HIDING OR PRIDING? A STUDY OF GENDER, PERSONALITY, AND GAME CONTEXT WITHIN AVATAR SELECTION

by

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A DISSERTATION

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ABSTRACT

The present research explores the impact of gender, personality, and game context on avatar selection. The experiment is a 2 (gender: men vs. women) x 2 (game context: online vs. single-player) between-subjects factorial design. Quantitative comparisons between participants and their avatars were made in terms of attractiveness, skin tone, girth, chest size, waist size, hip size, and height (measured two ways) and were used as dependent variables. Other dependent variables included four self-reported survey items assessing participants’ relationship to their avatars. Game context and gender were found to have a significant interaction in terms of avatar metrics. Game context had few main effects. Gender, however, did yield main effects both alone and with certain aspects of personality functioning as moderators. Skin tone, race, attractiveness all also had effects on avatar selection.
DEDICATION

This dissertation is dedicated to everyone who assisted me in creating this manuscript and to my family and friends who offered a wealth of support in seeing its completion.
LIST OF ABBREVIATIONS AND SYMBOLS

\( \beta \)  Regression coefficient

\( df \)  Degrees of freedom: number of values free to vary after certain restrictions have been placed on the data

\( \eta^2 \)  Eta squared: measure of effect size

\( F \)  Fisher’s F ratio: a ration of two variances

\( M \)  Mean: the sum of a set of measurements divided by the number of measurements in the set

\( p \)  Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value

\( R^2 \)  R squared: measure of effect size

\( SD \)  Standard deviation: a measure of variation from the mean

\( t \)  Computed value of t test

<  Less than

=  Equal to
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CHAPTER 1
INTRODUCTION

Computers have promised a host of transformative abilities since their inception and integration into society. They have no doubt changed the way people work, play, and communicate. However, are these machines capable of changing people themselves? Some have argued that computers have at least changed the way people think about themselves and the way they reveal themselves to others (Bailenson & Beall, 2006; McKenna & Bargh, 2000; Rheingold, 1993; Turkle, 1995; Wellman & Gulia, 1999). Turkle has argued that computers, and especially the Internet, have afforded a certain impermanence to identity and have even allowed for multiple identities or multiplicity. “When people adopt an online persona they cross a boundary into highly-charged territory. Some feel an uncomfortable sense of fragmentation, some a sense of relief. Some sense the possibilities for self-discovery, even transformation” (p. 260). Even if average Internet users are not looking to reinvent themselves, there are opportunities to tweak their identities in the online realm that are not possible in the real world (Papacharissi & Rubin, 2000). Some have argued that the identity control offered by computers could even serve as a means of leveling the playing field for those groups who feel marginalized by society (Gross, 2005; McKenna & Bargh, 2000; Wright, 2000).

One area of computing that seems to be particularly salient to discussions of identity is that of the avatar. An avatar is the graphical representation of the self within computer-mediated environments (Blascovich et al., 2002). Avatars have their theoretical basis in Goffman’s (1959)
theory of self-presentation, the idea that people communicate an expression of themselves to others, who then interpret those expressions. Several researchers have argued that immersive computer-mediated environments, such as video games, are ideal for research into identity and the presentation or representation of the self—particular given that attributes, such as race and gender, can be experimentally controlled within such environments (Bailenson, Blascovich, & Guadagno, 2008; Blascovich et al., 2002). Additionally, avatars seem to be particularly ideal for investigations into Turkle’s (1995) concept of multiplicity, because they offer people the ability to change an avatar’s appearance and behavior (Bailenson & Beall, 2006). Recent research found that people do use avatars to assess who is on the other side of the computer (Nowak & Rauh, 2008). Given the ubiquitous nature of avatars and avatar selection tools within massively multiplayer online (MMO) games and their predecessor, the multi-user dungeon or MUD, such computer-mediated environments seem to be the perfect realm in which to study the avatar phenomenon (Bailenson, Blascovich, & Guadagno, 2008; Castronova, 2004; Rheingold, 1993; Turkle, 1995; Yee, 2006).

Goffman (1959) noted that the appearance of misrepresentation is something one wishes to avoid. However, the key term here is “appearance.” He pointed to instances of misrepresentation, such as coloring one’s hair, having plastic surgery, or even assimilating culturally, that have become acceptable over the years. He suggested such transitions were natural and would likely continue. Here again, MUDs and MMO games seem to be a perfect illustration of such prophetic wisdom.

On MUDs, one’s body is represented by one’s own textual description, so the obese can be slender, the beautiful plain, the “nerdy” sophisticated. … The anonymity of MUDs—one is known on the MUD only by the name of one’s character or characters—gives
people the chance to express multiple and often unexplored aspects of the self, to play with their identity and to try out new ones. MUDs make possible the creation of an identity so fluid and multiple that it strains the limits of the notion. (Turkle, 1995, p. 12)

Williams (2006) further explored the concept of role-playing with avatars by studying MMO games. He chose the massively multiplayer online role-playing game known as AC2 to study virtual cultivation effects. While studying the game, he dissected its customizable avatar system.

This avatar is created and directed by the player and maintained indefinitely rather than for a single play session. In AC2, players create human characters and endow them with skills, abilities, and a customizable appearance, including height, build, skin and hair color, and gender. Players also choose weapons and control the avatar's actions within the game world, most of which consists of battling with monsters. (p. 73)

This added dimension of graphical representation provides a new facet of identity online. Users no longer are relegated to text-based description and disclosure or even to simple pictures. Now, they can embody their online identity any way they see fit.

One of the many promises of the Internet is that it has the capacity to not only conceal identity but also to conceal the features by which someone may be judged by others, such as appearance (Walther, 1996; Wright, 2000). This has obvious benefits to groups who have been marginalized traditionally by society.

Lacking such physical cues on computer networks, one might predict that discrimination on the basis of race, age, gender, sexuality, class, status and group membership would disappear. Indeed, some participants use the lack of physical cues to claim any identity they want. (Burkhalter, 1999, p. 63)
Simply holding membership in a minority or marginalized group in society, though, does not necessarily mean one will hide his or her true identity online. In fact, in as much as the Internet provides concealment, it also affords disclosure and social connectivity, even to marginalized groups (Gross, 2005). Some members of marginalized sexual and social groups have found refuge, social connection, and self-acceptance in online communities. Those positive results have in turn enabled those same people to “come out” to their real-life friends and family (McKenna & Bargh, 1998). It is even possible that people turn to online communities for the very fact that their real life communities will not accept the changes they have decided to make to their personality or how they now define themselves (McKenna & Bargh, 2000).

Walther (1996) has argued that this lack of cues is obviously not complete as one can infer gender, race, and other cues via everything from screen names to online interactions. However, many of these cues are obviously manipulable, as is the rate of exchange, given the asynchronous nature of much of computer-mediated communication. Thus, the sender can put more thought into the message, an obvious advantage over traditional face-to-face communication. Such is the heart of Walther’s Hyperpersonal Communication Model. Parks and Floyd (1996) offered a litany of examples in which online interaction could offer people alternative, even therapeutic, ways of presenting themselves, or at least a version of themselves, to others. The researchers wrote that the Internet allows people the opportunity to acquire social skills, to conquer introversion and “to transcend the limitations they experience in face-to-face settings” (p. 83). They also suggested that the Internet provides a social link for people with disabilities or those who are otherwise isolated from other people. Williams, Kennedy, and Moore (2008) interviewed role-playing gamers and found that some did indeed use their avatar
as a means of escaping real life by becoming someone else or by engaging in social interactions they may have otherwise been prevented from doing due to depression or anxiety.

However, some researchers remain skeptical of this promise of such technological egalitarianism.

[Computer-mediated communication] allows individuals to execute a greater degree of control over the usually non-controllable features of their appearance, ethnicity, and gender in presentations to others. This could potentially allow a community to form without the mistrust brought by visual markers of difference such as skin color. However, it will most likely take more than a technology to erase the distinctions which humans have made among themselves in the offline world. (Watson, 1997, pp. 107-108)

Galanxhi and Nah (2007) found that when people are told to deceive others in an experimental setting, they found the task much easier and less stressful if it was done in an avatar-driven environment versus a text-based environment. The researchers argued that the deceivers were “wearing a mask” (p. 770) and noted that deceivers were more likely to pick avatars that did not look like themselves.

Research suggests that the color of an avatar’s skin may spur racism just as the color of a person’s skin does in real life (Eastwick & Gardner, 2009). Kafai, Cook, and Fields (2007) recounted a story of a white woman’s experimentation with a black avatar in the virtual environment Whyville.net. The immediate reactions were rather negative with one acquaintance proclaiming “You look like a freak!” (p. 273). Therefore, it would not be unreasonable to assume that, in some cases, a member of a minority or marginalized group may actually use deception as a means of preventing possible alienation, particularly in situations when it is understood that
there will be mixed company. Is this the promise of impression management online, managing oneself into the majority?

Fears about isolation and the effects of ostracism exist online with as much devastating impact as they do in the offline world (Williams, Cheung, & Choi, 2000). How people present themselves, and whether they are wholly truthful, is likely dependent on what their ultimate goal is for the interaction at hand (Watson, 1997). Goffman (1959) acknowledged that recipients of self-presentation can only assume what the presenter is transmitting is the truth. Certainly, this is true of presentation exchanges over the Internet. In fact, some research has shown that when designing avatars, people will bandy between what Higgins (1987) referred to as the “actual self”—a concept similar to Bargh, McKenna, and Fitzsimmons’s (2002) “true self,” Amichai-Hamburger, Wainapel, and Fox’s (2002) “real me,” and Lee’s (2004) “para-authentic self”—and more idealized or more normative versions of the self, depending on the kind of message the avatar is meant to convey (Vasalou, Joinson, Banziger, Goldie, & Pitt, 2008).

