Chapter 10

Multiple Personality Order:

Physical and Personality Characteristics of the Self, Primary Avatar, and Alt

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Abstract

One hundred and four participants, all of whom had multiple avatars in the 3D virtual world of Second Life, completed a set of measures to assess how physical characteristics, activity preferences, personality features, and social-emotional processes are similar or different across various combinations of the physical self, the primary avatar, and the sole or most frequently used alt. Data was also obtained on the frequency of alt use, motivations for constructing alts, and the main forms of identity experimentation engaged in with alts. The combined results were then used to construct a model of how personality systems composed of multiple offline and online identities operate and form a "multiple personality order." As 3D virtual worlds and the global population of avatars continue to grow, creating and coordinating a system of multiple offline and online identities will increasingly become a normative feature of human development and, like a choreographer managing a company of dancers or a conductor leading an orchestra, the operation of personality will take on a quality of performance art.

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"Her name was Magill and she called herself Lil,

but everyone knew her as Nancy."

The Beatles

Rocky Raccoon

10.1 Introduction

Throughout history, human beings have demonstrated an interest in modifying aspects of their identity and experimenting with alternative personas. Early expressions of this tendency generally involved brief alterations of identity including: participating in ceremonial rituals in which participants concealed their true selves behind elaborate masks and costumes; performing roles that were discrepant with one's daily persona following the advent of formal theater, and attending masquerade balls that were popularized during the Renaissance. The contemporary practice of wearing costumes on Halloween, and other similar holidays around the world, also involves the short-term adoption of an alternative persona or identity.

Examples of lengthier and more elaborate efforts to experiment with core aspects of personal identity, such as gender, race, and age, can also be found. Some of these identity modifications were undertaken for practical aims such as those involving women who pretended to be male in order to serve as soldiers in wars such as the American War of Independence (De Pauw, 1981) and World War I (Royster, 2006). However, others were initiated for more psychological purposes -- an effort to experience the world from the perspective of individuals from an alternative identity group and to convey this experience to others. In the arena of race, the classic work,

Black Like Me, chronicled the experiences of Caucasian journalist John Howard Griffin who darkened his skin and lived in the Deep South as a black man for six weeks during the pre-Civil Rights era of the late 1950's (Griffin, 1961). Similarly, a number of individuals have experimented with identity by living as a member of another social class for an extended period of time (Camigliano, 1983; Ehrenreich, 2001; Spurlock, 2005.)

With the coming of the digital age, the capacity to experiment with alternative personas and different components of identity has become far easier and more commonplace. The anonymity of the online world disinhibits its users (Goleman, 2006), offering them an expanded sense of freedom and opportunities to experiment with minimal threat of real life repercussions or social rejection (Suler, 2004). At times this capacity has been used for exploitative or abusive purposes, such as when individuals have assumed the identity of celebrities on various social networking sites in order to promote their own businesses or products (Stone & Richtel, 2007) or the tragic example of Lori Drew who posed as a teenage boy on MySpace as a means of bullying her adolescent daughter's peer, who subsequently took her own life (Steinhauer, 2008). Despite these notable abuses, research has found that the inclination to create alternative digital personas is usually grounded in motivations such as reducing loneliness and a desire to connect with others (Marcus, Machilek, & Shütz, 2006), impression management (Ellison, Heino, & Gibbs, 2006, Gosling, Gaddis, & Vazire, 2007), seeking an outlet for creativity and self-expression (Papacharissi, 2002), a desire for emotional and sexual outlets (Ranon, 2006), and the wish to express hidden aspects of the self and experiment with different sides of one's personality (McKenna & Bargh, 1998; McKenna & Bargh, 2000).

The recent emergence of the Immersive Internet (Driver & Driver, 2008) has expanded the capacity for individuals to vary aspects of the self and engage in identity experimentation even further (Amdahl, 2006; Peachey, 2010). In this latest phase of cyberspace, individuals go beyond accessing information via two-dimensional web pages (The Informational Internet and Web 1.0) or interacting via chat rooms, wikis, and social networking sites (The Interactive Internet and Web 2.0) and construct avatars (i.e., 3-

Dimensional digital representations of self) that operate within intricate, increasingly vivid, 3D online environments. Within these immersive settings, users have the ability to customize their avatar into almost any form of imagined self by varying characteristics such as age, sex, race/ethnicity, and health and personality traits that are central components of their physical identity. Moreover, in a subset of cases, participants design and operate one or more additional avatars called "alts" in addition to using a primary avatar (Second Life Herald, 2005), with one study finding that on average Second Life users have a total of three different avatars per account (Ducheneaut, Wen, Yee, & Wadley, 2009). In 98% of cases, users could identify one of these accounts as the main or primary avatar, the other accounts were alternative avatars or "alts." Thus, a single human driver may control one or more avatars possessing a wide array of physical and psychological attributes and create a personality system composed of multiple constituent identities in the real and virtual realms (i.e., a "multiple personality order").

While the subjects of identity experimentation and identity coordination in 3D virtual environments are often considered in discussion forums and blogs, empirical research on the topic is more limited. Some studies have looked at the extent to which individuals construct avatars whose characteristics are similar or different than those of their physical selves. Au (2007) found that approximately 94% of virtual world users create anthropomorphic (male or female) avatars vs. non-humanoid (i.e., animal or object) avatars. Au also cites a 2007 survey conducted by Global Market Insight (GMI) of 479 residents of Second Life in which 45% of the participants indicated that, relative to their physical self, their avatar had a better body or physical appearance (45%); was younger (37%), was a different gender (23%) or had a different skin colour (22%). A later study by Wallace and Marryott (2009) also found low rates of choosing a Second Life avatar whose ethnic appearance differed from the participant's physical self. In addition, Duchenaut et al. (2009) studied 137 participants across three immersive environments (World of Warcraft, Second Life, and Maple Story) and supported the GMI findings regarding the tendency to create avatars with idealized physical characteristics (especially among physically female participants) and the less frequent use of gender-

discrepant avatars (especially physically male participants functioning as females in the virtual world.) Overall, these data indicate that while avatars almost always reflect an allegiance to the human form, and a majority of participants do not vary core characteristics of the physical self in the creation of their avatar, a meaningful segment of virtual world users do. This is especially true in the area of body image and age, and less so in the area of gender, race, or ethnicity.

Several previous studies have also investigated the relationship between the personality characteristics of the physical self and those of the primary avatar. Bessiere, Seay, and Kiesler (2007) used the Big Five Personality Inventory (described below in section 10.1.1.3) to compare the real life and avatar personality characteristics of 51 predominantly young male participants in World of WarCraft. The data indicated that players tended to ascribe more positive or idealized personality traits to their avatars (i.e., higher extroversion and conscientiousness and lower neuroticism) and similar findings were also found in Ducheneaut et al.'s (2009) study across several virtual environments.

The current investigation builds on these initial empirical studies on the relationship between characteristics of the physical self and avatars. Specifically, working with residents of Second Life, it compared the physical, personality, and social-emotional characteristics of the human driver and primary avatar. In addition, for the first time, it extended the empirical comparison of real life and 3D virtual identities to include alts. Specifically, it explored (a) the physical and personality characteristics of alts relative to the physical self and the primary avatar, (b) the preferred activities of avatars and alts, and (c) the frequency of alt usage, motivations for constructing alts, and the main forms of identity experimentation engaged in with alts. By building upon prior work on the physical and personality features of the physical self and the primary avatar, adding comparisons of social-emotional data between the physical self and primary avatar, and collecting initial data on the relationship of the alt to the primary avatar and physical self, the current study sought to increase our understanding of personality systems composed of multiple, constituent, online and offline identities.

