Assembled

May, 2012

Volume 5, No. 1

Art by: Elif Ayiter

Volume 5, Number 1
Assembled
May 2012

Who is portrayed in Second Life: Dr. Jekyll or Mr. Hyde?
The extent of congruence between real life and virtual identity

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Abstract

Virtual social environments opened the door to individual experiences that may not be feasible or possible in real physical settings; in turn bringing to question the applicability of certain more traditional theories to digital environments. Addressing some of this gap in the available literature, in the current study, we compare virtual and real life identities simultaneously, as well as explore the impact of self-consciousness on virtual identity. Our results indicate that while some of the overall trends are similar between identities constructed in the physical world and those constructed in virtual settings, different identity elements and dimensions tend to be emphasized to different degrees. Furthermore, we find evidence for the role of private in addition to public self-consciousness as influencing virtual existence. In other words, in addition to the general emphasis concerning the role of socially influenced external elements in the formulation of virtual identities, the current study highlights the importance of more internalized and individual level attitudes and perceptions, including one's inner thoughts, emotions, and perspectives. Implications and future directions are discussed.

1. Introduction

With the early appearance of Multi User Domains (MUD) and the later emergence of various chat programs, social networking sites and virtual worlds, individuals gained ample opportunities to reconstruct their identities on the Internet in unique and compelling ways (Dodge et al., 2008; Aas et al., 2010). The postmodern writers such as Stone (1995), Turkle (1995) and others infatuated by the nuances of cyberspace, all stressed the importance and unique characteristics of virtual environments, with particular attention to their ability to allow their users to experience new self-images, and in turn discover new aspects of their identities. Virtual worlds in particular, where thousands of people can interact simultaneously within the same simulated three-dimensional space, represent a frontier in social computing, with various critical implications for disciplines in the social sciences and humanities (Girvan & Savage, 2010; Guadagno et al., 2010; Landay, 2008; Parmentier & Rolland, 2009).

Launched in 2003, Second Life has become the most well-known amongst all 3D social virtual worlds. In this largely user generated virtual environment, residents can manipulate different aspects of their world (Wagner, 2008). Using codes, they can engage in monetary transactions, buy and sell objects or land in exchange for virtual currency, and make their own attire, or alternatively purchase their own clothes (Bélisle & Bodur, 2010). In terms of social engagements, residents can join group activities, work, explore, play, and interact with other residents in various ways, through exchanging messages, having conversations, and even expressing their own feelings. Members partake in these virtual worlds through their avatars, which are graphical representations of themselves (Kang & Yang, 2006). All features of these avatars can be modified as frequently – or infrequently – as desired by the users themselves.

Given the unique features characterizing virtual worlds, such environments are considered to serve as a particularly fruitful soil for exploring the psychological characteristics of their users (Zhou et al., 2011). In fact, researchers suggested that the appearance and spread of the Internet and its associated technological advancements altered the former conditions of identity construction and development, with the currently available virtual environments opening the door to new identity experiences (Zhao et al., 2008). Initially, mere exposure to these continually emerging and dynamic virtual communities was believed to allow members to start afresh with a 'clean slate' (Turkle, 1994). However, while continuing to recognize the immense freedom associated with virtual self creation in cyberspace, a growing body of recent research suggests that certain offline characteristics may have an impact on this process (Gajjala et al., 2008). For example, some studies highlight the potentially influential role of gender, ethnicity, as well as age on virtual identity formation (Nakamura, 2008).

From a psychosocial point of view, entering into a virtual world, where the *real life* characteristics of individuals (both physical and personal) are not directly evident to others, implies new opportunities of existence, as well as of representation and experimentation with new and different identities (Sutanto et al., 2011; Turkle, 1997;). Residents have the chance to interact with others in a fully disembodied environmental mode that reveals nothing about their real life physical features, allowing them to overcome potential perceived obstacles (Blanchard, 2008). Even in situations where the audiovisual mode is utilized in online contact, anonymity can be maintained through withholding information about one's personal background and details (Zhao et al., 2008). This combination of disembodiment and anonymity provides a technologically mediated environment in which a new mode of identity formation becomes possible; one that tends to be referred to by the term 'virtual identity' (Bargh et al., 2002; Yee & Bailenson, 2007; Yee et al., 2009).

Based on the care and attention required and exercised on behalf of users to establish their virtual presence, an interesting question arises; namely, what is the relationship between real life and virtual identities, and to what extent are they congruent with one another? Are virtual identities simply enhancements of real life identities, or are they fundamentally different? An interesting metaphor emerges based on the original work of Robert L. Stevenson, frequently cited to reflect upon the simultaneous existence of two or even more distinct personalities within the same individual. In his novel 'Strange case of Dr. Jekyll and Mr. Hyde' first published in 1886, the author presents a fictional story in which the protagonist, Dr. Jekyll suddenly discovers that his body has been populated by a personality, whose mindset and behaviors differ radically from his own attributes. This book was the first of its kind to trigger a new stream of thought, according to which personality is not necessarily made up of one, but many different selves, each of which may be associated with different motivations and emotions. Applying this logic to the concept of virtual worlds, using Dr. Jekyll as a symbol of real-life identity, and Mr. Hyde as a symbol of virtual identity, how can these two forms of identities be compared to each other?

In the current paper, we aim to address some of these questions, by empirically exploring the relationship between real life and virtual identities among a group of Second Life users. Our purpose is two-fold: on the one hand, we intend to explore general characteristics of virtual identity, with particular attention to comparing it with real life identity. On the other hand, we wish to examine the potential influence of self-consciousness on virtual identity formation. Through analyzing the processes associated with users' self-consciousness, both in terms of their public and their private selves, we may begin to understand some of the ways in which individuals experience and relate to their virtual identities.