The typical supposition from many researchers, Goffman (1959) included, has been that people will attempt to present themselves in ideal or, at the very least, appealing ways. Schlenker (1980) argued that self-presentation, which he refers to as impression management, does not necessarily mean there is any deceit afoot or that there is even intention, given that some people may present themselves in certain ways solely out of habit. Parks and Floyd (1996) conceded that some researchers have noted the less positive aspects of online identity, that of manipulation and deception. The researchers used the example of men who pretend to be women online. This example may be flawed given that it relies on the premise that pretending to be the opposite sex is inherently wrong. Many in the transgender community would likely disagree with such an assumption.
Schlenker also acknowledged the existence of what he dubbed “aberrant images” (p. 285). These are examples of socially undesirable self-presentations. He singled out two aberrant images in particular, that of the 17th century witch and that of the violent thug. This is interesting to note in that World of Warcraft, one of the most popular MMO games with more than 11.5 million users worldwide as of November 2008, offers both warrior class and warlock class as an option in its avatar selection menu. The warlock class is even noted for being one of the best classes for self-reliance within the game (Ducheneaut, Yee, Nickell, & Moore, 2006a). Again, this discrepancy between ideal selves and aberrant images offers more support for Turkle’s (1995) assumption that people truly live online via multiple identities.

There is also the possibility that people are perfectly happy presenting their true selves online. Researchers found that when people select avatars for certain purposes, such as blogging, they would select ones that reflect their actual self (Vasalou & Joinson, 2009). Though selecting avatars obviously can be an effective means for self-presentation, Dominick (1999) posited that identity communication is also achieved via people’s personal Web pages, which he viewed as a form of mass communication. He analyzed 319 sites and found that though they did not contain much personal information, they used “the same strategies of self-presentation” with the “same frequency” as found in an interpersonal setting (p. 646). Moreover, half of both men and women included a picture of themselves. A quick check of user statistics for the popular personal profile site Facebook.com (more than 400 million active as of March 2010), indicates that many people, both mainstream and marginalized alike, are happy to share at least some part of themselves online. However, such findings beg a number of questions. How much is shared? How truthful are people when they share? Moreover, what motivates some to share honestly and other to misrepresent themselves? These questions are at the basis of the present study. Explorations will
include gender and game context effects on avatar selection; personality effects on avatar selection; self-esteem effects on avatar selection; skin tone effects on avatar selection; body size effects on avatar selection; and attractiveness on avatar selection.

Why study avatars at all? Are they not just artifacts of video games? Are they not just insignificant playthings? They are in fact much more. And they have become a more common, more pervasive element of not only research and technology, but of popular culture. TV sports network ESPN and video game publisher EA introduced the “Virtual Playbook” in 2008 that allows sportscasters to interact with virtual players and virtual game scenarios to explain key elements of the game to the public (Brown, 2008). TV news network CNN made television history during the 2008 election first by conducting the first holographic interview (Welch, 2008). In addition, the biggest blockbuster movie of all time, in terms of sheer global revenue, is titled Avatar and involves the concept of immersing oneself in another body (Segers, 2010). Thus, the concept of avatars or of virtual environments is not foreign or insignificant to the public by any stretch of the imagination. Therefore, scholars have a duty to study the effects that avatars and virtual environments may have on the public, the uses to which the public put their avatars, and the significance avatars hold for the public. This is the goal of the present research.
CHAPTER 2
LITERATURE REVIEW

Avatar Selection

One of the first graphics-based massively multiplayer online (MMO) games was introduced in 1979. Its title was Avatar (Bartle, 2003). However, the word’s Digital Age definition is most often traced to the creators of Lucasfilm’s Habitat, a 1986 computer game (Britt, 2008). Habitat, another early pioneer of MMO games, involved people logging into a network to play the same game with or even against one another. Habitat creators called the graphical representations of players “avatars,” which offered some very limited customization abilities (Rheingold, 1993).

At first blush, it would seem that Higgins’s (1987) Self Discrepancy Theory and the related concepts of the self (actual, ideal, and ought) would offer an excellent understanding for avatar selection. Whereas Higgins’s work offers a rich understanding of the psychology of the self, it is limited in practical application to the online world of avatars. Often, people do not intend to present themselves in an idealized or normative way (Schlenker, 1980). They may just want to present themselves differently or even in an antisocial way. This divergent presentation can be found in virtual worlds and in avatar selection, such as those who choose evil races of the Horde in World of Warcraft (Ducheneaut, Yee, Nickell, & Moore, 2006b). Lee’s (2004) discussion of self presence speaks to a continuum that has implications that are more practical to the electronic world. He argued that presence is really the measurable difference between the
experience of reality and the experience of virtual reality. Self presence, he said, is the difference between the real person and the “para-authentic self” (a mediated representation of one’s true self) or the “alter-self” (a mediated and unrepresentative version of the self). This alter-self would include selecting an avatar for role-playing purposes. Thus, the real person chooses an avatar that is somewhere between a para-authentic avatar and an alter-self avatar.

**Para-Authentic Avatar**

Some researchers have argued there should no longer be a distinction between human and machine or online and offline worlds (Papacharissi, 2002). Research on MUDs (albeit more reality-based MUDs as opposed to fantasy-based MUDs) has shown that most users only play with one character and that nearly all users play most often with a primary character that is a very representative, if not somewhat idealized, version of themselves. Users reported very little role-playing (Schiano, 1999; Schiano & White, 1998). Recent research has suggested that this reliance on the para-authentic avatar may be an artifact of intent. Researchers found that users who selected avatars for blogging purposes were more likely to select one that was very representative of themselves (Vasalou & Joinson, 2009).

**Alter-Self Avatar**

The concept of the alter-self avatar is grounded in Goffman’s (1959) discussion of self-presentation and misrepresentation, Schlenker’s (1980) discussion of impression management and aberrant images, and Turkle’s (1995) discussion of multiplicity. Some researchers have even gone so far as to say that computers and technology are driving a wedge between the mental and physical self and pushing the physical body into obsolescence (Dery, 1996). Research seems to suggest the decision to select either a para-authentic avatar or an alter-self avatar may be more purposeful than simply wanting to role-play or try on an identity. As mentioned previously,
specific situations can elicit different avatar selection choices. Researchers found that users who selected avatars for dating made ones that were more attractive (Vasalou & Joinson, 2009). Users who selected avatars for gaming made ones that accentuated attributes that would be advantageous for the game, such as intelligence. Oddly, all users felt their avatars really reflected their actual self. So even when selecting alter-self avatars, users seem to be convinced of similarities with themselves. Thus, traditional self-report measures of similarity between a participant and their avatar may yield limited or non-existent results.

**Game Context**

**Single-Player Games**

Computer gaming dates as far back as 1947, the year the Cathode-Ray Tube Amusement Device was patented (Vaughn-Nichols, 2009). In fact, during the 1950s, board game simulations were among the first uses for computers beyond calculations. Games included checkers, Nim, and a tic-tac-toe simulator called *OXO* (Jorgensen, 2009). Some have called *OXO*, developed by a British doctoral student for a 1952 thesis, the first true video game (Vaughn-Nichols, 2009). These first games were “single-player” games, meaning users play solo against the computer. This is contrasted against multiplayer games that allow more than one user to play the game at a time (Nieborg, 2006). The first mass-produced video games began to roll out roughly 20 years after *OXO*, with *Computer Space* in 1971 and Atari’s first hit, *Pong*, in 1972 (Vaughn-Nichols, 2009). These games allowed for both single-player modes and a type of multi-player mode commonly referred to as “player versus player” or “PvP” (Ducheneaut, Yee, Nickell, & Moore, 2006b). In this mode, players play against one another as opposed to in tandem.

Yee (2006) delineated three distinct video gaming paradigms based primarily on their social interactivity. The first two of these paradigms typically fall within the category of single-
player games. The third paradigm is that of the massively multiplayer online role-playing game, which will be addressed in the following section. Within the first paradigm, the most basic level, one finds stand-alone games. These are primarily single-player games that feature no social interaction and a rather restrictive gaming environment. Personal avatars are usually not an option. Computer versions of card games and board games would fit into this realm. The second paradigm is that of local area or wide area networked games. These games can be played solo (single-player) or with up to 16 players at the same time in the same gaming environment using often restrictive avatars. Most of these games are combat driven and feature rather limited social interaction. Many include both a narrative-driven game for the single player and a separate competitive PvP game for multiple players (Nieborg, 2006). Such games would include first-person shooter blockbusters like *Halo*.

Given the lack of social connectivity or very little connectivity, it is doubtful that single-player games will engender the kind of identification between player and avatar that games with more connectivity will. For instance, Schleiner (2001) argued that the popular single-player game series *Tomb Raider* is unlikely to provide male players controlling the female titular character of Laura Croft the experience of dressing in drag as there is no social interaction with which to glean feedback. Moreover, if players know they will not be engaging in social interaction, there is no impetus for them to engage in self-presentation or impression management. A person can just be himself or herself as they would at home alone on the couch. It stands to reason that single-player games lend themselves more to para-authentic avatars. Thus, the first hypothesis is posed.

**H1a:** Participants playing a single-player game will be more likely to select a para-authentic avatar than those playing an MMO game.
Massively Multiplayer Online Games

According to Yee (2006), the third and most advanced gaming paradigm, in terms of social interaction, is that of the massively multiplayer online role-playing game or MMORPG. Such games allow 2,000 gamers to play at one time in an expansive, naturalistic, and socially complex world. Unlike most games, these worlds are not instanced, meaning they have an episodic continuity beyond when a single player logs on or off. Though combat is included, such games also feature their own economies, social strata, and professional diversity. Players create personal avatars that they use and develop within the game.