10.2 Methods

One hundred and four participants, all of whom had multiple avatars in Second Life, were recruited via posted announcements in the Second Life Events Calendar, notices sent out by heads of large groups representing major constituencies in Second Life (e.g. social, business, educational, and artist networks), a CNN IReport (www.ireport.com, a website where citizen journalists can post stories), and word-of-mouth communication. Each method of recruitment offered potential participants the opportunity to come to a virtual research lab located within Second Life and earn 1000 Lindens (virtual currency equivalent to slightly less than four U.S. dollars) for completing approximately 40 minutes of psychological questionnaires. The recruitment notices also specified that the participant's primary avatar must have had at least six months residency in Second Life. This "minimal residency requirement" ensured that all data were derived from at least moderately experienced users as opposed to newcomers with unstable patterns of behaviour and use of the virtual environment. This reasoning parallels that of Young (1998), who advised that measures of Internet behaviour should be used cautiously with novice users in their first 6 months of exposure to the medium. Essentially, the six-month minimum duration requirement used in the current study extends Young's methodological guideline from Internet research conducted within Web 1.0 to the emerging 3-dimensional Internet. Participants were also required to be at 18 years of age or older to qualify for the study.

The multi-method, incentivized approach to recruiting participants yielded a sample with the following characteristics: Of the 104 participants, 57 were female, 46 were male, and 1 was transgendered. A majority of participants (n = 51) were between the ages of 18 and 29, and a wide array of education levels (ranging from no high school diploma to doctoral degrees) were represented by the sample, with a high school diploma or equivalent being the most frequently reported education level (n = 39). The vast majority of participants came from North America (n = 82) and Europe (n = 15), although, Asia (n = 3), South America (n = 3), and Australia (n = 1) were also represented. Participants had been using Second Life from 6 months to over 3 years, with 1-2 years (n = 43) being the most

frequently reported length of time in Second Life. Additionally, the most frequently reported rate of Second Life usage, ranging from daily to less than once a month, was daily or almost every day (n = 89). It is important to note that while the current sample is subject to selection biases that affect all online studies, the gender and age characteristics of the sample are similar to those found in larger demographic surveys of Second Life users (Linden, 2008; Market Truths, 2009) which provides some support for its representativeness with respect to the wider population of inworld residents.

10.2.1 Procedures and Measures

Upon arriving at the virtual lab, participants were screened to ensure that they met the 6-month residency criterion and had not previously taken the Second Life identity survey. Participants who satisfied these screening criteria and electronically agreed to provisions of an informed consent were then linked to an online survey where they provided real life demographic information and basic Second Life utilization data. Subsequently, participants completed four measures assessing the physical, personality, and social-emotional characteristics of the physical self.

10.2.1.1 Survey of Physical Characteristics

Participants were asked to provide information regarding five physical characteristics: age, sex, hair colour, eye colour, and body type (i.e. small/lean, medium, and larger/somewhat overweight).

10.2.1.2 The Big Five Personality Inventory (BFI; John, Donahue, & Kentle, 1991)

The BFI is a 44-item measure in which each item assesses one of the Big Five personality traits: extraversion, conscientiousness, agreeableness, neuroticism, and openness. Participants rate themselves on each item using a 5-point scale ranging from *strongly disagree* (1) to *strongly agree* (5).

10.2.1.3 The Social Connectedness Scale (SCS; Lee & Robbins, 2001)

The SCS is a 20-item questionnaire indicating the degree of social connectedness felt by the subject in their social relationships. The measure conceptualizes social connectedness as a personal attribute reflecting enduring closeness with the social world in general. Participants respond to positive and negative statements about their social relationships (e.g., "I find myself actively involved in people's lives;" "I have little sense of togetherness with my peers") using a 6-point scale ranging from *strongly disagree* (1) to *strongly agree* (6).

10.2.1.4 The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985)

The SWLS is a five-item questionnaire indicating the extent to which subjects are satisfied with their current life. The SWLS is designed to assess global life satisfaction, which is a component of subjective well-being. Participants rate statements regarding their view of their life (e.g., "In most ways my life is close to ideal;" "So far I have gotten the important things I want in life") using a 7-point scale ranging from *strongly disagree* (1) to *strongly agree* (7).

After completing this set of measures with regard to the physical self, participants were asked to fill out each of the measures again with respect to the characteristics of their primary avatar. The instructions and wording of the items were modified so that participants' responses should represent the characteristics or perspectives of their primary avatar instead of their physical self. For example, with respect to questions regarding physical characteristics, participants were prompted with questions such as, "What age is depicted by your avatar's appearance?" and "What is your avatar's typical eye colour?" Similarly, items on the BFI completed with respect to the physical self such as, "I see myself as someone who likes to cooperate with others" were changed to read, "My avatar is someone who likes to cooperate with others." The same process of instructional and item-wording revision was applied to the SCS and SWLS questionnaires so that

all items on these measures clearly referenced perceptions of the primary avatar. Participants were also asked to fill out a fifth measure with respect to their primary avatar, one that assessed their **Second Life Activity Preferences.** Using a 5-point scale (1 = *not important at all* to 5 = *extremely important*), participants rated the perceived importance of 11 Second Life activities: building virtual objects, buying/selling, exploring the virtual world, finding/enhancing a relationship, learning/education, role playing/fantasy, scripting (i.e., writing computer code to animate objects), sex/sexual experiences, shopping, socializing, and working/employment.

After responding to the five primary avatar measures, participants completed several measures related to their third identity: their alt or most frequently used alt (if the participant had multiple alts). Specifically they completed the Survey of Physical Characteristics, Second Life Activity Preferences questionnaire, and the BFI with respect to the physical, behavioural, and personality attributes of their alt. However, due to time constraints and the length of the questionnaire administration, social-emotional data was not collected for participant's alts. As with the primary avatar version of these measures, items on the questionnaires were modified to reflect the constituent identity for whom the participant was responding (i.e. the alt). Participants also completed the **Alt Usage Questionnaire** (Foss & Gilbert, 2009), a 13-item measure assessing the number of alts used by a participant, the motivations for creating an alt, and the activities engaged in when using alts for the purpose of identity experimentation, including what elements of identity were varied when using alts (e.g., age, gender, race, etc.).

10.3 Results

The presentation of results is organized into three sections: physical and activity characteristics; personality and social-emotional characteristics; and alt usage characteristics. In the first section examining physical and activity characteristics, all physical comparisons are conducted using participant's three identities: the physical self, primary avatar, and alt. However, with respect to activity data, activity comparisons are conducted between primary avatars and alts only. This is due to the fact that several of the measured Second Life behaviours did not have real life activity equiv-

alents (e.g. scripting, building virtual objects, etc.) and thus, no real life behavioural data were collected for comparison. In the second section, which explores personality and social-emotional characteristics, personality data was collected for the physical self, primary avatar, and alt. However, as previously noted in Section 10.1.1.5, social-emotional data were not collected for participants' alts. Table 10.1 summarizes the measures used for each identity status.