2.   Identity formation and self-consciousness in real life settings

The general notion of identity refers to the conceptualization and expression of one's individuality as well as social attributes (Leary et al., 1986), and has played an important role in the field of humanities and social sciences for the past decades (Stryker, 2007). Traditional theories of identity development date back to the 1950s, and were founded on the view that identity formation is a linear process; one that tends to proceed through a predictable set of stages. Furthermore, it has been suggested that once an individual's identity is established by a certain point of his or her life, change and substantial modification becomes quite difficult and unlikely (Erikson, 1950; 1968). In this sense, identity is achieved and maintained via a steady progression through certain stages, each time incorporating relevant social stimulus from the individuals' environment (Marcia et al., 1993). Through this process, identity becomes continuously enhanced and enriched with new elements, as individuals engage in the quest to find answers to the question: '*Who am I?*'.

The complexity inherent in the process of identity development tends to be further elevated by the uneven progression between the stages as a function of different degrees of awareness. Some theories attempt to capture this complexity by viewing personality as a multi-faceted phenomenon, composed generally of two separate entities: the self as the 'known' and the self as the 'knower' (James, 1890). When considering the 'known' or as otherwise referred to 'phenomenal' part of the self, three distinctive yet interrelated aspects emerge. Namely, the material self, incorporating material possessions and the human body; the social self, integrating social relations; and the spiritual self, capturing emotions associated with one's own subjectivity. Within this framework, human identity is generally considered to contribute to the 'known' part of the self, justifying its systematic exploration using a combination of distinct yet complementary components.

A more recent extension of this line of work assigns a unique and comprehensive structure to identity: one that integrates certain aspects of an individual's self, incorporating personal, relational, social and material elements (Vignoles et al., 2011). Personal identity captures a relatively stable set of traits, goals, beliefs and values that individuals ascribe to themselves (Hagger & Chatzisarantis, 2006; Marcia, 1966; Waterman, 1999), ultimately contributing to their global life story (McAdams, 1985). Relational identity encompasses those roles that are revealed through various social interactions (Bamberg, 2004), and which are constantly influenced by social feedback (Sluss & Ashforth, 2007). Social identity emphasizes the importance of group membership based on a variety of factors, such as ethnicity, religion, nationality, gender, or family, all of which shape the self-concept of the given individual (Tajfel & Turner, 1986; Taylor, 1997; Segal, 2010), and may require various extents of conformity to certain group norms and expectations (Gergen, 1991; Gordon & Gergen, 1968; Tajfel & Turner, 1979). Finally, material identity refers to the material extension of the self (Mittal, 2006), and builds on the extent to which individuals attribute meaning to specific material objects such as clothes, property, or even places (Shankar et al., 2009).

Understandably, these four identity components characterize human behavior to a variable extent, depending on various circumstantial as well as motivational factors. In order to understand which particular component of identity manifests itself at a given time, the role of self-consciousness needs to be examined, as a potential underlying influential factor (Cheek & Briggs, 1982). Based on the work of Scheier and Carver (1985), there are two relatively distinct types of self-consciousness: private and public. Private self-consciousness refers to an individual's tendency to examine his or her inner emotions, beliefs or thoughts, as well as various other hidden aspects of him or herself. Public self-consciousness, on the other hand, is considered to be a tendency associated with the social qualities of the self, such as an individual's appearance, mannerisms, style, and other externally decipherable characteristics. According to Buss (1980), private and public self-consciousness can be triggered through a different set of stimuli. More specifically, the act of writing a diary or doing meditation, for instance, enables individuals to focus on their inner thoughts and emotions, in turn activating their private self-consciousness. In contrast, public self-consciousness by default requires a real or at least anticipated audience, in that it tends to be triggered by the presence of other individuals, or by the perception of social feedback elicited through certain relevant objects, such as a camera or a voice recorder.

In summary, individuals may either become aware of the overall direction of their thoughts and emotions, in line with their private self-consciousness, or identify themselves as social objects, and correspondingly trigger their public self-consciousness. In addition to the private and public elements, previous research suggests a further component of self-consciousness, namely social anxiety, referring to emotional discomfort occurring in certain social encounters and interactions. The main difference between social anxiety and the normal level of unease associated with certain social situations is that social anxiety entails an element of intense apprehension; one that tends to be manifested in those social interactions that are unfamiliar or in which individuals may be evaluated by others. In some cases, the associated emotional discomfort is so intense, that the particular social encounter, or often even the mere thought of engagement, may leave individuals with such heightened levels of anxiety that they decide to avoid these instances entirely. While this last component is not of central focus or relevance to the current paper, it is nevertheless important to mention, in order to ensure sufficient clarity concerning the meaning of public self-consciousness.

In terms of the general role of self-consciousness, previous research highlights two essential influences. First, self-consciousness has been attributed a role in maintaining the integrity of an

individual's identity, or in other words, the feeling that a given person remains the same individual through the passing of time. Second, self-consciousness has been said to contribute to the crystallization of competence as well as independence; referring to the fact that individuals are living organisms who are able to initiate changes and modifications in their environments (de Vignemont & Fourneret, 2004; Kircher & David, 2003). Overall, public self-consciousness has been shown to correlate more strongly with the social aspects of identity, while private self-consciousness has been shown to correlate more strongly with the personal aspects of identity (Cheek & Briggs, 1982), highlighting the importance of attention and motivational processes relating to one's identity. In other words, self-consciousness appears to act as an organizational force that systematically influences the ways in which individuals perceive certain aspects of their identity, along with their degree of focus.