MMO games date back to the very earliest days of networked computing, to 1977’s Mazewar. The game was a primitive first-person shooter designed to run on ARPAnet, a predecessor to today’s modern Internet. The game allowed players to navigate a 3-D maze to shoot one another but offered no real interaction (Bruckner, 1993). Today, MMO games include some of the most popular games of all time, such as Everquest and the juggernaut World of Warcraft (Yee, 2006a). As evidenced by the personal nature of the avatar and the complexities of the social environment in which that avatar is used, MMO games offer a unique platform with which to study virtual identity.

Indeed, most of the activities offered by a MMOG (e.g. developing a character, fighting monsters) are already present in single player games. What makes a difference for many is apparently the shared experience, the collaborative nature of most activities and, most importantly, the reward of being socialized into a community of gamers and acquiring a reputation within it. (Ducheneaut, Nicholas, Yee, Nickell, Moore, 2006a, p. 407)

The Internet is cluttered with online role-playing games offering subscribers a chance to create a customized identity and enter a fabricated “other” world. According to Nexon’s (2010)
Web site, the Korean game developer has registered more than 92 million players globally to its role-playing game *MapleStory* (though such dubiously high numbers should be taken with a grain of salt). LaRose and Eastin (2004) posited that the reason why people use the Internet for social interaction appears to have shifted from a need for social support to a desire to improve social status, such as bragging about a music collection. The ascension of a player’s status and power through a video game environment or the number and difficulty of quests he or she has completed could be motivated, arguably, by a desire to improve social status. However, LaRose and Eastin also cited Turkle’s (1995) research as an alternative explanation. The researchers granted that people could be using online interaction to role-play different or even better versions of themselves. Thus, some online gamers could be role-playing just to role-play. Turkle (1996) also wrote that the line between the self and role-playing character are often blurred for gamers. These characters are both the gamer and not the gamer at the same time. These two competing motivations, role-playing versus presentation of the self, as well as the blurring of the two, offer the very real potential for self-delusion. Where does Goffman’s concept of (1959) front of house or front stage end and his concept of back of house or backstage begin? That transition could take place perhaps when there is no one else around. But do we not also have the capacity to fool ourselves? And though we may see our avatar as similar to ourselves, others may not see such a connection. This notion has limited support in recent research (Vasalou & Joinson, 2009).

Yee (2006) noted five factors for MMO gamers’ motivations, which include the desire for achievement or improving one’s standing, the desire for relationships, the desire for immersion or getting lost in another world or character, the desire for escapism or forgetting about the real world or real problems, and the desire for manipulation or controlling others. All five factors speak to a desire either to attract others socially or to slip away from one’s reality. It
would seem that an MMO avatar would likely fall more along the lines of an alter-self avatar. Thus, the second hypothesis is posed.

H1b: Participants playing an MMO game will be more likely to choose an alter-self avatar than those playing a single-player game.

However, building on the notion that online gamers may incorporate a bit of unconscious self-delusion when selecting avatars, an additional pair of related hypotheses are posed.

H2: Participants playing an MMO game will self-report a stronger relationship to their avatars than will other participants.

H3: Participants who identify themselves as online gamers will self-report a stronger relationship to their avatars than will other participants.

Gender

Men

Though perhaps her research reflects only a narrow scope of identity online, Stern (2004), in her study of adolescents’ Web sites, found that boys were more likely to maintain personal Web sites than girls were. Williams (2006) found that playing the MMO game Asheron’s Call 2 did produce cultivation effects, but only with men. He theorized that this could be due to a stronger identification of males to their avatars. He also noted that very few participants role-played with gender. Yee (2006) found that men were more likely to be motivated by achievement and manipulation. Williams, Consalvo, Caplan, and Yee (in press) also found that men were more driven to play MMO games by achievement. It would seem men make a stronger connection with their virtual lives than women do. This would seem to suggest that men would be more likely to pick para-authentic avatars. However, other research has indicated otherwise.
In a study of self-presentation within blogs, Dominick (1999) found that men promote their own competence more than women do. Men who play an MMO game have shown overall to be more aggressive than women have, but this aggression is particularly exacerbated when playing with romantic partners. Men who play in tandem with a lover have shown to be more aggressive than those who play alone (Williams, Consalvo, Caplan, & Yee, in press). Though men may strive for achievement, which seems to speak to a desire for personal recognition, some male players have admitted to gender bending purposely within such games to obtain attention and assistance (Bruckman, 1996). Therefore, it would seem that perhaps men also have the capacity for selecting alter-self avatars.

Women

Trammell and Keshelashvili (2005) found that teenage girls revealed more information about themselves on their blogs than boys did. Dominick (1999) found that adult women divulged more personal information and family or relationship details on their sites than men did. He wrote, women also “present themselves more positively on interpersonal and socio-emotional attributes” (p. 648). Williams, Consalvo, Caplan, and Yee (in press) found that women actually played more hours and more characters than men did. There seems to be some support for the idea that women may choose more para-authentic avatars. However, ample research indicates just the opposite.

Goffman (1959) noted that female college students often presented themselves as being less intelligent or overall less capable while wooing a member of the opposite sex. He related this trend to his notion that people who are presenting themselves understand there is an idealized expectation by their audience for what is “appropriate.” In this case, a female college student may allow a suitor to drone on about subjects with which they are already familiar or
may purposely commit errors for the suitor to point out and correct. Thus, a stereotypical male-female dynamic is maintained. A dynamic that paints men as being dominant, capable, and competent and women as submissive, dependent, and helpless. And it is propagated in many arenas (Schlenker, 1980).

Women who play in tandem, on the other hand, have shown to be less aggressive than those who play alone (Williams, Consalvo, Caplan, & Yee, in press). Interesting artifacts of this gender role stereotyping have been noted since the early days of MUDs. Players were found to be more helpful to generous and helpful to other MUD players they believed to be female (Bruckman, 1996). Yee (2006) discovered that women were more likely to be motivated by relationships, immersion, or escapism. He found that female players were more likely to be introduced to an MMO game by a romantic partner than men were. He also found that female users were older than male users, played MMO games with their romantic partners more, and were more likely to cherish their MMO friendships as much if not more than their real-life friendships. Williams, Consalvo, Caplan, & Yee (in press) also found that female MMO gamers were older than male gamers were and were more driven by social interaction to play MMO games.

Yee’s (2008) research has shown that females face an unfortunate world of sexism within MMO games and the sense that such games are “made” for men. From the shapely design of the female avatar to the revealing clothing they are often outfitted with, female players are reminded of a male-centric focus. Men often assume all other players are also men and demand proof to the contrary. However, woe is the female player who does convince the male counterpart of her gender. Male players often will attack females’ abilities or begin juvenile attempts of wooing. Much in the same way that men sometimes will gender-bend to receive assistance, women will
sometimes gender-bend to avoid the simple hassles of dealing with the issue of gender altogether.

Given the discussions above, alter-self avatars may actually be quite prevalent among women. However, if both men and women have shown evidence for selecting avatars that are either para-authentic or alter-selves, then perhaps a hypothesis is not warranted here and is perhaps even presumptuous. Thus, the following research question is posed.

RQ1: What effect will gender have on avatar selection?

On a related note, it also appears that men and women may select avatars based on specific situations or intended uses for the avatars. There is research to support such an idea (Vasalou & Joinson, 2009). Given that the stimulus is a video game, men may be more likely to show off particular capabilities to others playing the game. As discussed above, women will sometimes gender-bend to avoid the hassles that face online female gamers. However, it is entirely possible that women will default to Higgins’s (1987) notion of the ideal self when not presented with conflicting considerations, such as playing online cooperatively with others generally and with the opposite sex specifically. Therefore, it is possible that a single-player game will lead to more self-reflection and, perchance, more avatar alteration. Thus, another hypothesis is posed.

H4: There will be a significant interaction between gender and game context in terms of avatar selection. Men in the online condition will show more avatar altering, whereas women in the single-player condition will show more avatar altering.

**Personality**

Researchers have pondered whether personality could be at the root of people’s decisions either to disclose details about themselves or remain anonymous, to commit to serious and meaningful relationships online or to remain detached and casual, to be an aggressive boor or a
lurking lamb (Amichai-Hamburger, 2002). Factors of personality to be considered in the present study are what have been dubbed the “Big Five,” that includes extraversion, neuroticism, agreeableness, conscientiousness, and openness to new experiences. Extraversion relates to socialization and expression, agreeableness to prosocial proclivity, conscientiousness to responsibility toward tasks and goals, openness to diversity of personal experience, and neuroticism to emotional instability (Benet-Martínez & John, 1998, p. 730). Though discussions above lead one to believe that gender may lead to differences in avatar selection, numerous studies have shown the effect of gender may be moderated by personality (Amichai-Hamburger, 2002; Amichai-Hamburger & Ben-Artzi, 2003; Amichai-Hamburger, Wainapel, & Fox, 2002; Guadagno & Cialdini, 2007; Guadagno, Okdie, & Eno, 2008; Vazrie & Gosling, 2004). Thus, the second research question is posed.

**RQ2: Is personality a moderator for gender’s impact on avatar selection?**

**Extraversion**

Parks and Floyd (1996) argued that online interaction, which would now include MMO games, offers the potential for overcoming introversion. Kraut et al. (1998) found in their original study that Internet use was positively related to loneliness. Oddly, however, introverted Internet users were more negatively affected than extraverted users. Later, Kraut et al. (2002) replicated the same study and found that much of their initial negative findings had dissipated. Extraverts, though, still reaped more positive benefits than introverts from Internet use in terms of loneliness and other variables of overall well-being. Research that is more recent found that introverts use the Internet to express who they really are whereas extraverts use traditional forms of social interaction (Amichai-Hamburger, Wainapel, & Fox, 2002). Research has also shown
that extraverted men were more likely to use leisure services on the Internet and introverted men were less likely to use information services (Amichai-Hamburger & Ben-Artzi, 2003).