For each of the categories of characteristics mentioned above, descriptive data are provided with respect to each identity type followed by statistical comparisons across participants' three identities. Thus, with regard to physical characteristics, descriptive information about the age, gender, hair colour, eye colour, and body type of participants' physical self, primary avatar, and alt are presented. Subsequently, for each of these characteristics, statistical comparisons between participants' physical selves and primary avatars, physical selves and alts, and primary avatars and alts, are then provided. This same approach is followed with the activity, personality, and social-emotional characteristics and their respective data. Finally, the third section examines participants' use of alts, including descriptive data, motivations for alt creation, and types of identity experimentation.

10.3.1 Physical and Activity Characteristics

10.3.1.1 Age

Participants ranged in age from 18 to above 60. The majority of participants (n = 51) reported that they were between the ages of 18 and 29 in real life. With respect to their virtual identities, a variety of ages, ranging from under 18 to 60 or older, were represented, with 18-29 also being the most frequently depicted age category for both primary avatars and alts. See Figure 10.1.

10.3.1.2 Effects of identity type on age

Age was measured using the following categories: under 18, 18-29, 30-39, 40-49, 50-59, and 60 or above. Each of these categories was then coded as 0, 1, 2, 3, 4, and 5, sequentially, from youngest to oldest. Thus, in the analyses below, a larger mean reflects an older age on average.

A repeated measures ANOVA was used to compare participants' age across their three identities (physical self, primary avatar, and alt). A significant effect of identity was found $F(2, 206) = 45.94$, $p < .01$, $\eta_p^2 = .31$. Comparisons across pairs revealed that participants' actual age ($M = 2.09$, $SD = 1.29$) was significantly older than that depicted by their primary avatars ($M = 1.35$, $SD = 0.82$), $t(103) = 6.62$, $p < .01$, $d = 0.68$ or alts ($M = 1.24$, $SD = 0.62$), $t(103) = 7.88$, $p < .01$, $d = 0.84$. Thus, participants' virtual identities tended to be younger than participants' actual age. However, no significant difference was found between the ages depicted by primary avatars and alts, $t(103) = 1.73$, $p = .09$, $d = 0.15$

10.3.1.3 Gender

Of the 104 participants (57 females, 46 males, 1 transgendered), 62 (60%) used a female as their primary avatar, 36 (35%) used males, and 6 (6%) used an animal, mythical creature, or non-human as their primary avatar. Additionally, with respect to alts, 64 (62%) used females, 34 (33%) used males, and 6 (6%) used mythical, animal, or non-human alts.

Due to small cell size, one transgendered participant was dropped from the gender analyses. Thus, the following analyses were run using 46 physically male participants and 57 physically female participants.

10.3.1.4 Effects of identity on gender

Chi-square analyses revealed a significant effect for gender when comparing the physical self and primary avatar, $\chi^2(2, N = 103) = 81.01$, $p < .01$, Cramer's $V = .89$. Of the 46 male participants, 36 (78%) used male avatars, 5 (11%) used female avatars, and 5 (11%) chose a non-gendered form such as an animal, mythic figure, or inanimate object. Thus, there was a tendency for some male participants to use a female avatar or a non-gendered form. Interestingly, females did not demonstrate this same tendency toward gender experimentation; of the 57 female participants, 56 (98%) used females and 1 (2%) used a non-gendered form. .

There was also a significant effect for gender when comparing the physical self and alt gender, χ^2 $(2, N = 103) = 24.56$, $p < .01$, Cramer's $V = .49$. Twenty-six (57%) male participants used male alts, 16 (35%) used female

alts, and 4 (9%) used a non-gendered form. Forty-seven (82%) female participants used females as their alts, 8 (14%) chose male alts, and 2 (4%) chose a non-gendered form.

Finally, there was a significant effect of gender between primary avatar and alt, $\chi^2(4, N = 103) = 50.94$, $p < .01$, Cramer's $V = .50$. Of the 36 male primary avatars, 24 (67%) used male alts, 11 (31%) used female alts, and 1 (3%) chose a non-gendered form. Of the 61 female primary avatars, 50 (82%) used females as their alts, 9 (15%) chose male alts, and 2 (3%) chose a non-gendered form.

Table 10.2 summarizes these findings regarding gender characteristics across the various identities.

10.3.1.5 Hair colour

The majority of participants reported having brown ($n = 52$), black ($n = 19$), or blonde ($n = 16$) hair in real life, while a few reported red ($n = 8$), grey/white ($n = 6$), or other (e.g. green, purple, bald) as their hair colour. With respect to their virtual selves, a variety of hair colours were represented by primary avatars and alts in the sample, with black ($n_{av} = 47$, $n_{alt} = 46$) being the most frequently occurring hair colour, followed by brown ($n_{av} = 15$, $n_{alt} = 21$), red ($n_{av} = 15$, $n_{alt} = 16$), other ($n_{av} = 12$, $n_{alt} = 9$), grey/white ($n_{av} = 8$, $n_{alt} = 7$), and blonde ($n_{av} = 7$, $n_{alt} = 5$).

10.3.1.6 Effects of identity on hair colour

Chi-square analyses revealed a significant effect for hair colour when comparing the physical self and primary avatar, χ^2 (25, $N = 104$) = 40.47, $p < .05$, Cramer's $V = .28$; and between the primary avatar and alt, χ^2 (25, $N = 104$) = 109.79, $p < .01$, Cramer's $V = .46$. While no single, consistent pattern of colour shifting was observed (e.g. black to blond/blonde, red to brown, etc.), participants with a variety of hair colours experimented with altering the hue of their hair across virtual identities.

10.3.1.7 Eye colour

Of the 104 participants, 36 reported having brown eyes in real life, while 28 had blue, 21 had hazel, and 19 had green eyes. With respect to their virtual selves, a variety of eye colours were represented by primary avatars and alts in the sample, with colours not represented in real life such as orange or purple, being the most frequently reported eye colour (n_{av} = 41, n_{alt} = 52), followed by brown (n_{av} = 28, n_{alt} = 24), blue (n_{av} = 25, n_{alt} = 10), and green (n_{av} = 10, n_{alt} = 18). No primary avatars or alts were reported as having hazel eyes.

10.3.1.8 Effects of identity on eye colour

A significant effect for eye colour was found when comparing the physical self to the primary avatar, $\chi^2(9, N = 104) = 42.02$, $p < .01$, Cramer's $V = .37$; and between the primary avatar to the alt, $\chi^2(9, N = 104) = 46.75$, $p < .01$, Cramer's $V = .39$. Thus, shifts in eye colour across participants' different identities did occur; however, further inspection did not reveal a particular pattern with respect to these colour changes (e.g. brown to green, blue to hazel, etc.).

10.3.1.9 Body type

Body type was measured using three categories: small/lean build, medium build, and larger build/somewhat overweight. Forty-three (42%) of the 104 participants reported their physical life body type as medium build, 37 (36%) reported having a larger, somewhat overweight build, and 24 (23%) reported having a small, lean build. Of these 104 subjects, 54 (52%) had primary avatars with a small, lean build; 45 (43%) had primary avatars with a medium build, and 5 (5%) had primary avatars with a larger build. Additionally, with respect to alts, 49 (47%) had a small lean build, 49 (47%) had a medium build, and 5 (5%) had a larger build. These results are summarized in Figure 10.2.