So far, we have focused our attention on reviewing the relevant literature associated with identity development and the role of self-consciousness in the real physical world. Although the point of origin may be the same when considering identity development in virtual settings, the overall processes and available options, as we illustrate below, are likely to differ. In the following section, we turn to exploring some of the core elements associated with virtual identity, with particular attention to a comparison with the concept of 'real life' or 'first life' identity.

3. Identity formation in virtual worlds

Virtual worlds encompass a variety of unique characteristics that allow their users to engage in various activities and experiences that may not be feasible or possible in real world settings; including potential experimentations with new and different identities. First, virtual interactions are synchronous, taking place in real time, and thus provide the notion of persistence (Damer, 2008). Second, virtual environments can be considered as so-called 'third spaces' (Oldenburg, 2000), in that they differ substantially from an individual's regular place of existence – such as his or her home – in physical settings, and as such offer neutral grounds for the purposes of socializing and experiencing unique and distinct realities (Spence, 2008). And third, virtual worlds and other three dimensional environments are able to induce a particularly strong sensation of presence, even when compared with two dimensional spaces (Pan et al., 2006).

Virtual worlds allow their users to present themselves in any way they wish, and create different identities to suit a variety of purposes (Bloomfield, 2009; Becerra & Stutts, 2008). Generally speaking, the virtual identity either chosen to represent, or used to redefine a real-life personality, tends to embellish what the given individual already possesses, aspires to have, or desires to be (Marcus et al., 2006). Furthermore, according to Zhao (2005), virtual identity can be characterized by two distinct processes; on one end, the presentation of an individual's self, and on the other, the overall concept of an individual's self within cyberspace. The vast majority of the currently available literature tends to focus on studying the presentational nature of virtual identity, while paying little attention to its conceptual structure (see also Zhao, 2005).

Nevertheless, the existing research concerning the latter conceptual direction can be characterized by two empirical approaches. On the one hand, when considering their theories associated with cyberspace, academics such as Turkle (1995), Stone (1995), and more recently Garvey (2010) tend to place a strong emphasis on the innate ability of virtual worlds to provoke identity fragmentation in a culturally acceptable way. Consequently, by entering a virtual environment, individuals are enabled to experience multiple identities governed by different roles and respective behaviors. A particularly important point to mention is that in contrast to Multiple Personality Disorder (MPD), for example, virtual world residents can achieve and maintain multiple self-representations, without associated

classifications of pathological dysfunctions. On the other hand, a separate group of scientists tend to highlight the social aspects of virtual identities associated with ideal and possible self-images (McDonald & Kim, 2001; Sung & Moon, 2011; Sutanto et al., 2011), and with a variety of different drivers and motivations (Zhou et al., 2011; Yee, 2006). From this perspective, virtual identities can be viewed as social entities that reflect upon the users' needs to be connected with others and to be surrounded by individuals within the same virtual space. In this sense, virtual identities may echo certain desired roles, such as being a 'popular party goer' for one person, or 'engaging in a romantic relationship' for another.

From a more procedural and mechanistic point of view, identity in virtual worlds is composed of two elements; including one's avatar or in other words graphical representation, and profile or in other words textual representation (Boelstroff, 2008; Merola, 2010). When creating their virtual selves, users embody their identities through the construction of their avatars, with the intention to achieve their claimed personality (Ayiter, 2010; Yee et al., 2009). Through their profiles, individuals can share additional information regarding their interests or beliefs, further emphasizing the social aspects of a given identity. Furthermore, the assumed 'virtual identity' can be temporary, lasting for the period the user is online with that particular identity, or permanent, with the virtual identity staying active or mute in the online network (Tanis & Postmes, 2008). In order to facilitate the overall flow of communication and interactions, and to be recognized by others as a specific identity, virtual identities need to be presented and acknowledged as unique forms, with their own textual and graphical representations (Suler, 2002; Williams, 2008). This implies that users have a variety of decisions to make when establishing themselves in virtual settings (Kim, 2009).

In summary, virtual identity is a multi-faceted phenomenon, and in addition to the avatars and profiles, it also tends to reveal aspects concerning the general sense of self established by the individual in the given virtual community. Considering the complexity of the underlying and entirely user generated process, virtual identity may in turn assume certain structures that are different from identities formed in real life settings. An important point should be highlighted and emphasized with respect to the fine distinction between one's 'virtual' and 'real life' existence. Understandably, this line between 'virtual' and 'real' has become blurry due to recent technological developments. Nevertheless, virtual identities cannot be considered 'fake' to any extent, as in fact they may be considered more real for certain individuals than their physical existence (Messinger et al., 2008). Instead, these constructs are created under special circumstances intended for individuals to present themselves in virtual environments that are governed by conscious and unconscious desires and needs (Jovanova et al., 2009). At any rate, given the complex nature of virtual worlds compared to the real physical world, analyzing the structural components of virtual identities can be particularly interesting and important, in order to map the elements of virtual self-representation. Moreover, studying the effects of self-consciousness on virtual identity formation may enrich the literature with useful insights for further conceptual clarification.

In the current study, building on the above literature, the following research questions will guide our analyses and further work, using the above mentioned metaphors of Dr. Jekyll and Mr. Hyde to represent offline and virtual identities.

RQ1: How congruent are profile characteristics of avatars, in terms of certain demographic attributes, such as age and gender for instance, with real life personalities? Furthermore, does virtual identity differ from real life identity along the primary structural components including the personal, relational and social identities?