Though personality likely affects the way a person presents himself or herself, people have also been found to engage in what Goffman (1959) would call misrepresentation about the true nature of their personality. One recent study found that people had exaggerated their own extraversion in their personal Web sites (Vazrie & Gosling, 2004). In their study of World of Warcraft players, Bessiere, Seay, and Kiesler (2007) found that players rated their perception of their avatar’s extraversion higher than their own. Is it any surprise that people would want to accentuate or even bluff such an intrinsically positive attribute? However, it is rational to think that people who actually view themselves as being more extraverted will in fact be more comfortable presenting their true selves to the world. Thus, the following hypothesis is posed.

H5: Extraverts will be more likely to select para-authentic avatars than introverts will.

**Neuroticism**

Research has found that neurotics use the Internet to express their real selves whereas non-neurotics use traditional forms of social interaction (Amichai-Hamburger, Wainapel, & Fox, 2002). Neuroticism in women has been shown to be positively related to the use of social sites (Amichai-Hamburger & Ben-Artzi, 2003) and to blogging (Guadagno, Okdie, & Eno, 2008). Bessiere, Seay, and Kiesler’s (2007) study of MMO gamers found that players rated their avatars’ neuroticism lower than their own. Such research indicates a link between neuroticism and computer-mediated communication and electronic social interaction. If neurotics turn to computer-mediated communication, they may seek solace in knowing they can control how they appear to or are received by others. Thus, a research question is posed.

RQ3: Is neuroticism a predictor for avatar selection?
Openness

Bessiere, Seay, and Kiesler (2007), in their study of MMO gamers, found that players rated their own openness to new experiences and their ideal self openness as higher than that of their avatar. This ran counter to what the researchers had hypothesized.

Although unexpected, this result makes sense. Characters in WoW typically do not enact a creative role; they act at the behest of the player. These results suggest that participants did not simply rate their characters positively across all personality dimensions but did so selectively for the Big Five characteristics most relevant to the virtual world. (p. 532)

Though not directly related to avatars, Guadagno, Okdie, and Eno (2008) found that openness was a significant predictor for blogging. The researchers also found that bloggers were likely to disclose details about themselves personally. Based on such research, a sixth hypothesis is posed.

H6: People more open to new experiences will be more likely to pick para-authentic avatars than people less open to new experiences.

Agreeableness & Conscientiousness

Very few studies have found significant findings in terms of agreeableness and conscientiousness being predictors of self-presentation efforts. In a further example of Goffman’s (1959) contemplation of misrepresentation, a recent study has shown that people with personal Web sites are not above embellishing their own levels of agreeableness (Vazrie & Gosling, 2004). Much like with extraversion, exaggerating agreeableness, an inherently positive trait, is not unexpected. As for conscientiousness, Bessiere, Seay, and Kiesler’s (2007) found that World of Warcraft players rated their perception of their avatar’s conscientiousness as higher than their own. The researchers found no difference in players’ judgments on their avatars’
agreeableness versus their own agreeableness. Though these findings are noteworthy, they hardly offer enough support for formulating hypotheses. Thus, a fourth research question is posed.

RQ4a: Does agreeableness predict avatar selection?

RQ4b: Does conscientiousness predict avatar selection?

Self-Esteem

According to Papacharissi and Rubin (2000), the Internet provides people the ability to fix the parts of their identity they dislike about themselves, the ability to present or change their identity, and the ability to reinvent their identity. The researchers surveyed 279 college students and found that students who shunned face-to-face contact or had less success with it, saw the Internet as a comparable alternative. She also found that students had stronger affinity with the Internet if they were less happy with their lives and depended on the Internet for interpersonal interaction. All of her findings resonated well with her assertion that the Internet not only offers role-play but also potentially aids in self-esteem via positive self-presentation.

Bessiere, Seay, and Kiesler (2007) found that when World of Warcraft players rated themselves on self-esteem, there was a sizable difference between those with low and high self-esteem. However, when they rated their perception of their avatar’s self-esteem, this difference disappeared.

We believe these results support the idea that despite the many rules, constraints, and difficulties of the game world, its anonymity and fantasy frees players from the yoke of their real-life history and social situation, allowing them to be more like the person they wish they were. (p. 534)

However, self-esteem ratings for the ideal self were higher than both the actual self and the avatar for both high and low self-esteem participants. Though MMO gamers with low self-
esteem and those with high self-esteem may rate their avatars’ self-esteem similarly, both place the avatar somewhere between themselves and the ideal self. It stands to reason that lower self-esteem will relate more to self-presentation and impression management, perhaps to misrepresentation. Thus, a seventh hypothesis is posed.

H7: People with low self-esteem will be more likely to choose alter-self avatars than will those with high self-esteem.

Skin Tone

There is evidence to suggest that racial and ethnic identity are as much a part of the online world as they are a part of the offline world, existing via online communities (Burkhalter, 1999). Schwartz, Zamboanga, and Jarvis (2007) explained that skin tone is more closely related to race whereas ethnicity is more closely related to heritage. The researchers added that this is especially complex as it applies to the Hispanic/Latino communities, which vary widely both in skin tone and in heritage. Thus, Schwartz et al. suggested skin tone might be an important factor to study with regard to race and ethnicity.

One feature most avatar selection tools offer is skin tone, which can be altered in most virtual environments to mirror that of real-life minority skin tones (Vasalou, Joinson, Banziger, Goldie, & Pitt, 2008). Such a feature adds an even further complexity to the issues of race, ethnicity, and online identity, given that there is so much history of within-group prejudices involving skin tone documented among minorities. Particularly among African-Americans, lighter skin tones are perceived as more desirable than darker skin tones (Blair, Judd, Sadler, & Jenkins, 2002; Maddox, 2004). Averhart and Bigler (1997) found that even African-American children show preferences for lighter skin tones and found that children who had rated themselves as having lighter skin tones on a Likert scale were more likely to hold biases
regarding skin tone. The researchers explained the stereotype as assigning more traits that are positive to lighter skin tones and ascribing more high-level occupations to people with lighter skin.

Additional research has shown that this preference for lighter skin tones is common in Hispanic/Latino communities and both the Asian and Asian-Indian communities (Espino & Franz, 2002; Tummala-Narra, 2007). Few, if any studies, have investigated the link between the skin tone of a person and the skin tone they select for their own avatar. It is possible that people possessing lighter skin tones desire darker skin tones, as in a desire for tan skin, which has cropped up in avatar selection (Vasalou et al., 2008). Therefore, it would seem plausible that people who are paler will opt for tanner avatars if given the chance. However, given the discussions above, minorities or darker-skinned people may opt for lighter-skinned avatars. Thus, two hypotheses are posed.

H8a: Participants with lighter skin tones will choose avatars with darker skin tones.

H8b: Participants with darker skin tones will choose avatars with lighter skin tones.

Moreover, given the research on cyberostracism and potential avatar racism (Williams, Cheung, & Choi, 2000; Eastwick & Gardner, 2009), is it likely that people will choose an avatar skin tone different from their own when faced with the potential for mixed company, such as online gaming? Or will avatar selection remain constant no matter what the conditions of game context are? Thus, a research question is posed.

RQ5: What impact does game context have on avatar skin tone?

**Body Image**

Body image is another complex issue that finds its way into discussions of identity in a computer-mediated world. Miller and Downey’s (1999) meta-analysis of higher weight and self-
esteem indicated there is a negative correlation between the two, especially for perceptions of weight as opposed to actual weight. This negative correlation was stronger for people of higher socioeconomic status than for people of lower socioeconomic status, higher for whites than for minorities, and higher for women than for men. This last finding does seem to give credence to the stereotype that women concern themselves with weight more than men do. However, it does not truly represent the complexity of body image for women. Research has suggested that women often view other women as being thinner and more physically motivated to remain thin than themselves (Sanderson, Darley, & Messinger, 2002). Such research speaks to what some have dubbed the thin ideal—a notion that media propagate a consensus that thin is best, which women then internalize (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999; Thompson & Stice, 2001). If such internalization occurs, then women will likely feel more pressure to be thin and, by default, may make their avatar thin as well. This is not to say that weight is the only variable in terms of body image, nor is to say that men do not also concern themselves with body size. Gunderson (1965), in a study of Navy men, found subjects to be not only dissatisfied with their own weight but also with their own height. In his study, he found that this population of men deemed 72 inches (6 feet) to be the ideal height and 159 pounds to be the ideal weight. Yee and Bailenson (2007) found that when participants were assigned taller avatars during a virtual negotiation, they exuded more confidence than participants given shorter avatars did. The researchers argued that people will conform their behavior to assigned avatars based their avatars’ attributes, something they refer to as the Proteus Effect. Cafri and Thompson (2004) have argued that male body image, as well as body dissatisfaction, is tied to musculality. Given that taller avatars usually equate to more muscle (dwarves being the one exception), it stands to reason that men will opt for taller avatars.
Body size has been a featured option of avatar selection tools since the early days of multiplayer games (Kolko, 1999). Many of the same advantages and constraints to bodies in the real world are also present in the virtual world. Short avatars will appear short; male avatars will appear male. However, many virtual environments offer races of creatures that do not exist in the real world and come with their own “physical” dynamics (Castronova, 2004). Biocca (1997) argued, within his explanation of self presence, that the virtual body and the real body may battle for dominance within the user’s mind. Thus, self presence demonstrates the effects that avatars can have on identity or at least one’s body image. Moreover, it is not farfetched to assume that people may treat the physical size of an avatar in much the same way they would the physical size of a real person. Staffieri (1967) found that children would ascribe negative attributes to simple silhouettes of thin or overweight body sizes. In the avatar trade business, which is the buying and selling of selected characters for use in multiplayer games, avatars that look human actually sell only a little better than those that look like monsters and sell less than those that are quite small in stature. Consequently, though, male avatars outsell female avatars (Castronova, 2004). Such findings beg the question: if girth or height can be controlled in a computer-mediated environment, will people choose to represent themselves accurately? Recent research has shown that men overestimate their height and women underestimate their weight in online dating profiles (Hancock, Toma, & Ellison, 2007). Thus, two hypotheses are posed.