10.3.1.10 Effects of identity on body type

A one-way repeated-measures ANOVA was calculated to compare participants' body type across their three identities and a significant effect for

body type was found, $F(1.73, 178) = 33.07$, $p < .01$, $\eta_p^2 = .24$.[1] Follow-up pairwise comparisons revealed significant differences between participants' actual body type and the reported body type of their primary avatar, $t(103) = 7.54$, $p < .01$, $d = 0.88$, and alt, $t(103) = 5.60$, $p < .01$, $d = 0.73$; on average, participants' actual build was larger than the body type portrayed by their primary avatars or alts. However no significant difference between the body type reported for the primary avatar and alt was found.

10.3.1.11 Activity preferences

Using a 5 point scale ranging from 1 = *not important at all* to 5 = *extremely important*, participants rated their Second Life activity preferences for their primary avatar and alt. Activities included: building virtual objects, buying/selling, exploring the virtual world, finding/enhancing a relationship, learning/education, role playing/fantasy, scripting (i.e., writing computer code to animate objects), sex/sexual experiences, shopping, socializing, and working/employment.

10.3.1.12 Effects of identity on activity preferences

Paired samples *t*-tests using a Bonferroni correction were calculated to compare the activity preferences of participants when using their primary avatar versus their alt. Significant differences in preferred activities were found for the following eight activities: building, buying/selling, exploring the virtual world, learning/education, scripting, shopping, socializing, and working/employment. (All ts > 2.87 , ps < .01, ds > 0.28.) In each case participants ascribed greater importance to these activities for their primary avatar versus their alt. In contrast, no significant differences were found for the activities of: finding/enhancing relationships, role-playing/fantasy, sex/sexual experiences. Thus, the primary avatars had a greater role in practical and business-related activities (e.g. building, working, etc.) while alts had an equal role in matters of relationships, sexuality, and activities associated with identity experimentation such as role playing/fantasy. These results are summarized in Figure 10.3.

10.3.2 Personality and Social-Emotional Characteristics

10.3.2.1 The Big Five Personality Inventory

A series of one-way repeated measures ANOVAs were used to compare participants' personality traits across their three identities. A significant effect of identity was found for all five personality characteristics. (All Fs > 2.55, df_{means}= 2, df_{error} = 206, ps < .01, η_p^2 > 0.07).[2] Pairwise comparisons with a Bonferonni adjustment revealed significant differences such that (1) participants' primary avatars were more extroverted, agreeable, conscientious, open, and less neurotic, than their real life selves, (2) alts were less neurotic and less open than participants' physical selves and (3) primary avatars were more extroverted, agreeable, conscientiousness, and open than their alts. (All ts > -6.16 , ps < .05, ds > -0.55) These results are summarized in Figure 10.4.

10.3.2.2 Social connectedness and satisfaction with life

A paired samples t-test compared participants' real life social connectedness scores with their primary avatar social connectedness scores. Results showed that participants feel significantly more socially connected as their primary avatar (M = 89.25, SD = 18.24) than they do in their real lives (M = 79.35, SD = 17.78), $t(103)$ = -6.55, p < .01, d = -0.55. Similarly participants' reported higher satisfaction with life scores for their primary avatar (M = 27.04, SD = 6.06) than for their physical selves (M = 19.08, SD = 7.41), $t(103)$ = -8.67, p < .01, d = -1.18.

10.3.3 Alt Usage Characteristics

10.3.3.1 Number of alts

Of the 104 participants, 36 (35%) had one alt, 29 (28%) had two alts, 13 (13%) had three alts, 4 (4%) had four alts, and 22 (21%) had five alts.

10.3.3.2 Motivations for alt usage

Participants were provided with eight questions addressing possible motivations for creating an alt. For each question participants indicated yes or

no depending upon whether or not the particular motivation applied to the creation of their alt. Eighty-two (79%) cited the ability to be inworld without being recognized, 72 (69%) cited role playing/experimenting with a different identity, 57 (55%) cited boredom, 54 (52%) cited testing of a product, 44 (42%) cited testing a pose ball or animation intended for use by two avatars, 24 (23%) cited discontent with the life of their primary avatar, 18 (17%) cited spying on a Second Life romantic partner, and 13 (13%) cited cheating on a Second Life romantic partner as one of their primary reasons for creating an alt. See Figure 10.5 for a summary of these results.

10.3.3.3 Types of role playing/experimentation purposes for alts

Of the 72 participants who cited role playing/experimenting with a different identity as one of their motivations for using an alt, 41 (57%) reported experimenting with their style of dress or persona, 33 (46%) reported experimenting with a different gender, 28 (39%) reported experimenting with their body type, 27 (38%) reported role playing a different species or mythical creature, 26 (36%) reported sexual experimentation, 21 (29%) reported experimenting with their sexual orientation, 18 (25%) reported experimenting with their age, and 17 (24%) reported experimenting with a different race. See Figure 10.6 for a summary of these results.

10.4 Discussion

10.4.1 Major Findings

In the area of physical characteristics, the results supported the findings of Duchenaut et al. (2009) and the 2007 Global Market Insight survey cited in Au (2007) that individuals tend to construct primary avatars that are younger and have a smaller/leaner body type than their physical selves. Moreover, the same pattern was found in examining the relationship between the physical self and the alt. Thus, overall, participants' virtual representations more closely approximate the lean, youthful body ideal found in many contemporary cultures than their physical selves. Given the consistency of this pattern across multiple studies, the tendency of individuals

to express a more idealized physical appearance in the 3D domain can be considered a reliable, established finding.

Also within the area of physical characteristics, the study found a number of interesting differences in gender characteristics across the various identities. As presented in Table 2, the study found a gender difference between the physical self and the primary avatar that was due in part to a segment of physically male participants (5 out of 46, 11%) functioning as females in the virtual world. In addition, this tendency for physically male participants to vary their gender characteristics in the virtual world was even more pronounced with regard to alts, with over one-third of male participants (16 of 46) employing female alts. It is also noteworthy that 11% of male participants changed their gender status in the virtual world by employing a non-gendered (i.e. animal, mythic, or object) primary avatar and 9% used a non-gendered alt.

The tendency toward gender experimentation was far less common among participants who were physically female. Not a single participant who was physically female had a primary avatar that was male, and only 1 had a non-gendered primary avatar. However, a meaningful number of physically female participants did employ a male alt (8 out of 57, 14%) or a non-gendered alt (4%).

Overall the findings on gender characteristics across the constituent identities indicate that 1) there is a greater level of gender experimentation by physical males in the virtual world compared to physical females and 2) this difference is most pronounced with regard to the gender characteristics of the primary avatar and somewhat less so with regard to the alt. One possible motivation for the subgroup of males to employ female avatars and/or alts is to take advantage of the fact that virtual females receive more assistance, freebies, and handouts than male avatars (Lee & Hoadley, 2007). Other motives that might apply to both physical males and females would be to use a gender-discrepant avatar or alt to surreptitiously participate in sex with same sex RL partner, or to psychologically explore the feelings and experience of being a different gender. Additional research will be needed to precisely identity the underlying motivation or motivations accounting for cross-identity gender experimentation in gen-

eral, why this tendency is greater among physical males than physical females, and why physical females tend to concentrate their gender experimentation almost exclusively with their alts.