RQ2: How does self-consciousness, as differentiated to private self-consciousness, public self-consciousness, and social anxiety, influence real and virtual identities?

4. Methodology

4.1   Participants

Data for the current study was obtained within the virtual world of Second Life, during the first two weeks of May, 2011. Residents were invited to participate in the study using the platform of a certain Second Life related blog called New World Notes, and were asked to complete an online survey. Respondents received 250 Linden Dollars (approximately 1 US Dollar) for their participation. All data were handled anonymously and confidentially. No partial responses were considered. The total sample consisted of 153 residents, between the ages of 18 and 73, with an average age of 40.8 years. Participants were predominantly from North America (59%) and Europe (32%), and a few representatives from Asia, Australia, and South America. Males and females were represented equally. In terms of professional composition, 26% worked in the IT / Engineering field, 10% in business, 10% in academia, 6% in healthcare, 13% held creative professions, 13% held administrative posts, 7% were students, another 7% retired, and the remainder 8% indicated to be unemployed. All but 19% of the respondents had college level degrees or higher, with 31% holding advanced degrees. 61% of the respondents were regular visitors in Second life (i.e., at least once a day).

4.2   Measures

Aspects of Identity Questionnaire (AIQ-IV): Real life and virtual identities were measured using the Aspects of Identity Questionnaire (AIQ-IV, Cheek et al, 2002), with a slightly modified version adapted to Second Life. Measures were rated using a 5-point Likert scale, ranging from '*Not important to my sense of who I am*' (1) to '*Extremely important to my sense of who I am*' (5). The questionnaire consisted of 35 items across 4 Identity Orientation, namely *Personal Identity Orientation* (10 items, sample item: 'My personal values and moral standards'), *Relational Identity Orientation* (10 items, sample item: 'My relationships with the people I feel close to'), *Social Identity Orientation* (7 items, sample item: 'My popularity with other people'), and *Collective Identity Orientation* (8 items, 'Being a part of the many generations of my family'). AIQ-IV distinguishes collective and social identity orientation, with the two constructs loading on different factors (for further details see also Cheek et al, 2002). Respondents were asked to fill out the questionnaire on two occasions: first, in reference to their real life identities, and, second, in reference to their virtual identities. Please note that while contemporary theories on identity often encompass material aspects as well, for the purposes of the current research, given our overall concentration on extent of congruence between real life and virtual identities, we focused exclusively on the other components.

Self-consciousness Scale: The Self-consciousness Scale was used to measure levels of private and public self-consciousness and social anxiety (Scheier & Carver, 1985). Measures were rated on a 4-point Likert scale, ranging from '*not like me at all*' (0) to '*a lot like me*' (3). The scale consisted of 22 items along three dimensions; *private self-consciousness* (9 items, e. g. 'I am always trying to figure myself out'), *public self-consciousness* (7 items, e. g. 'I am self-conscious about the way I look'), and *social anxiety* (6 items, e. g. 'I get embarrassed very easily').

5. Results

5.1   Real Life and Virtual Identity (Research Question 1)

In terms of gender, the majority of participants assigned their avatars' gender to be the same as their own, with only 13% choosing the opposite sex. In terms of age, 41% of participants indicated their avatar's age using Second Life time, 26% claimed the same age for their avatars as their own in real life, and 28% indicated that their avatars were younger than their real life age. Some participants were surprised by the question inquiring about the age of their avatar, or claimed not to have given this matter much prior thought. Interestingly, some respondents, while indicating their own real life age for their avatars as well, added a disclaimer that their avatars looked a lot younger. Some referred to the avatar's age using a wide age bracket (25-72), and some others used the term 'ageless' or 'young' in their response. With respect to the frequencies of profile changes, the majority of respondents indicated barely ever (25%) or only infrequently (38%) changing their avatar's profile characteristics, while others appeared to make changes on a monthly (10%), weekly (16%), or even on a daily basis (11%).

The fair amount of congruence between offline and virtual selves in terms of basic attributes such as gender and to a lesser extent age is interesting, indicating that the majority of the individuals tend to use their offline selves as the starting point when creating their virtual self-representations. The construct of 'age' seems to be a slightly more complex and variable concept, showing consistency with offline age for some users, some extent of deviation towards youth for others, and perhaps most interestingly, having a clearly marked commencement using Second Life time, often with complete precision and accuracy in the reference. While far reaching conclusions cannot be drawn on the basis of these findings, interesting patterns may emerge regarding the extent to which individuals view their avatars as an extension of their offline selves, or as quite separate entities. Finally, the apparent consistency and stability in the established profiles may indicate that once individuals create their virtual selves, they prefer to keep the core elements of their identities constant, with relatively small amounts of variation.