H9a: Men will select avatars taller than their true selves.

H9b: Women will select avatars with a smaller girth than their true selves.

Some research has shown that people use avatar bodies, though not necessarily body size, to convey messages about their lives, implying someone is supposed to see their creations. However, others select exaggerated avatars for entertainment or even comical effect (Vasalou et
al., 2008). Would these same people use exaggerated avatars if they believed they would have to interact with others? Would they instead provide a more accurate depiction of themselves? Thus, the final research question is posed.

RQ6: What impact does game context have on avatar body size?

Attractiveness

Messinger et al. (2008) found, in their study of the MMO game Second Life, that though people often make avatars that resemble themselves, they also make them more attractive. As mentioned previously, researchers have found that if asked to pick avatars for dating purposes, people will pick ones that accentuate attractiveness (Vasalou & Joinson, 2009). Yee and Bailenson (2007) found that when they assigned attractive avatars to participants, they were more intimate with those avatars. They shared more details about themselves and kept closer actual personal distances than those with less attractive avatars. Marketing research has shown that people respond well to attractive avatars (Holzwarth, Janiszewski, & Neumann, 2006). Given the near ubiquitous positivity toward attractive avatars, it seems very likely that more people will choose attractive avatars than unattractive ones. Thus, a final pair of hypotheses are posed.

H10a: Unattractive participants will select avatars that are more attractive.

H10b: Attractive participants will select avatars that are more attractive.
CHAPTER 3

METHODOLOGY

Participants

For the purposes of the present study, the researcher recruited 212 college undergraduates, with a women-to-men ratio of 2:1. However, due to a failure in the manipulation check, data for only 174 participants were used. Students were recruited predominantly from the psychology department of a large southeastern university with additional students recruited from the college of communication and information sciences of the same institution. All students either received extra course credit for participation or had the opportunity to fulfill research requirements.

Design

The design was a 2 (gender: men vs. women) x 2 (game context: online vs. single-player) between-subjects factorial design. A control condition had originally been intended for the experiment in order to assess the impact of explicit expectations on game context versus none. However, according to a post-test manipulation check, most of the control subjects assumed they were in either the single-player or online conditions. Therefore, these subjects’ data were later reincorporated to those conditions they believed they were in.

During data collection, subjects were randomly assigned to one of the three game context manipulations and were told either their avatar would be seen by others since the game is an online game, seen by only themselves since the game is a single-player game, or were given no
description of the game’s connectivity. The computer game *Neverwinter Nights 2* served as the treatment for this experiment. *Neverwinter Nights 2* is a fantasy role-playing game based on the popular *Dungeons & Dragons Forgotten Realms* cannon (Atari, 2009). The game was selected because of its online and offline game context, its single-player and multiplayer capability, and its avatar selection menu, which includes variable skin tone, height, and girth.

**Manipulation**

Most subjects were recruited electronically via the department of psychology’s subject pool. Students from the college of communication and information sciences were recruited via classroom recruitment pitches. A randomized condition spreadsheet was designed using Excel. Given the over-representation of women within the department of psychology and college of communication and information sciences, the researcher devised a condition spreadsheet that over-sampled women to men at a 2:1 ratio. Subject numbers were labeled by gender (man or woman) and by condition (online, single-player, or control) and then randomized. The first male subject was given the first randomized male subject number and corresponding condition on the list, and the next male subject received the next randomized subject number and corresponding condition. The process was identical for female subjects. All other differences in treatments were based on the script procedures outlined below.

**Procedure**

Subjects were told via an information sheet that their goal in the experiment was to evaluate a video game’s—*Neverwinter Nights 2* (Monahan, 2008)—overall features and game context. Research assistants learned a script that differed only depending on if the subject was in the online, single-player, or control condition. Subjects in the online condition were told the game *Neverwinter Nights 2* was an “online game” and that “other people would be able to see
and interact with them.” Subjects in the single-player condition subjects were told *Neverwinter Nights 2* was a “single-player game” and that they would be playing the game by themselves. Subjects in the control condition were given no information other than the game’s title. They were instructed to select a character to play with (an avatar) using the game’s character selection menu and then continue on to play the game at their leisure. Subjects were made aware of their options but not told how or what to select for their characters’ gender, race, body size, or skin tone. After avatar selection was complete, research assistants asked the subjects to step out of the room and proceeded to take a screenshot of the avatars without the subjects’ knowledge. Research assistants then asked subjects to return to the computer and instructed subjects to play the game for 20 minutes.

After 20 minutes of game context, the subjects were then presented with a computer-based post-test (See Appendix A). The questionnaire included Rosenberg’s (1967) Self-Esteem Scale, Benet-Martínez and John’s (1998) Big Five Personality Scale (“Big 5”), demographic questions, and items dealing directly with avatar selection. Finally, the subjects were given a consent form, which permitted the researchers to take the subject’s photograph, to read and sign and were then led to a marker board with their subject number written on it. Research assistants took head-to-toe photographs of the subjects with a digital camera under the pretense that the image would assist further research into better and more realistic character designs. Upon leaving the experimental laboratory, subjects were debriefed and dismissed.

**Independent Variables**

Gender (men and women) and game context (online and single-player) served as the primary independent variables for this study and were addressed in the manipulations. Other independent variables were gleaned from the photographs taken during the experiment. Two
undergraduate research assistants, working independently, rated the skin tone, height, girth, and attractiveness of the subjects based on the photographs taken of them (See Appendix B). This was done in similar fashion to the student raters in Averhart and Bigler’s (1997) study. Skin tone was judged on a scale of 1, representing extremely pale, to 7, representing extremely dark. Height was judged on a scale of 1, representing extremely short, to 7, representing extremely tall. Girth was judged on a scale of 1, representing extremely thin, to 7, representing extremely overweight. Attractiveness was judged on a scale of 1, representing extremely unattractive, to 7, representing extremely attractive. Photographs were assigned randomly, and the researcher used Cronbach’s (1951) alpha to determine intercoder reliability. Coders’ scores that yielded an alpha of .70 or higher were averaged to create an index (see Table 3.1 below).

To add precision, photographs of each participant were measured. Independent coders using fabric rulers on computer screens took measurements (in millimeters) of chest sizes, waist sizes, hip sizes, and heights. Coders’ scores that yielded an alpha of .70 or higher were averaged to create an index (see Table 3.1 below). Those indexes were used to derive differences with corresponding avatar screenshots (see Table 3.4 below).

Table 3.1

<table>
<thead>
<tr>
<th>Independent Variable Indexes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>Attractiveness</td>
</tr>
<tr>
<td>Skin tone</td>
</tr>
<tr>
<td>Height (scale)</td>
</tr>
<tr>
<td>Girth</td>
</tr>
<tr>
<td>Chest (mm)</td>
</tr>
<tr>
<td>Waist (mm)</td>
</tr>
<tr>
<td>Hips (mm)</td>
</tr>
<tr>
<td>Height (mm)</td>
</tr>
</tbody>
</table>
The researcher also relied on Rosenberg’s (1967) Self-Esteem Scale (10 items) and Benet-Martínez and John’s (1998) Big Five Personality Scale (44 items total; 10 for openness, 9 for conscientiousness, 8 for extraversion, 9 for agreeableness, and 8 for neuroticism) to come up with an additional six independent/moderating variables. The appropriate items were combined to create the six corresponding variable indexes, each of which yielded an alpha higher than .70 (see Table 3.2 below).

Table 3.2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Range</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-esteem</td>
<td>1 - 8</td>
<td>2.44</td>
<td>.44</td>
<td>.82</td>
</tr>
<tr>
<td>Openness</td>
<td>1 - 8</td>
<td>5.25</td>
<td>1.19</td>
<td>.84</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>1 - 8</td>
<td>5.48</td>
<td>.97</td>
<td>.77</td>
</tr>
<tr>
<td>Extraversion</td>
<td>1 - 8</td>
<td>5.47</td>
<td>1.29</td>
<td>.88</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>1 - 8</td>
<td>6.19</td>
<td>.94</td>
<td>.78</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>1 - 8</td>
<td>3.92</td>
<td>1.14</td>
<td>.78</td>
</tr>
</tbody>
</table>

**Independent/Moderating Variable Indexes**

**Dependent Variables**

Part of the dependent variables for the experiment were the attractiveness, skin tone, girth, chest size, waist size, hip size, and height (both coded and measured) for the resultant avatars of the online and single-player treatments. The coders were randomly assigned screenshots of the subjects’ selected avatars. The coders used the same coding scheme as outlined above. The researcher again used Cronbach’s (1951) alpha to determine intercoder reliability. Coders’ scores that yielded an alpha of .70 or higher were averaged to create an index (see Table 3.3 below).

Four survey items were also included as dependent variables (see Table 3.3 below). These items assessed the participants’ views on the avatars they had selected and were self-reported. Two items, taken from Maner et al. (2002), assessed participants’ connectedness to
their avatars (pictures ranging from 1, completely separate, to 7, completely superimposed) and how likely they would be to use the word “we” to describe themselves and their avatars (from 1, not at all, to 7, extremely likely). The other two items, created by the researcher, assessed how much participants’ avatars looked like them (from 0, strongly disagree, to 3, strongly agree) and how much their avatars shared their personality (from 0, strongly disagree, to 3, strongly agree).

Again, in an effort to ensure precision, each avatar screenshot was measured. Independent coders using fabric rulers on computer screens took measurements (in millimeters) of chest sizes, waist sizes, hip sizes, and heights. Coders’ measurements that yielded an alpha of .70 or higher were averaged to create an index (see Table 3.3 below). Coders also measured the distance participants had moved the height and girth selection sliders on their avatars. Coder-determined and measured values for participants were then subtracted from correspondent coder-determined and measured values for avatars to derive a slate of eight avatar-participant difference metrics. These metrics would serve as the primary dependent variables (see Table 3.4 below).

