such as role playing and socializing. It appears that just as in offline worlds, residents in online worlds such as SL might be forming standards and expectations about avatar appearance and attractiveness and the strength of these beliefs predicted time spent interacting and role playing in SL. Our predictions that the information identity style would be related to more time spent socializing and the diffuse identify style would be related to lower levels of socializing and role play was not borne out. Recall that the information identity style is characterized by exploration and self-reflective tendencies and the diffuse identity style is characterized by procrastination and avoidance of self-reflection.

Our results are in partial accord with previous work on identity styles, which has shown that those with diffuse identity styles process and actively explore self-relevant information to a lesser degree than those with the information or normative identity styles (Berzonsky & Sullivan, 1992). Similarly, in our study, although scores on the normative

identity style did relate to self exploration via avatar appearance and attractiveness beliefs, scores on the diffuse identity style scale did not; however, in our study scores on the information identity style scale also did not predict self exploration in SL. One possible explanation for these differences could be that prior work has compared individuals in the three groups of identity styles (using the highest Z-score to place an individual in that identity group), whereas we used the greater power of the Z-scores on the three scales to assess the relation between identity processing style and online beliefs and activities. Regardless, our results suggest that core identity processing styles may be related to online beliefs and activities, but in dynamic ways that are not mirror images of the offline world. More research is needed to clarify the relation between identity styles and SL beliefs and activities.

Psychological Distance Between Online and Offline Selves?

In order to address questions about the psychological distance between individuals and their online avatars, we investigated whether residents of SL create new and second lives online or whether they bring salient parts of their offline selves to this virtual world. Overall our findings indicate that SL avatars are similar to offline selves and provide little evidence that SL residents are actually creating second lives within it. They provide little support for the existence of a psychological divide between offline and online selfhood within SL. Consistent with previous research on chat rooms (Subrahmanyam et al., 2006) and social networking sites (Subrahmanyam et al., 2008), we found that SL residents' offline selves were related to their online selves, and some of their identity processing styles were related to online beliefs, and activities. Contrary to early speculation, they were not creating second lives but were instead bringing elements of their first or offline lives into this online venue. Our results are in line with other findings concerning the relation between users self esteem and their *Facebook*

use (Steinfeld, Ellison, & Lample, 2008) as well as excessive or problematic Internet use (Widyanto & Griffiths, 2011).

Our results are particularly significant because Second Life is a virtual world that allows users complete anonymity, disembodiment, and choice with regard to their self presentation. Remarkably, even within such an unconstrained world, we found several indications for continuity between residents' offline and online selves and activities. Nonetheless, there were limits to this connectedness and our results show that although connected, SL residents' online and offline lives were not mirror images of each other. We should reiterate that we only surveyed residents of one virtual world, and so our findings of psychological connectedness between offline and online selves should not be generalized to other virtual worlds or even other online venues such as games. In fact, unlike online games, virtual worlds such as SL are not set in fantasy worlds, and perhaps their emphasis on creating a virtual community leads to decreased distance between users' offline and online selves. More research is necessary to understand the psychological distance between users, their online selves, and the selves' activities and the factors that may impact this distance such as the affordances of the particular online venue (e.g., anonymity), personality characteristics, and frequency and nature of online activities.

Limitations

One of the limitations of the present study was that all the data (RL and SL gender, time spent on SL activities, etc) were obtained via self-report. Furthermore, because the entire survey was online, we had no way of confirming basic aspects of a respondents' demographic identity such as their age or gender. However, the anonymity and confidentiality provided in an online survey, along with the range and candor of open-ended responses from participants, help bolster our confidence in the information they provided. Researchers interested in future work on this topic should attempt to first recruit

participants face-to-face and then utilize online data-collection methods to better assess the relation between offline and online selves and activities; of course such a recruitment process would also limit the diversity of the sample. Additionally, collecting data in SL at different time points could provide a longitudinal perspective and lead to a better understanding of how SL avatars and activities influence residents' identity development.

The use of self-report measures raises some concerns as such survey data are subject to the problem of participants providing socially desirable responses, memory losses, and other response biases. The online nature of the survey likely mitigates concerns of social desirability since participants had complete anonymity and privacy (Frick, Bächtiger, & Reips, 2001). Another limitation of the current study stems from the use of statistics based on the maximum likelihood paradigm that assumes a large sample. Although our overall sample contained a little over 300 participants, the actual sample for the model estimate was around 150, which is generally considered a small sample for such analyses. As data analysis methods get more diverse (e.g., Bayesian analysis) and more sophisticated software becomes available, researchers will find that small samples are no longer problematic (Muthén, 2010). Regardless, given that our study is one of the first to survey SL residents about their avatars and activities, we feel that our results make a unique contribution and can provide a starting point for future researchers interested in studying the relation between online and offline worlds.

CONCLUSION

The present study provides insight into the growing but little-studied sphere of virtual worlds, their residents and their avatars, as well as the avatars' activities. Our results indicate that SL residents may not be creating entirely new and alternative identities in this virtual world, but instead their online representations were related to offline selves. Although residents'

identity styles were partially related to beliefs and activities within SL, there remain questions about the other factors that might moderate the relation between a psychological characteristic such as identity and specific online beliefs and activities in an online venue. By exploring the connection between SL residents' offline and online selves, our study contributes to the literature on adult identity development and new media and examines the issue of psychological distance (Sigel, 1993) between individuals and their online representations. The study results will hopefully provide a better understanding of the role of an emerging online presence - virtual worlds - in an increasingly technological offline world. Online worlds such as SL have great potential for education, research, health, and intervention (Bainbridge, 2007; Gerald & Antonacci, 2009; Jennings & Collins, 2008; Wu, 2010) and understanding how users present themselves and act within them can help to create more effective tools for educators, researchers, and health professionals alike.

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