Figure 1 presents the average identity scores along each of the four subscales, separately for virtual as opposed to real life identities. Based on this figure, it is clear that the order of influence in terms of identity orientation appeared to be the same in the case of both first life and second life identities. More specifically, personal and relational identities appeared to be the most important contributors to one's identity, followed by social identity, and then finally collective identity. What is particularly interesting, going beyond the group averages, is to examine the paired differences between virtual life and real life identities. In order for this, a series of four paired samples t-tests were conducted. Difference scores were computed by subtracting each participant's virtual identity scores from their corresponding real identity scores, separately for each of the four identity orientations. The results indicated statistically significant differences with medium to high effect sizes in all four dimensions; in personal ($t(152) = 6.11$, $p<.001$, Cohen's $d=.50$); relational ($t(152) = 5.76$, $p<.001$, $d=.47$); social ($t(152) = -5.34$, $d=.43$, $p<.001$); and collective identity orientation ($t(152) = 9.45$, $p<.001$, $d=.77$). In other words, the personal, relational, as well as the collective identity orientations appeared to be more significant contributors, on average, to one's real life identity, when compared with virtual identity. Comparative tests showed consistent results for all age groups, as well as for both males and females. However, the fourth dimension, namely social identity orientation, appeared to be attributed significantly higher importance, on average, for the purposes of virtual identities than for real life identities.
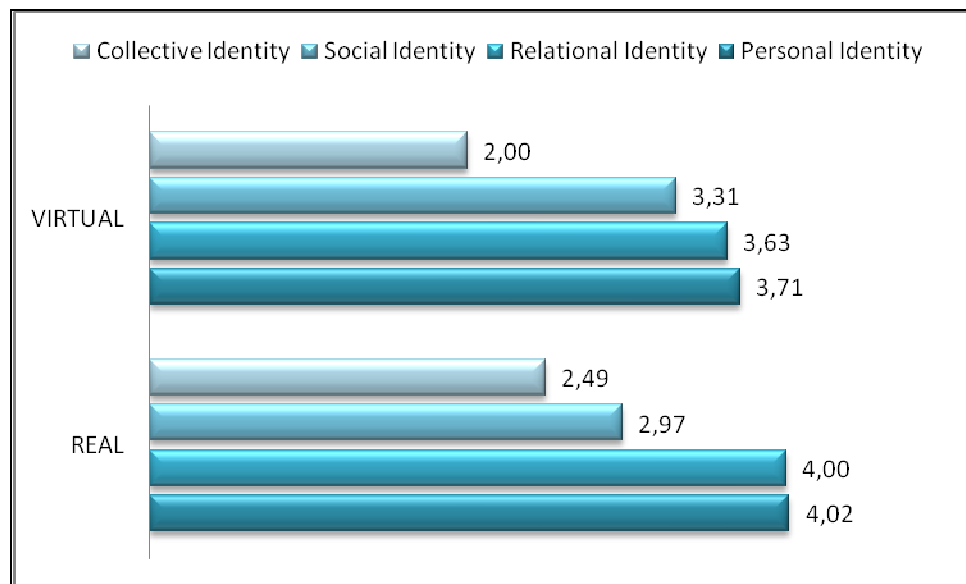

Figure 1: Average values of real life and virtual identity scores along the four identity orientation dimensions (personal, relational, social and collective).

5.2   The impact of self-consciousness on virtual identity (Research Question 2)

Among the three subscales of self-consciousness, average values were highest for private self-consciousness (M=2.95, SD=.53), followed by public self-consciousness (M=2.63, SD=.64), and lowest for social anxiety (M=2.46, SD=.82). In order to examine the potential impact of each self-consciousness dimension on real as well as virtual identity components, a series of simple regression models were fit. The results are presented in Table1 Below.

		SELF-CONSCIOUSNESS					
		Private		Public		Anxiety	
IDENTITY		T	R^2	t	R^2	t	R^2
	Personal	7.54***	.27	4.15***	.10	.01	.00
	Relational	3.19**	.06	3.86***	.09	1.04	.01
REAL	*Social*	2.55*	.04	8.20***	.31	.20	.00
	Collective	1.14	.01	2.0*	.03	.13	.00
	Personal	6.22***	.20	2.18*	.03	.14	.00
	Relational	2.93**	.05	1.42	.01	.83	.01
VIRTUAL	*Social*	1.52	.02	3.58***	.08	1.13	.01
	Collective	.92	.01	1.33	.01	.00	.00

* p < .05   ** p < .01   *** p < .001

Table 1: Results from a series of regression models examining the impact of self-consciousness (private, public and social anxiety) separately on each of the four identity orientations; in the case of real life as well as virtual identities.

As apparent from the results in Table 1, private self-consciousness had a significant positive main effect on personal and relational identity orientations in the case of both real life and virtual identities, and a further significant effect on social identities in real life. Individuals' own actions, thoughts and feelings, as measured by the private self-consciousness variable, appeared to be reflected to the greatest extent in their personal identities; with this effect being slightly more pronounced in the case of real life identities than in virtual ones - with private self-consciousness explaining slightly more of the total variation in real life personal identity orientation. Interestingly, while public self-consciousness showed significant effects in all identity orientations in terms of real life identities, this effect was only observed in the case of the personal and the social identity orientations in reference to the virtual self. No significant effects were identified in terms of social anxiety on either of the four identity orientation dimensions.

6.   Discussion

The purpose of this study was to examine the potential similarities and differences between real life and virtual identities of Second Life residents, as well as explore the impact of self-consciousness on real life and virtual life personalities. This exploratory study revealed differential patterns between real

life and virtual identities, in a variety of ways. In terms of the construction of virtual identities, while preserving some consistency between real physical and virtual existence appeared to be the preferred tendency for some participants, exploration and divergence had clear roles for others, with alterations frequently observed even in quite fundamental attributes, like gender and age.

The overall composition of identities in terms of the four explored dimensions, namely personal, relational, social and collective orientations, were quite similar, yet the extent of their importance and relevance differed between real life and virtual identities, with social identity orientation being more pronounced for virtual selves than either of the other dimensions. These results provide further empirical support for previous claims emphasizing the role of social elements in constructing virtual identities (e. g. Zhou, et al., 2011), even in direct comparison to real life ones. With respect to the role of self-consciousness, virtual social identities appeared to be influenced mostly by public self-consciousness, indicating that virtual avatars and associated profiles are viewed largely as social objects, guided by the users' beliefs regarding their impression on others.