With respect to the data on virtual world activity preferences, an interesting difference was found between the preferred activities of the primary avatar and the alt. Specifically, the primary avatar indicated significantly higher preferences for activities that reflect the practical, functional, or business-related aspects of virtual life (e.g., building, buying/selling, scripting, shopping, working/employment, etc.) However, in areas of relationships, sexuality, and activities related to identity experimentation such as role-playing, the activity preferences of the alt and the primary avatar were equivalent. One way to interpret these data is that the primary avatar plays a dominant role in carrying out activities related to what Mark Childs (see Childs chapter, this volume) referred as the "real' or "persistent" identity in the virtual world – those activities that build and maintain stable connections to other avatars and the virtual community (Jakobsson, 2002). However, when the human driver wants to go outside of the stable, persistent aspects of his or her virtual identity, the alt assumes a role that is equally important as the primary avatar.

In the domain of personality and social-emotional characteristics, the tendency toward idealization observed in the comparisons of physical characteristics, was found once again. Consistent with previous research by Bessiere et al. (2007) and Duchenaut et al. (2009), participants ascribed more positive or idealized personality traits to their avatars. On the Big Five Personality Inventory participants rated their primary avatars as more extraverted, agreeable, conscientious, open, and less neurotic than their physical selves. In addition, the current study found that participants also viewed their primary avatar as more socially connected and more satisfied with life than their physical selves. It is interesting to note, however, that the tendency toward personality idealization in the virtual realm was centred on the primary avatar and did not extend to the alt. As with the physical self, the primary avatar was viewed to have more positive personality characteristics than the alt and there were far fewer differences in the personality ratings for the physical self and the alt. At this point, one can only

speculate as to why the primary avatar, and not the alt, is the main focus of psychological idealization in the virtual realm. Based on the previously discussed findings on the activity preferences of the primary avatar and alt, it may be that alts are viewed in a less positive or idealized manner because they are more frequently employed in activities such as role play, identity experimentation, and forms of sexual expression that the physical self might be uncomfortable with, or able to do, outside of the virtual realm. However, this is an area that needs additional study to more fully understand the relationship between the personality characteristics of the physical self, primary avatar, and alt.

The current study also extended past research by acquiring data on the use of alts, the motivations for alt usage, and the types of role-playing or identity experimentation that involve alts. With respect to the use of alts, the current study is embedded within a wider program of research on the psychology of 3D virtual worlds being conducted by The P.R.O.S.E. (Psychological Research on Synthetic Environments) Project (www.proseproject.info). In the context of this broader research, it has been determined that approximately 50% of Second Life users with 6 months or more inworld have an alt. Consequently, dividing the percentages of participants in the current study of 104 Second Life users (all of whom have alts) by 2, yields the following estimates of alt usage among the overall user base of Second Life: Participants with 1 alt (17.5%), 2 alts (14%), 3 alts (6.5%), 4 alts (2%), 5 alts (10%). Thus, while the current sample focused on participants' use of a single alt and personality systems composed of three identities, about a third of experienced Second Life users are coordinating a multiple personality order consisting of a physical self plus three or more virtual identities.

The findings on motivations for alt use and identity experimentation involving alts will be considered in the following section on the operation and dynamics of multiple personality orders. As we will see, the alt carries out a number of important functions within the multi-realm identity system.

As a final note regarding these major findings, the primary purpose of the current study was to provide detailed descriptive data on the relationship

between characteristics of constituent offline and online identities. At the same time, the current data set, and others like it that may be collected in the future, could also be used to investigate a host of more specific and theoretically driven relationships such as: Is there a relationship between personality characteristics like neuroticism and wider discrepancies between the physical and inworld identities? Similarly, is there a relationship between emotional variables such as social connectedness and the separation of identities in which people who feel less connected in their real lives are more likely to create avatars that diverge from their physical selves? More fine-grained cross-category analyses like these will serve to build upon the detailed descriptive data provided in the current report.

10.4.2 The Operation of Multiple Personality Orders

Thus far we have viewed the data with a close lens, focusing on the ways that physical characteristics, activity preferences, personality features, and social-emotional processes are similar or different across various combinations of the physical self, the primary avatar, and the sole or most frequently used alt. However, it is also possible to step back from these comparisons and consider the different functions of the various components within the overall multiple identity system and how they may relate to each other. As depicted in Figure 10.7, the current findings suggest that the primary avatar and the alt each have three distinct functions and one common function within the multiple personality order.

The first function of the primary avatar, as previously discussed, is to reflect a stable or "persistent" identity within the virtual world, to build and maintain stable connections to other avatars and the virtual community as a whole. A second function is to extend the physical self into the 3D virtual arena. As the data on virtual world activity preferences indicate, the human driver is more likely to use the primary avatar when engaged in virtual activities such as working/employment and learning/education that have physical world correlates and may directly relate to activities that he or she is engaged in within the physical world. Another central function of the primary avatar is to enhance the physical self within the virtual arena by embodying a more youthful and attractive physical appearance and by reflecting more positive personality, social, and emotional characteristics.

This view is consistent with statements expressed by McKenna, Green, and Smith (2001) and Taylor (2002), and developed by Childs in this volume, that individuals in virtual worlds are able to express their truer, hidden, more authentic and ideal selves, or, what can be summarily termed, their "aspirational selves." The current data indicate that the tendency to enhance the appearance and psychology of the physical self in the virtual realm is mainly carried out by the primary avatar.

Finally, in a function that overlaps with that of the alt, the primary avatar may be involved in diversifying the human driver's physical world identity within the virtual realm by adopting a different gender, race, or age – a process termed "identity tourism" by Taylor (2002). However, the primary avatar's freedom to engage in identity tourism may be constrained by its concurrent responsibility to maintain a stable, persistent identity in the virtual world, as showing up one day as a man and the next day as a woman, or shifting races on a frequent basis, can have a disruptive effect on the avatar's social relationships and business or practical activities. One way to deal with the primary avatar's conflicting functions of identity stability and identity variability is to assign the more dramatic practices of identity experimentation to the alt within the identity system, consistent with this study's findings in the area of gender experimentation. In this way, the alt functions to vary or diversify the identity characteristics beyond *both* the physical self and the primary avatar. Of course, in cases where multiple alts are being employed, each subsequent alt has the same diversification function toward earlier or previously constructed alts as the initial alt has toward the primary avatar.

One of the remaining two functions of alts is to achieve anonymity within the virtual world. The primary avatar, while carrying out the more instrumental and persistent elements of virtual life, has less freedom to move through the virtual world privately. Usually an avatar's virtual friends are notified when the avatar first comes inworld or logs off, and the friends can also check the avatar's on or offline status at any time. They can also send an inworld instant message (IM) or place an inworld call to the avatar at any time. To enhance privacy, avatars have the ability to set their status to "busy" (which will prevent inworld calls from going through and

store IMs for later viewing) or periodically change their account preferences so that friends are not notified when they log in or out. However, even taking these steps doesn't ensure complete anonymity as anyone the primary avatar encounters is still able to view their virtual profile and learn identifying details such as their length of residence in Second Life, group affiliations, favourite destinations and residents and, if applicable, the name of their partner. Thus, the only sure way for a virtual world user to be inworld with complete anonymity is to create an alt that his or her friends are unaware of. This practice is reflected in the number of participant's who cited motivations for using an alt related to privacy considerations including: the ability to be inworld without being recognized (72%), spying on a romantic partner (17%), or cheating on a romantic partner (13%).