**Analysis**

One-way and factorial multivariate analyses of variance were calculated to determine main and interaction effects of gender and game context on the eight avatar-participant difference metrics, which consisted of attractiveness differences, skin tone differences, girth differences, coder-determined height differences, measured chest differences, measured waist differences, measured hip differences, and measured height differences and on the four self-report items. Regression analysis was used to determine the effect of the Big Five personality factors and of self-esteem on the avatar metrics. The researcher also relied on multiple regression
analysis to determine the moderating effects that the Big Five had on the relationship between gender and the avatar metrics.

Table 3.3

**Dependent Variables (Indexes and Self-Report Items)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Range</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avatar attractiveness</td>
<td>1 – 7</td>
<td>3.84</td>
<td>1.54</td>
<td>.78</td>
</tr>
<tr>
<td>Avatar skin tone</td>
<td>1 – 7</td>
<td>3.74</td>
<td>1.40</td>
<td>.89</td>
</tr>
<tr>
<td>Avatar height (scale)</td>
<td>1 – 7</td>
<td>4.71</td>
<td>1.47</td>
<td>.94</td>
</tr>
<tr>
<td>Avatar girth</td>
<td>1 – 7</td>
<td>3.78</td>
<td>1.72</td>
<td>.93</td>
</tr>
<tr>
<td>Avatar race</td>
<td>1 – 4</td>
<td>1.91</td>
<td>.89</td>
<td>.783*</td>
</tr>
<tr>
<td>Avatar chest (mm)</td>
<td>7 – 24</td>
<td>14.55</td>
<td>3.79</td>
<td>.83</td>
</tr>
<tr>
<td>Avatar waist (mm)</td>
<td>6.5 - 20</td>
<td>12.80</td>
<td>3.07</td>
<td>.77</td>
</tr>
<tr>
<td>Avatar hips (mm)</td>
<td>8 – 22.5</td>
<td>15.12</td>
<td>3.24</td>
<td>.78</td>
</tr>
<tr>
<td>Avatar height (mm)</td>
<td>35.5 – 83.5</td>
<td>69.72</td>
<td>8.89</td>
<td>.96</td>
</tr>
<tr>
<td>Height bar (mm)</td>
<td>0 – 25</td>
<td>14.58</td>
<td>6.52</td>
<td>.92</td>
</tr>
<tr>
<td>Girth bar (mm)</td>
<td>0 – 25</td>
<td>11.09</td>
<td>7.60</td>
<td>.92</td>
</tr>
<tr>
<td>Connected to avatar</td>
<td>1 – 7</td>
<td>3.11</td>
<td>1.64</td>
<td>Self-report item</td>
</tr>
<tr>
<td>Would refer to avatar as we</td>
<td>1 – 7</td>
<td>2.30</td>
<td>1.44</td>
<td>Self-report item</td>
</tr>
<tr>
<td>Looks like me</td>
<td>0 – 3</td>
<td>.73</td>
<td>.94</td>
<td>Self-report item</td>
</tr>
<tr>
<td>Personality like me</td>
<td>0 – 3</td>
<td>1.28</td>
<td>1.00</td>
<td>Self-report item</td>
</tr>
</tbody>
</table>

* Tie-breaking decisions on avatar race were decided on by a third party.

Table 3.4

**Dependent Variables (Avatar-Participant Difference Metrics)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Range</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attractive difference</td>
<td>-4.5 – 4</td>
<td>.03</td>
<td>1.89</td>
</tr>
<tr>
<td>Skin tone difference</td>
<td>-4 – 4.5</td>
<td>.43</td>
<td>1.56</td>
</tr>
<tr>
<td>Height (scale) difference</td>
<td>-4.5 – 3</td>
<td>-.51</td>
<td>1.51</td>
</tr>
<tr>
<td>Girth difference</td>
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<td>-.25</td>
<td>1.79</td>
</tr>
<tr>
<td>Chest (mm) difference</td>
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<td>-5.06</td>
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<tr>
<td>Waist (mm) difference</td>
<td>-16 – 1</td>
<td>-7.17</td>
<td>3.16</td>
</tr>
<tr>
<td>Hips (mm) difference</td>
<td>-17 – 1</td>
<td>-6.67</td>
<td>3.39</td>
</tr>
<tr>
<td>Height (mm) difference</td>
<td>-47.5 – 11.5</td>
<td>-17.11</td>
<td>10.80</td>
</tr>
</tbody>
</table>
CHAPTER 4

RESULTS

Descriptives

Though the researcher recruited 212 participants, 38 participants’ data were not used. A manipulation check revealed that most of the participants in the control condition (51 out of 72 participants or 71%) believed they were actually in the single-player condition. Another 18 (11%) thought they were in the online condition. Thus, the control condition was dropped, as were the 13 participants who knew they were in the control condition. The control participants who believed either they were in the online or single-player conditions were reincorporated into the condition they believed they were in. Eight participants in the single-player condition and 16 in the online condition were dropped for answering the manipulation check incorrectly. Finally, one person’s data were lost. Thus, the overall sample used for data analysis was 174 participants.

Of the 174-participant sample, 64 participants were men (37%) and 110 were women (63%). A vast majority of the participants (147 or 85%) were white. There were 19 (11%) African-American participants, two (1%) Asian/Pacific Islander participants, and six (3%) participants who were of other races or were multiracial. This variable was recoded into a dichotomous one with 147 white (85%) and 27 non-white (15%). Only six participants (3%) claimed Hispanic/Latino ethnicity. Given the lack of diversity, race was recoded into a dichotomous variable. Thus, for analysis sake, there were 147 white participants (84%) and 27 non-white participants (15%). As for avatar race, 62 participants (35%) selected human avatars,
75 participants (43%) chose elves or elf-like avatars, 21 participants (12%) chose dwarves or other short-statured avatars, and 16 participants (9%) chose orc avatars.

In terms of game context, 113 participants (65%) were in the single-player condition and 61 (35%) were in the online condition. A vast majority of participants (170 or 98%) had never played the game *Neverwinter Nights 2*. Of the participants, 32 (18%) identified themselves as online gamers. However, more than half of all participants said they played video games for less than an hour a week ($M = 2.75$, $SD = 4.84$) or for less than a day a week ($M = 1.53$, $SD = 2.17$). More than half owned at least one gaming console ($M = 1.42$, $SD = 1.74$) and at least four video games ($M = 7.80$, $SD = 10.84$). Finally, when asked their favorite types of video games to play, 21.8% of participants said action/adventure games, 19% said first-person shooter games, 13.8% said puzzle games, 12.6% said role-playing games, and 4% said simulator games. Another 28.7% of participants said they did not play video games at all.

**Hypotheses and Research Questions**

H1a and H1b predicted that a participant’s randomly assigned condition will result in some differences in terms of avatar selection. The researcher identified a battery of metrics by which avatar selection has been judged, which consisted of rater-determined score differences or measurement differences between participant photographs and avatar screenshots in terms of attractiveness, skin tone, girth, height (as determined by coders), chest measurements, waist measurements, hip measurements, and height measurements. A one-way multivariate analysis of variance was calculated to examine the effect game context (online and single-player) had on avatar metrics. No significant main effects were found. However, a subsequent one-way analysis of variance revealed a significant effect ($F(1,168) = 4.36$, $p = .04$, $\eta^2 = .03$) for game context on measured avatar-participant height differences. Online participants ($M = -14.76$, $SD = 10.18$)
made taller avatars than did single-player participants ($M = -18.36, SD = 10.95$). Despite this finding, there is too little information to determine its bearing on the hypotheses at hand. Thus, $H_{1a}$ and $H_{1b}$ were not supported.

Given that no significant effects for game context condition on any avatar metrics were found, including skin tone, RQ5 can be answered. There is no impact of game context on avatar skin tone. RQ6 queried whether game context had an effect on avatar size. Despite the aforementioned lack of findings in terms of avatar-participant difference metrics, the researcher also ran a one-way MANOVA to determine the effect of game context on the measured distance participants moved the height and girth selection slider while creating their avatars. Again, no significant main effects were found. However, a subsequent one-way analysis of variance revealed a marginally significant effect ($F(1,137) = 4.36, p = .053, \eta^2 = .03$) for game context on measured avatar-participant height differences. Online participants made larger avatars ($M = 13.12, SD = 9.32$) than did single-player participants ($M = 10.34, SD = 7.12$). Thus, in answering RQ6, the researcher found that game context has a very limited if any effect on avatar size.

To test $H_2$, the researcher focused on the self-report data assessing participants’ views on how much their avatars were connected with them, how likely they were to refer to themselves and their avatar as “we,” how much their avatars looked like them, and how much their avatars shared personalities with them. Using a one-way MANOVA, the researcher compared game context (online and single-player) effects on those self-report items. There was no significant main effect. However, a one-way ANOVA did reveal a difference for how likely participants were to refer to themselves and their avatars as “we” ($F(1,172) = 4.84, p = .03, \eta^2 = .03$). Those in the online condition ($M = 2.62, SD = 1.52$) were more likely to refer to themselves and their
avatar as “we” than those in the single-player condition ($M = 2.12, SD = 1.38$), which shows a possible trend in support of H2 but is ultimately inconclusive. Thus, H2 is not supported.

To address H3, the researcher relied on a one-way MANOVA to determine the effect of being an online gamer or not on the four self-report items mentioned previously. The researcher found a significant main effect ($\Lambda(4,169) = .93, p = .02, \eta^2 = .07$). Subsequent univariate analyses of variance showed that status as an online gamer had a significant effect on participants’ views in terms of how much their avatars were connected with them ($F(1,172) = 8.20, p = .01, \eta^2 = .05$), how likely they were to refer to themselves and their avatar as “we” ($F(1,172) = 7.19, p = .01, \eta^2 = .04$), how much participants thought their avatars looked like them ($F(1,172) = 4.06, p = .05, \eta^2 = .02$), and how much their avatars shared personalities with them ($F(1,172) = 9.25, p < .01, \eta^2 = .05$). In each case, online gamers showed a stronger relationship to their avatar than did non-online gamers. Thus, H3 is supported.