While social feedback, external features and overall image portrayed to others were clearly important in virtual settings, private thoughts and emotions about one's virtual self also played substantial roles in constructing Second Life avatars and profiles. This latter point suggests that individuals thinking about their virtual identities appear to consider the personal and more inner elements as well, moving beyond the merely social plane of existence. Building on the theoretical perspective differentiating between the virtual self concept element associated with virtual identities, and the element of self presentation (Zhao, 2005), we can conclude that the personal and relational identity orientations, as triggered by private self-consciousness, tend to contribute to the conceptual component, while the social identity orientation, emphasized by the public self-consciousness, tends to contribute to the presentational component encompassing virtual identity.

In other words, while residents appear to actively pursue and engage in various virtual interactions and encounters, through which they assign importance to their public endeavors, attitudes and emotions towards one's virtual existence as an individual as well as a partner or a friend in a virtual community also appears to be relevant and meaningful for residents. In this sense, referring to our earlier analogy, while Mr. Hyde, the symbol of virtual identity, appears to encompass the public aspects of social identity, along with the private aspects of personal and relational orientations, Mr. Jekyll, the symbol of real life identity, transfers various personally relevant characteristics and attributes from the physical world in order to become further embedded into the particular culture and society of cyberspace.

This study highlighted two particularly important notions; on the one hand, virtual worlds provide their participants with the possibility to experiment with various characteristics and attributes comprising their identities, of which many residents seem to take advantage. On the other hand, the impact of private self-consciousness on personal and relational aspects of virtual identities emphasizes the role of the *private* in addition to the *public* aspects of the virtual self and existence, with certain extent of congruence between real life and virtual identities. These points have clear implications for the more traditional theories of identity development and stages of identity formation, particularly in terms of their applicability for virtual world residents, and the potential spillover between the two worlds.

7. Limitations and Future Direction

While the representation of the sample in terms of gender, and geographic background was satisfactory, the sample size was quite limited. As a further limitation, sampling was not done in a randomized fashion, but instead was based on convenience. Additionally, while the overall age range of

the participants was quite wide, the average age of 40.8 years was relatively high, indicating that the majority of the participants have already been settled in their "offline" identities, and in turn may be more open to explore and experiment with novel selves when compared to younger age groups. Future research should expand on the concepts investigated in this current study, by further elaborating on the extent of congruence between real and virtual identities, using a larger and randomized sample, as well as a more diverse age group incorporating a greater proportion of younger participants.

Contemporary theories concerning identity often encompass material aspects in addition to the personal, social and relational ones; for the purposes of the current research and its comparative emphasis, we focused exclusively on the latter components. Future studies should explore the material aspects of the self as well in view of their relevance for virtual identities. A better understanding of the ways in which virtual objects may assist in the construction and presentation of virtual identities may be beneficial for academics as well as professionals. In fact, as the act of engaging in economic transactions within virtual environments constitutes an essential element of game play (Lehdonvirta, 2010), obtaining virtual objects and products may have an important role in virtual settings, highlighting the experience of virtual identity as an increasingly realistic entity.

Finally, building on the current findings, future work could examine identity construction as a function of various virtual activities, in order to further disentangle the complex dynamics of virtual worlds, with their many untapped potential implications for scholars, practitioners, as well as organizations.

Acknowledgements

References

Aas, B. G., Meyerbröker, K., & Emmelkamp, P. M. G. (2010). Who am I – and if so, where? A study of personality in virtual realities. *Journal of Virtual Worlds Research, 2* , 1-15, Retrieved 23 February, 2012 from https://journals.tdl.org/jvwr/article/view/777/707.

Ayiter, E. (2010). Embodied in a metaverse: 'Anatomia' and 'body parts'. *Technoetic Arts: A Journal of Speculative Research*, *8*, 181-188.

Bamberg M (2004) Talk, small stories, and adolescent identities. *Human Development, 47*, 366–369.

Bargh, J., McKenna, K. Y. A., & Fizsimons, G. M. (2002). Can you see the real me? Activation and expression of the ''true self'' on the Internet. *Journal of Social Issues*, *58*, 33–48.

Becerra, E. P., & Stutts, M. A. (2008). Ugly duckling by day, super model by night: The influence of body image on the use of virtual worlds. *Journal of Virtual Worlds Research*, *1*, 1-19, Retrieved 14 January, 2011 from https://journals.tdl.org/jvwr/article/view/346/254.

Bélisle, J. F., & Bodur, H. O. (2010). Avatars as information: Perception of consumers based on their avatars in virtual worlds. *Journal of Psychology & Marketing, 27*, 741-765.

Blanchard, A. L. (2008). Testing a model of sense of virtual community. *Journal of Computers in Human Behavior, 24*, 2107-2123.

Bloomfield, R. (2009). World of Bizcraft, *Journal of Virtual Worlds Research, 2*, 3- 35, Retrieved 21 June, 2011 from https://journals.tdl.org/jvwr/article/view/743/535.

Boellstorff, T. (2008). Coming of age in Second Life: An anthropologist explores the virtually human (1st ed.). New Jersey: Princeton University Press.

Buss, A. (1980). *Self-Consciousness and Social Anxiety* (1st ed.). San Fransisco: W.H. Freeman.

Cheek, J. M., & Briggs, S. R. (1982). Self-consciousness and aspects of identity. *Journal of Research in Personality*, *16*, 401-408.