Finally, alts can function to multiply the human driver's virtual presence for pragmatic purposes. Because the primary avatar and an alt can be inworld simultaneously (if either two computers are used or one computer is enabled to run two Second Life viewers at the same time), the alt can assist the primary avatar in performing tasks that are more easily accomplished by a dyad. For example, approximately half of the sample indicated that they used their alt to help their primary avatar test a product or an animation that that is intended for use by two avatars, such as a dance or sexual animation for a couple. While it was not assessed in the current study, the Second Life knowledge-base assessable through the company website (www.secondlife.com) also notes that concurrently logging in as one's primary avatar and an alt can simplify the process of sharing inventory (virtual assets such as clothes, objects, snapshots, etc.) across virtual identities.

10.4.3 Conclusion: Toward A New Phase of Human Identity?

Moving the lens back a final step, we can consider the broadest implications of the self being composed of multiple offline and inworld identities. It is possible that, rather than merely being an interesting process associated with avatars and 3D virtual worlds, it may reflect the beginning of a new phase in the history of human identity.

In the latter half of the 20th century dramatic advances in transportation and telecommunications turned the world into a global village where individuals were constantly exposed to new perspectives, narratives, styles, and psychological realities. In this context, modernist conceptions of the self, such as the classic models of Freud (1953) and Erikson (1950), came under attack by post-modern theorists who argued that there is no stable, consistent, coherent, individual identity (Gergen, 1991; Lifton, 1993). Instead they maintained that identity is fragmented, multiple, and constantly shifting (what can be called, "The Multiple Self"). Like a Windows program, to echo a metaphor introduced by Turkle (1995), the post-modern self is conceived as an operating system that can maximize or minimize multiple aspects of identity according to shifting personal desires and the demands of a particular context.

The rise of 3D virtual worlds, and the introduction of avatar-mediated forms of expression and interaction, may once again reshape humanity's conception and experience of the self and usher in new model of identity that we will tentatively label "The Distributed Self." In this conception, consciousness and aspects of the self (while ultimately still embodied within the human driver) will be increasingly externalized and distributed into digital forms reflecting any number or combination of race, gender, age, style, body type, personality, and physical health. Whereas the Windows operating system serves as the technological analogue to the post-modern conception of The Multiple Self, the rise of "cloud computing" (i.e., the storage of resources in the Internet that are available for distribution on demand to multiple platforms or devices) forms the technical basis for a new distributed conception of identity and the self. Within this new model, the source of identity remains internal and embodied (in the "cloud" of consciousness), but the expression or enactment of this consciousness becomes increasingly external, disembodied, and distributed.

As 3D virtual worlds and the global population of avatars continue to grow, creating and coordinating a system of multiple offline and online identities will increasingly become a normative process in human development. Individuals will manage their multiple personality orders in a manner analogueous to a choreographer managing a company of dancers,

or a conductor leading an orchestra, and the operation of personality will increasingly take on, as Goffman (1959) once suggested, a quality of performance art.

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Footnotes

[1] Due to a violation of sphericity, a Greenhouse-Geisser correction was used.

[2] Due to the violation of sphericity, a Greenhouse-Geisser correction was used for all tests results in this section, except for agreeableness, which did not violate the assumption.

Table 10.1

Measures Administered to Participants According to Identity Status

Measures	Identity		
	Physical self	Primary avatar	Alt
Physical characteristics	✓	✓	✓
Second Life activity preferences	NA	✓	✓
Personality characteristics (BFI)	✓	✓	✓
Socio-emotional characteristics (SCS, SWLS)	✓	✓	--
Alt usage characteristics	NA	NA	✓

Note. BFI = Big Five Inventory (John et al., 1991), SCS = Social Connectedness Scale (Lee & Robbins, 2001), SWLS = Satisfaction with Life Scale (Diener et al., 1985). "NA" = not applicable to that identity status. "--" = not administered.

Table 10.2

Patterns of Gender Stability and Change Across Identities

Gender Identity	Total *n*	Maintained Gender	Changed Gender	Changed to Non-Gendered Form
		Physical Self to Primary Avatar		
Male	46	36 (78%)	5 (11%)	5 (11%)
Female	57	56 (98%)	0 (0%)	1 (2%)
		Physical Self to Alt		
Male	46	26 (57%)	16 (35%)	4 (9%)
Female	57	47 (82%)	8 (14%)	2 (4%)
		Primary Avatar to Alt		
Male	36[a]	24 (67%)	11 (31%)	1 (3%)
Female	61[b]	50 (82%)	9 (15%)	2 (3%)

Notes. Non-Gendered Form reflects unidentified gender (i.e., when the participant chooses an animal, mythic figure, or inanimate object as their Second Life identity). Numbers in parentheses reflect percentage of participants within that category row (numbers do not always total 100 because of rounding).

[a] The total number of male avatars ($n = 36$) is lower than the total number of male participants ($n = 46$) because a number of physically male participants had primary avatars who were female.

[b] The total number of female avatars ($n = 61$) is higher than the total number of female participants ($n = 57$) because total female avatars includes *both* physically female participants with female avatars and physically male participants with female avatars.