Given the amount of time that online gamers spend crafting and nurturing their avatars in virtual environments, it seems reasonable to think a special connection may be fostered between the two. Perhaps as equally interesting as game context is the notion that there may be differences among self-proclaimed online gamers and others in terms of avatar selection. Though there was no overall effect for online gaming on avatar selection, a one-way ANOVA ($F(1,172) = 8.87, p = .003, \eta^2 = .05$) did reveal that online gamers ($M = .91, SD = 1.97$) selected more attractive avatars than those who said they did not play online games ($M = -.17, SD = 1.81$). Thus, it would seem that online gamers are cognizant and respect the fact that others online will see and, perhaps, judge their avatars as they would a person in real world (see Figure 4.1 below).
AVATAR-PARTICIPANT ATTRACTIVENESS DIFFERENCES FOR ONLINE GAMERS AND OTHERS

Figure 4.1. This figure shows avatar-participant attractiveness difference between those who play online games and those who do not. Negative differences indicate a less attractive avatar. Positive differences indicate a more attractive avatar.

RQ1 queried what effect gender had on avatar selection. To begin, the researcher used a one-way MANOVA to determine what effect gender had on the four self-report items. A significant main effect was found ($\Lambda(4,169) = 2.51, p = .04, \eta^2 = .06$). Subsequent univariate ANOVA showed that gender had a significant effect on whether participants thought their avatar looked like them ($F(1,172) = 4.57, p = .03, \eta^2 = .03$). Women ($M = .85, SD = 1.02$) were more likely to think they looked like their avatars than were men ($M = .53, SD = .78$).

The researcher also used a one-way MANOVA to determine gender’s effect on the same avatar-participant difference metrics mentioned above. A significant main effect was found ($\Lambda(8,161) = .74, p < .001, \eta^2 = .26$). A subsequent univariate ANOVA showed that gender
had a significant effect on measured avatar-participant height differences ($F(1,168) = 5.41, p = .02, \eta^2 = .03$). Men ($M = -19.62$, $SD = 9.08$) chose shorter avatars than did women ($M = -15.67$, $SD = 11.46$). An additional ANOVA showed that gender had a significant effect on avatar-participant girth differences ($F(1,168) = 22.12, p < .001, \eta^2 = .12$). Women ($M = -.72$, $SD = 1.84$) chose thinner avatars than men did ($M = .56$, $SD = 1.44$). Another ANOVA showed that gender had a significant effect on measured avatar-participant chest differences ($F(1,168) = 7.32, p = .008, \eta^2 = .04$). Men ($M = -4.13$, $SD = 3.63$) chose avatars with larger chests than did women ($M = -5.60$, $SD = 3.28$; see Figure 4.2 below).

AVATAR-PARTICIPANT DIFFERENCES BY GENDER

![Figure 4.2](image_url)

*Figure 4.2.* The figure shows the girth, chest, and measured height avatar-participant differences for men and women. Negative differences indicate smaller avatars. Positive differences indicate larger avatars.

H4 predicts a significant interaction between gender (men vs. women) and game context (online vs. single-player), which is the crux of the present research. To test this hypothesis, the
researcher first conducted a factorial MANOVA to determine the interactions between gender and game context and their effects on the four self-report items. No significant interaction was found between gender and game context in terms of the self-report data.

The researcher also tested H4 by determining whether an interaction between gender and game context existed in terms of the avatar-participant difference metrics. Relying again on factorial MANOVA, the researcher found a significant two-way interaction ($\Lambda(8,159) = .90$, $p = .03$, $\eta^2 = .10$) between gender and game context. Subsequent between-subject factorial ANOVAs were calculated to determine the interaction between gender and game context and their effects on avatar metrics. A significant interaction was found in terms of avatar-participant hip differences ($F(1,166) = 10.71$, $p = .001$, $\eta^2 = .06$), waist differences ($F(1,166) = 7.51$, $p = .007$, $\eta^2 = .04$), and chest differences ($F(1,166) = 5.94$, $p = .02$, $\eta^2 = .04$). Additionally, marginally significant interactions were found in terms of avatar-participant skin tone differences ($F(1,166) = 3.88$, $p = .051$, $\eta^2 = .02$) and measured avatar-participant height differences ($F(1,166) = 3.81$, $p = .053$, $\eta^2 = .02$).

Post hoc Bonferroni analyses showed a number of significant differences. In terms of hip differences: women in the online condition ($M = -5.31$, $SD = .54$) selected avatars with larger hips ($p = .001$) than did women in the single-player condition ($M = -5.31$, $SD = .54$); men in the single-player condition ($M = -6.01$, $SD = .52$) selected avatars with larger hips ($p = .02$) than did women in the single-player condition ($M = -7.51$, $SD = .39$); but women in the online condition ($M = -5.31$, $SD = .54$) selected avatars with larger hips ($p = .02$) than did the men in the online condition ($M = -7.41$, $SD = .70$).

For waist differences, women in the online condition ($M = -6.08$, $SD = .51$) selected larger waists ($p = .004$) than did women in the single-player condition ($M = -7.92$, $SD = .54$).
and men in the single-player condition ($M = -6.60, SD = .49$) selected larger waists ($p = .03$) than did women in the single-player condition ($M = -7.92, SD = .37$).

For chest differences, women in the online condition ($M = -4.46, SD = .55$) selected larger chests ($p = .01$) than women in the single-player condition ($M = -6.20, SD = .40$); and men in the single-player condition ($M = -3.78, SD = .53$) selected larger chests ($p = .001$) than women in the single-player condition ($M = -6.20, SD = .40$).

Though the interaction effects of gender and game context on skin tone and measured height differences were only marginally significant, the post hoc Bonferroni analyses are worth discussing. In terms of skin tone differences, men in the online condition ($M = 1.00, SD = .24$) selected marginally darker skinned avatars ($p = .055$) than men in the single-player condition ($M = .22, SD = .32$); and men in the online condition ($M = 1.00, SD = .32$) selected marginally darker skinned avatars ($p = .056$) than women in the online condition ($M = .21, SD = .25$).

For measured height differences, women in the online condition ($M = -11.62, SD = 1.72$) selected taller avatars ($p = .004$) than women in the single-player condition ($M = -17.78, SD = 1.24$); and women in the online condition ($M = -11.62, SD = 1.72$) selected taller avatars ($p = .003$) than men in the online condition ($M = -20.05, SD = 2.23$). Men do seem to show more altering of their avatars in the online condition, and women show more altering of their avatars in the single-player condition. Thus, H4 is supported (see Figure 4.3 below).
To test H5, the researcher conducted simple linear regression analyses using the extraversion index as the predictor variable and the eight individual avatar-participant difference metrics as the outcome variables. Extraversion was a significant predictor for only avatar-participant attractiveness differences ($F(1,172) = 4.95, p = .03$), with an $R^2$ of .03. The $\beta$ of -.17 indicated a negative relationship. However, given that participant values were subtracted from avatar values, positive differences indicate a more attractive avatar. Negative differences indicate a more attractive participant. Therefore, the more extraverted a participant was, the less likely they were to choose an attractive avatar (see Figure 4.4 below). This supports the researcher’s
hypothesis that extraverts would be more likely to select para-authentic avatars. Thus, H5 is supported.

EXTRAVERSION PREDICTING AVATAR-PARTICIPANT ATTRACTIVENESS DIFFERENCES

Figure 4.4. The figure shows the negative relationship between extraversion and avatar-participant attractiveness differences.

To address RQ3, the researcher conducted simple linear regression analyses using the neuroticism index as the predictor variable and the eight individual avatar-participant difference metrics as the outcome variables. Though neuroticism as a predictor approached significance ($p < .10$) for hip, waist, and skin tone differences, none actually met the critical $\alpha$ level of .05. Thus, neuroticism did not prove to be a predictor for avatar selection.

To test H6, the researcher conducted simple linear regression analyses using the openness to new experiences index as the predictor variable and the eight individual avatar-participant
difference metrics as the outcome variables. Openness failed to be a significant predictor for any of the outcome variables. Thus, H6 is not supported.

RQ4a RQ4b queried whether agreeableness and conscientiousness have any effect on avatar selection. The researcher conducted simple linear regression analyses using the agreeableness and conscientiousness indexes as separate predictor variables and the eight individual avatar-participant difference metrics as the outcome variables. Agreeableness was a significant predictor for only avatar-participant girth differences \(F(1,172) = 3.95, p = .05\), with an \(R^2\) of .02. The \(\beta\) of -.15 indicated a negative relationship. Therefore, the more agreeable a participant was, the less likely they were to choose a larger avatar (see Figure 4.5 below).

Though a relationship between conscientiousness and avatar-participant waist differences approached significance \(p < .10\), only the relationship between conscientiousness and hip differences was truly significant \(F(1,168) = 4.10, p = .04\), with an \(R^2\) of .02. The \(\beta\) of .15 indicated a positive relationship. Therefore, the more conscientious a participant was, the more likely they were to select an avatar with wider hips (see Figure 4.6 below).

To answer RQ2, which queried whether personality moderated the relationship between gender and avatar selection, the researcher relied on a series of multiple regression analyses using gender as the predictor, all of the Big Five personality factors as moderating variables, and each of the avatar-participant difference metrics as outcome variables. Before beginning such analyses, each of the Big 5 personality factors were centered for easier interpretation by subtracting the mean for each factor.
AGREEABLENESS PREDICTING AVATAR-PARTICIPANT GIRTH DIFFERENCES

*Figure 4.5.* The figure shows the negative relationship between agreeableness and avatar-participant girth differences.