Cheek, J. M., Smith, S.M., & Tropp, L. R. (2002). Relational identity orientation: A fourth

scale for the AIQ. *Proceedings of Society for Personality and Social Psychology*, Savannah, GA.

Damer, B. (2008). A brief history of virtual worlds as a medium for user-created events. *Journal of Virtual Worlds Research, 1*, 1-17. Retrieved 12 February, 2010 from https://journals.tdl.org/jvwr/article/view/285/239.

de Vignemont, F., & Fourneret, P. (2004). The sense of agency: A philosophical and empirical review of the "Who" system. *Consciousness and Cognition*, *13*, 1-19.

Dodge, T., Barab, S., Stuckey, B., Warren, S., Heiselt, C. & Stein, R. (2008). Children's sense of self: Learning and meaning in the digital age. *Journal of Interactive Learning Research*, *19*, 225-249.

Erikson E. H (1950). *Childhood and society* (2nd ed.). New York, NY: Norton.

Erikson E. H (1968). *Identity: Youth and crisis* (2nd ed.). London, UK: Faber & Faber.

Gajjala, R., Rybas, N., & Altman, M. (2008). Racing and queering the interface: Introducing global/local cyberselves. *Qualitative Inquiry*, *14*, 1110-1133.

Garvey, G. P. (2010). Dissociation and Second Life: Pathology or transcendence? *Technoetic Arts a Journal of Speculative Research*, *8*, 101-107.

Gergen, K. J. (1991). The saturated self: dilemmas of identity in contemporary life (2nd ed.). New York, NY: Basic Books.

Girvan, C., & Savage, T. (2010). Identifying an appropriate pedagogy for virtual worlds: A communal constructivism case study. *Journal of Computers & Education, 55*, 342-349.

Gordon, C., & Gergen, K. J. (1968). The self in social interaction: Classic and contemporary perspectives (1st ed.). New York, NY: Wiley.

Guadagno, R. E., Muscanell, N. L., Okdie, B. M., Burk, N. M., & Ward, T. B. (2010). Even in virtual environments women shop and men build: A social role perspective on Second Life. *Journal of Computers in Human Behavior, 27*, 304-308.

Hagger, M. S., & Chatzisarantis, N. L. D. (2006). Self-identity and the theory of planned behaviour: Between- and within-participants analyses. *British Journal of Social Psychology*, *45*, 731-757.

James, W. (1890). *The principles of psychology* (Vol. 1.). New York, NY: Holt.

Jovanova, B., Preda, M., & Preteux, F. (2009). The role of interoperability in virtual worlds, analysis of the specific cases of avatars. *Journal of Virtual Worlds Research, 2*, 3-19, Retrieved 8 June, 2011 from https://journals.tdl.org/jvwr/article/view/672/508.

Kang, H. S., & Yang, H. D. (2006). The visual characteristics of avatars in computer-mediated communication.: Comparison of Internet Relay Chat and Instant Messenger as of 2003. *International Journal of Human-Computer Studies*, *64*, 1173-1183.

Kim, J. (2009). "I want to be different from others in cyberspace": The role of visual similarity in virtual group identity. *Journal of Computers in Human Behavior*, *25*, 88-95.

Kircher, T. T. J., & David, A. S. (2003). Self-consciousness: An integrative approach from philosophy, psychopathology and the neurosciences. In *The self in neuroscience and psychiatry* (1st edition). Cambridge, UK: Cambridge University Press.

Landay, L. (2008). Having but Not Holding: Consumerism and Commodification in Second Life. *Journal of Virtual Worlds Research*, *1*, Retrieved January 15, 2011 from https://journals.tdl.org/jvwr/article/view/355/265

Leary M.R., Wheeler D.S., & Jenkins, T. B. (1986). Aspects of identity and behavioral preference: Studies of occupational and recreational choice. *Social Psychology Quarterly*, *49*, 11–18.

Lehdonvirta, V. (2010). Online spaces have material culture: goodbye to digital post-materialism and hello to virtual consumption. *Media, Culture & Society, 32*, 883-889.

Marcia, J. E. (1966). Development and validation of ego identity status. *Journal of Personality and Social Psychology, 3*, 551–558.

Marcia, J. E., Waterman, A. S., Matteson, D.R., Archer, S. L., & Orlofsky, J. L. (1993). *Ego identity: A handbook for psychosocial research* (1st ed.). New York, NY: Springer.

Marcus, B., Machilek. F., & Schütz, A. (2006). Personality in cyberspace: Personal web sites as media for personality expressions and impressions. *Journal of Personality and Social Psychology*, *90*, 1014–1031.

McAdams, D. P. (1985). *Power, intimacy, and the life story: Personological inquiries into identity* (2nd ed.). Homewood, IL: Dorsey.

McDonald, D.G., & Kim, H. (2001). When I die, I feel small: Electronic game characters and the social self. *Journal of Broadcasting and Electronic Media, 45*, 241–258.

Merola, N. (2010). The effects of avatar appearance in virtual worlds. *Journal of Virtual Worlds Research, 2*, 1-12, Retrieved 24 February, 2012 from https://journals.tdl.org/jvwr/article/view/843/706.

Mittal, B. (2006). I, me, and mine – how products become consumers' extended selves. *Journal of Consumer Research, 5,* 550–562.

Messinger, P. R., Ge, X., Stroulia, E., Lyons, K., Smirnov, K., & Bone, M. (2008). On the relationship between my avatar and myself. *Journal of Virtual Worlds Research, 1*, 1-17, Retrieved February 10, 2010 from http://journals.tdl.org/jvwr/article/viewArticle/352.