Figure Captions

Fig 10.1 Age by identity status

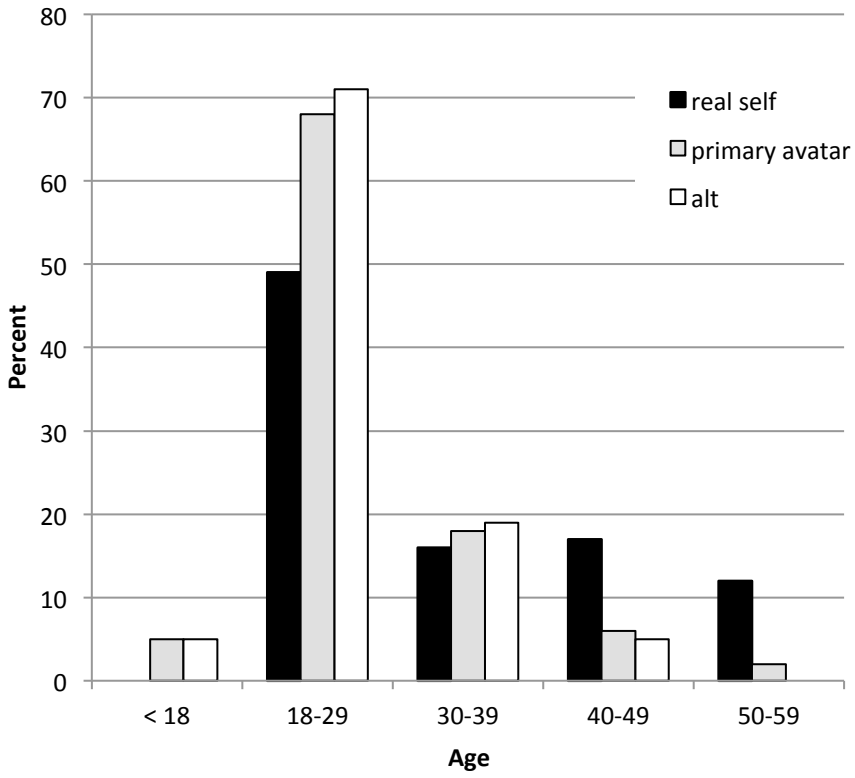

Fig 10.2 Body type by identity status

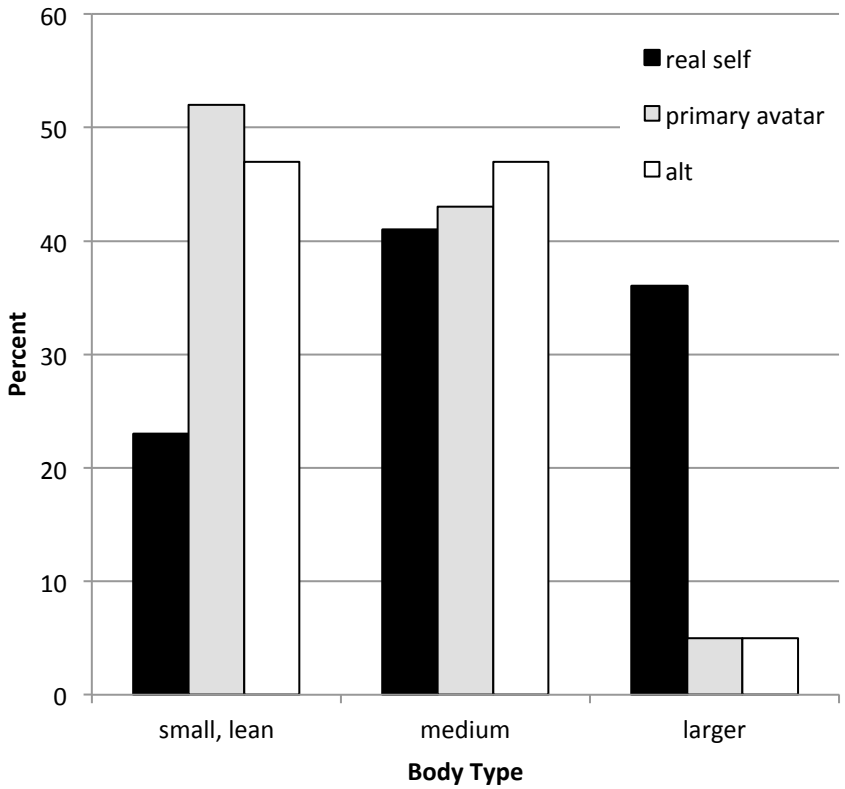

Fig 10.3 Comparisons of activity preferences between primary avatar and alt. There were significant differences between the primary avatar and alt on preferences for building, buying/selling, exploring the virtual world, learning/education, scripting, shopping, socializing, and working/employment. Participants ascribed greater importance to these activities for their primary avatar versus their alt. (Error bars represent standard errors.)

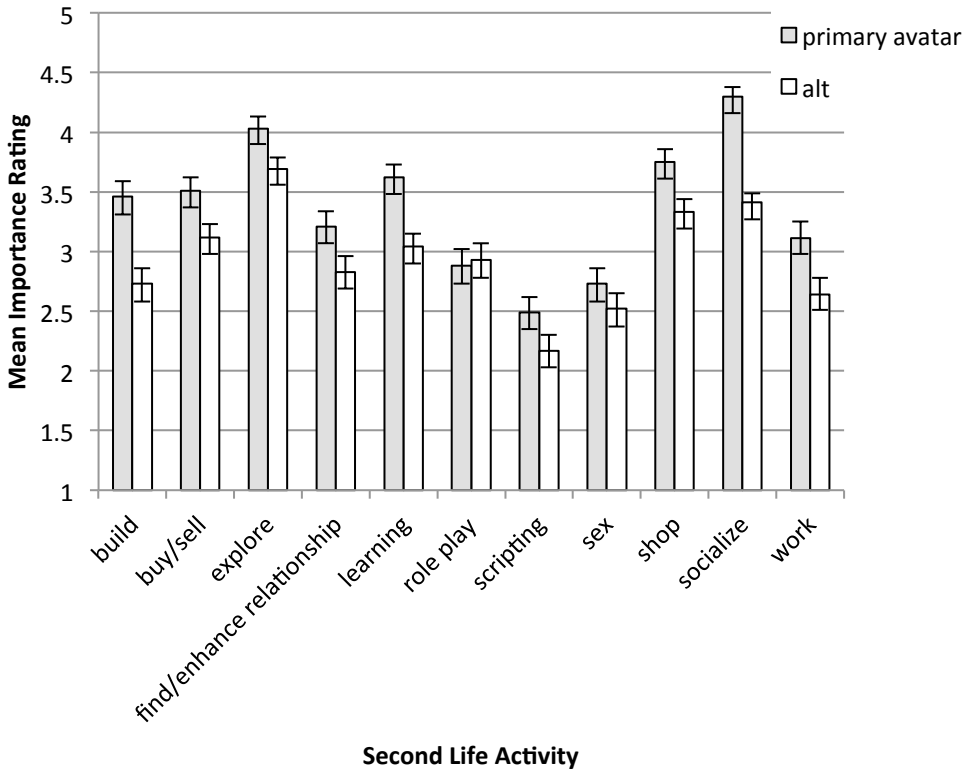

Fig 10.4 Comparisons of Big Five personality traits across three identities. There were significant differences in which (1) participants' primary avatars were more extroverted, agreeable, conscientious, open, and less neurotic, than their physical selves, (2) alts were less neurotic and less open than participants' physical selves and (3) primary avatars were more extroverted, agreeable, conscientiousness, and open than their alts. (Error bars represent standard errors.)

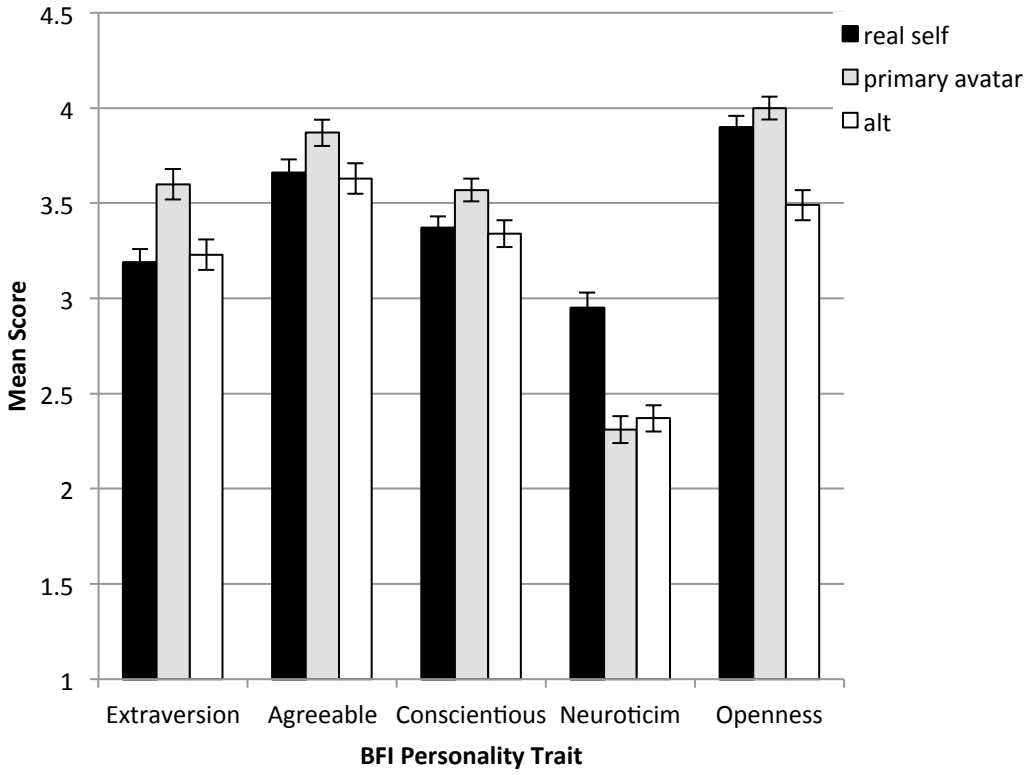

Fig 10.5 Motivations for alt creation and usage. (Participants were able to select more than one option.)