Nakamura, L. (2008). *Digitizing race: Visual cultures of the Internet* (1st ed.). Minneapolis, MN: University of Minnesota Press.

Oldenburg, R. (2000). Celebrating the third place: Inspiring stories about the "Great Good Places" at the heart of our communities (1st ed.). New York, NY: Marlowe & Company.

Pan, Z., Cheok, A. D., Yang, H., Zhu, J., & Shi, J. (2006). Virtual reality and mixed reality for virtual learning environments. *Journal of Computers and Graphics, 30*, 20–28.

Papagiannidis, S., Bourlakis, M., & Li, F. (2008). Making real money in virtual worlds: MMORPGs and emerging business opportunities, challenges and ethical implications in metaverses. *Journal of Technological Forecasting and Social Change, 75*, 610-622.

Parmentier, G., & Rolland, S. (2009). Consumers in virtual worlds: Identity building and consuming experience in Second Life. *Recherche et Applications en Marketing (English Edition), 24*, 43-55.

Scheier, M. F., & Carver, C. S. (1985). The Self-Consciousness Scale: A revised version for use with general populations. *Journal of Applied Social Psychology, 15*, 687-699.

Segal, L. (2010). Genders: Deconstructed, reconstructed, still on the move. In: *The Sage handbook of identities* (1st ed.). London, UK: Sage.

Shankar, A., Elliott, R., & Fitchett, J. A. (2009). Identity, consumption and narratives of socialization. *Marketing Theory, 9*, 75-94.

Sluss, D. M., & Ashforth, B. E. (2007). Relational identity and identification: Defining ourselves through work relationships. *Academy of Management Review, 32*, 9-32.

Spence, J. (2008). Demographics of virtual worlds. *Journal of Virtual Worlds Research, 1*, 1-45. Retrieved 12 February, 2010 from https://journals.tdl.org/jvwr/article/view/360/272.

Stone, A. R. (1995). The war of desire and technology at the close of the mechanical age (1st ed.). Cambridge, MA: MIT Press.

Stryker, S. (2007). Identity theory and personality theory: Mutual relevance. *Journal of Personality, 75*, 1083-1102.

Suler, J. R. (2002). Identity management in cyberspace. *Journal of Applied Psychoanalytic Studies, 4*, 455-460.

Sung, Y., & Moon J. H. (2011). Actual self vs. avatar self: The effect of online social situation on self expression. *Journal of Virtual Worlds Research*, *4*, 1-21, Retrieved 23 February, 2012 from https://journals.tdl.org/jvwr/article/view/1927/3044.

Sutanto, J., Phang, C. W., Tan, C. H., & Lu, X. (2011). Dr. Jekyll vis-a-vis Mr.Hyde: Personality variation between virtual and real worlds. *Journal of Information & Management, 48*, 19-26.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of group conflict. In *The social psychology of intergroup relations* (2nd ed., pp. 33–47). Monterey, CA: Brooks/Cole.

Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In *Psychology of intergroup relations* (2nd ed., pp. 7–24). Chicago, IL: Nelson-Hall.

Tanis, M., & Postmes, T. (2008). Cues to identity in online dyads: Effects of interpersonal versus intragroup perceptions on performance. *Journal of Group Dynamics*, *12*, 96-111.

Taylor, D. M. (1997). The quest for collective identity: The plight of disadvantaged ethnic minorities. *Canadian Psychology, 38*, 174–190.

Turkle, S. (1994). Constructions and resconstructions of self in virtual reality: Playing in the MUDs. *Mind, Culture, and Activity*, *1*, 158-167.

Turkle, S. (1995). *Life on the screen: Identity in the age of the Internet* (1st ed.). New York, NY: Simon & Schuster.

Turkle, S. (1997). Multiple subjectivity and virtual community at the end of the Freudian century. *Sociological Inquiry, 67*, 72-84.

Vignoles, V. L., Schwartz, S. J., & Luyckx, K. (2011). Introduction: Toward an integrative view of identity. In *Handbook of identity theory and research* (1st ed., Vol. 1, pp. 1-27). New York, NY: Springer.

Wagner, J. A. (2008). *The making of Second Life* (1st ed.). New York, NY: HarperCollins.

Waterman, A. S. (1999). Identity, the identity statuses, and identity status development: A contemporary statement. *Developmental Review, 19*, 591–621.

Williams, B. (2008). What South Park character are you?": Popular culture, literacy, and online performances of identity. *Journal of Computers and Composition*, *25*, 24-39.

Yee, N. (2006). Motivations for play online games. *Cyberpsychology & Behavior*, *9*, 772–775.

Yee, N., & Bailenson, J.N. (2007). The proteus effect: Self transformations in virtual reality. *Human Communication Research*, *33,* 271–290.

Yee, N., Bailenson, J.N., & Ducheneaut, N. (2009). The proteus effect: Implications of transformed digital self-representation on online and offline behavior. *Communication Research*, *36,* 285–312.

Zhao, S. (2005). The digital self: Through the looking glass of telecopresent others. *Symbolic Interaction*, *28*, 387-405.

Zhao, S., Grasmuck, S., & Martin, J. (2008). Identity construction on Facebook: Digital empowerment in anchored relationships. *Journal of Computers in Human Behavior*, *24*, 1816-1836.

Zhou, Z., Jin, X. L., Vogel, D. R., Fang, Y., & Chen, X. (2011). Individual motivations and
demographic differences in social virtual world uses: An exploratory investigation in Second Life.
International Journal of Information Management, *31*, 261-271.