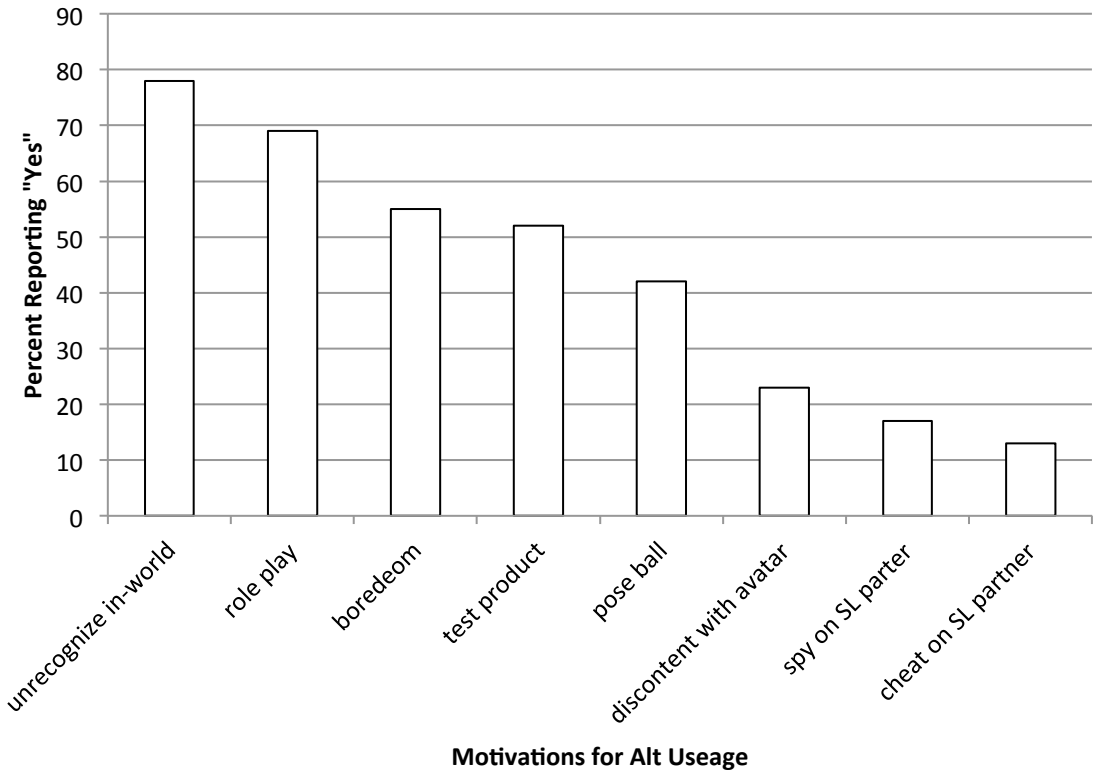

Fig 10. 6 Types of role playing and/or experimentation purposes for alt identities. Seventy-two participants cited role playing/experimenting with a different identity as one of their motivations for using an alt. (Participants were able to select more than one option.)

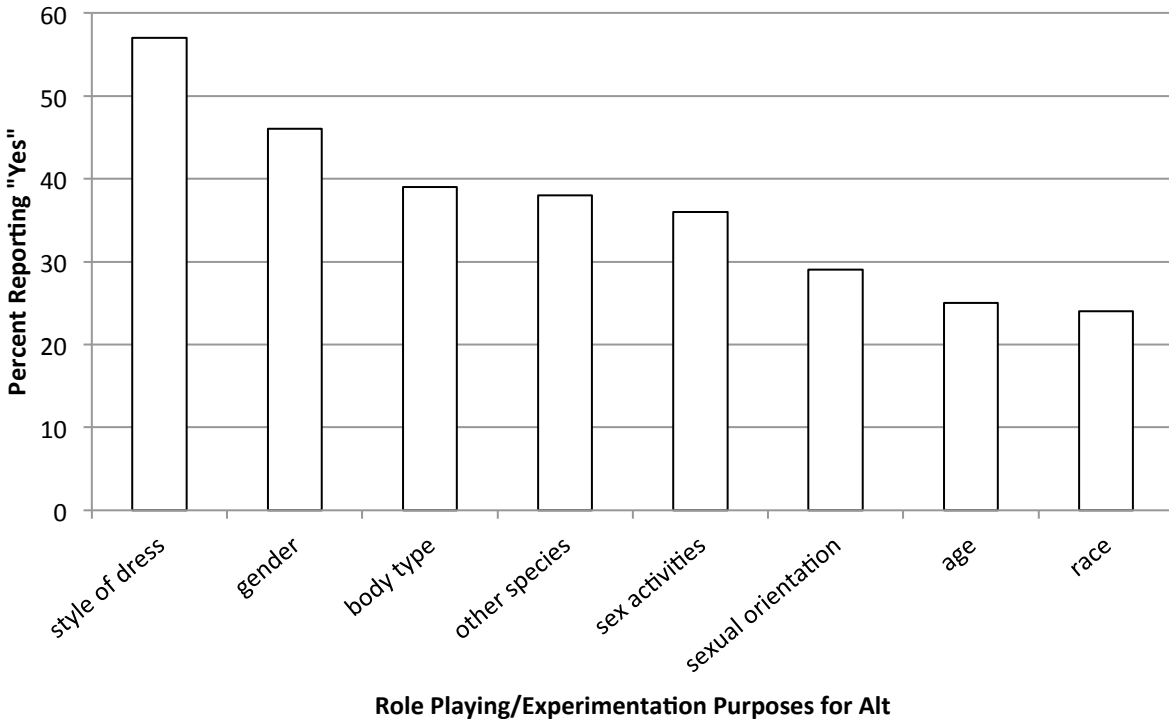

Fig 10.7 Multiple personality order: The functions of primary avatars and alts relative to the physical self (PS) and to each other. VW = Virtual world

Functions of Primary Avatar (PA)	Common Function of Primary Avatar and Alt				Functions of Alt	
Maintenance of Persistent Identity in Virtual World (VW)	Extension of PS into the VW	Enhancement of PS in VW - express the "Aspirational Self"	Diversification of PS in VW	Diversification of PA	Anonymity of PA	Multiplication of PA