CONSCIENTIOUSNESS PREDICTING AVATAR-PARTICIPANT HIP DIFFERENCES

*Figure 4.6.* The figure shows the negative relationship between conscientiousness and avatar-participant hip differences.
To begin the analysis, the researcher used gender as a predictor variable, all of the Big Five personality factors as moderators, and each of the eight avatar-participant difference metrics as the outcome variables. The full model was a significant predictor for two metrics. First, the full model was a significant predictor for avatar-participant girth differences ($F(11,162) = 2.87, p = .002$), with an $R^2$ of .16. Gender had a significant negative relationship with girth differences ($\beta = -.40, t = -4.57, p < .001$). Women chose thinner avatars than men did. However, none of the personality factors nor the interactions of gender and the personality factors was significant.

The full model was also a significant predictor for avatar-participant chest differences ($F(11,158) = 1.96, p = .04$), with an $R^2$ of .06. However, neither gender nor any of the personality factors nor any of the interactions of gender and the personality factors had significant relationships with chest differences.

Despite findings of significance with the full model, no moderation effects were found. Thus, the researcher ran additional analyses to determine the potential moderating effects of each of the individual Big Five personality factors. Only two models revealed significant moderation. First, gender, agreeableness, and the interaction of the two were significant predictors for avatar-participant chest differences ($F(3,166) = 4.09, p = .008$), with an $R^2$ of .07. Gender had a significant negative relationship with the outcome variable ($\beta = -.22, t = -2.80, p = .006$). However, agreeableness did not have a significant relationship with the outcome variable ($\beta = .19, t = 1.51, p = .13$). Agreeableness was a significant moderator for gender’s relationship on avatar-participant chest differences ($\beta = -.26, t = -2.17, p = .03$). Women made avatars with smaller chests than men did. However, agreeableness was a positive moderator meaning the more agreeable the participant was, the larger their avatar’s chest would be.
Second, gender, openness, and the interaction of the two were significant predictors for avatar-participant skin tone differences ($F(3,170) = 2.89, p = .04$), with an $R^2$ of .07. Gender did not have a significant relationship with the outcome variable ($\beta < .001, t = .002, p = 1.00$). However, openness had a significant positive relationship with the outcome variable ($\beta = .33, t = 2.66, p = .009$). Openness was a significant moderator for gender’s relationship on avatar-participant chest differences ($\beta = -.34, t = -2.81, p = .006$). Men chose darker skinned avatars than women did. And openness was a positive moderator meaning the more open a participant was to new experiences, the darker their avatar’s skin tone would be.

To address H7, the researcher conducted simple linear regression analyses using the self-esteem index as the predictor variable and the eight individual avatar-participant difference metrics as the outcome variables. Self-esteem was a significant predictor for only avatar-participant skin tone differences ($F(1,172) = 4.64, p = .03$), with an $R^2$ of .03. The $\beta$ of -.16 indicated a negative relationship. The more self-esteem a participant has, the less likely they were to choose a darker-skinned avatar (see Figure 4.7 below). This supports the researcher’s hypothesis that extraverts would be more likely to select para-authentic avatars. With only one finding, the results were inconclusive. Thus, H7 is not supported.
Figure 4.7. The figure shows the negative relationship between extraversion and avatar-participant attractiveness differences.

H8a and H8b make predictions about the relationship between the skin tone of participants and skin tone of avatars. To begin assessment of such relationships, the researcher conducted a simple linear regression analysis using participant skin tone as a predictor of avatar skin tone. A significant regression coefficient was found ($F(1,172) = 19.62, p < .001$), with an $R^2$ of .10. The $\beta$ of .32 indicated a positive relationship. Participant skin tone was a positive predictor for avatar skin tone. However, given the number of fair-skinned participants, too much should not be read into such a finding. Thus, the researcher used statistical software to cut participant skin tones into three equal categories: light, medium, and dark. The researcher conducted a one-way ANOVA comparing the skin tone differences for participants with light, medium, and dark skin tones. A significant difference was found among the participants ($F(2,171) = 25.95, p < .001, \eta^2 = .23$). Post hoc Bonferroni analyses revealed a significant
difference between light-skinned \((M = 1.25, SD = 1.13)\) and dark-skinned participants \((M = -.61, SD = 1.26)\) and between medium-skinned \((M = .89, SD = 1.48)\) and dark-skinned participants \((M = -.61, SD = 1.26)\). According to these findings, light- and medium-skinned participants chose darker-skinned avatars. And dark-skinned participants chose lighter-skinned avatars (see Figure 4.8 below). Thus, both H8a and H8b are supported.

To further probe the relationship between participant and avatar skin tones, the researcher conducted a one-way ANOVA comparing the skin tone differences for white and non-white participants. A significant difference was found \((F(2,171) = 24.37, p < .001, \eta^2 = .12)\). White participants \((M = .66, SD = 1.50)\) selected darker-skinned avatars. Non-white participants \((M = -.85, SD = 1.21)\) selected lighter-skinned avatars (see Figure 4.9 below). Thus, both H8a and H8b are further supported.

**AVATAR-PARTICIPANT SKIN TONE DIFFERENCES BY PARTICIPANT SKIN TONE**

![Figure 4.8](image)

*Figure 4.8.* The figure shows the avatar-participant skin tone differences for participants with light, medium, and dark skin tones. Negative differences indicate lighter avatars. Positive differences indicate darker avatars.
Given the robust findings for race on avatar selection, the researcher decided to investigate its effect on avatar selection in a broader sense. Relying on factorial MANOVA, the researcher found a significant three-way interaction ($\Lambda(4,163) = .92, p = .008, \eta^2 = .08$) between gender, game context, and race (white vs. non-white). Subsequent between-subject factorial ANOVAs were calculated to determine the interaction between gender, race, and game context and their effects on the individual self-report items. Significant interactions were found in terms of participants’ thoughts on how much they thought their avatar shared their personality ($F(1,166) = 8.71, p = .004, \eta^2 = .05$; see Figure 4.10 below). Post hoc Bonferroni analyses showed significant differences between non-white men in the online and single-player conditions ($p = .04$); between non-white men and women in the online condition ($p = .01$); and between
white and non-white men in the online condition ($p = .008$). Non-white men in the online condition ($M = 2.50, SD = .49$) felt more like their avatars shared their personality ($M = 1.17, SD = .40$). Non-white men in the online condition ($M = 2.50, SD = .49$) felt more like their avatars shared their personality than did non-white women in the online condition ($M = .83, SD = .40$). Non-white men in the online condition ($M = 2.50, SD = .49$) felt more like their avatars shared their personality than white men in the online condition ($M = 1.05, SD = .23$).

**AVATAR PERSONALITY SIMILARITIES BY GENDER, GAME CONTEXT, AND RACE**

![Figure 4.10](image.png)

*Figure 4.10. Participants’ views on how much their avatar shares their personality by race, gender, and game context.*

H9a predicted men would select taller avatars than their true selves. To begin assessment of such relationships, the researcher conducted a simple linear regression analysis using participant coder-determined height as a predictor of avatar coder-determined height. A significant regression coefficient was found ($F(1,172) = 24.92, p < .001$), with an $R^2$ of .13. The $\beta$ of .36 indicated a positive relationship. Measured height was not used as simple differences in
measurement ranges between participant photos and avatar screenshots would confound results. To determine whether men selected taller avatars than themselves, the researcher relied on a repeated measures ANOVA with gender as a between-subjects factor. However, a significant difference was not found. Thus, H9a is not supported.

H9b predicted women would select thinner avatars than their true selves. To begin assessment of such relationships, the researcher conducted a simple linear regression analysis using participant girth as a predictor of avatar girth. A significant regression coefficient was found \(F(1,172) = 8.43, p = .004\), with an \(R^2\) of .05. The \(\beta\) of .22 indicated a positive relationship. For similar reasons mentioned above, measured waists were not used as differences in measurement ranges between participant photos and avatar screenshots would confound results. To determine whether women selected thinner avatars than themselves, the researcher again relied on a repeated measures ANOVA with gender as a between-subjects factor. A significant interaction between gender and girth was found \(\Lambda(1,172) = .88, p < .001, \eta^2 = .12\). Female avatars \((M = 3.22, SD = 1.63)\) were rated thinner than their real-life counterparts were \((M = 3.95, SD = 1.04)\). Thus, H9b was supported (see Figure 4.11 below).

The final hypotheses, H10a and H10b, predicted that participants would be more likely to choose attractive avatars than unattractive avatars. The researcher first conducted a simple linear regression analysis using participant attractiveness as a predictor of avatar attractiveness. However, a significant relationship was not found. The researcher used statistical software to cut participant attractiveness into three equal categories: low, medium, and high. The researcher then conducted a one-way ANOVA comparing the attractiveness differences for participants of low, medium, and high attractiveness. A significant difference was found among the participants \(F(2,171) = 30.80, p < .001, \eta^2 = .27\). Post hoc Bonferroni analyses revealed significant
differences, in all ways, between participants of low attractiveness ($M = 1.25, SD = 1.70$) and medium attractiveness ($M = .27, SD = 1.67$) and high attractiveness ($M = -1.06, SD = 1.53$). Participants of both low and medium attractiveness selected avatars of higher attractiveness. Interestingly, participants of high attractiveness selected avatars of lower attractiveness. Thus, H10a is supported. However, H10b is not (see Graph 4.12 below).

AVATAR-PARTICIPANT GIRTH DIFFERENCES BY GENDER

![Figure 4.11](image)

*Figure 4.11.* The figure shows the avatar-participant girth differences for men and women.
AVATAR-PARTICIPANT ATTRACTIVENESS DIFFERENCES BY PARTICIPANT ATTRACTIVENESS

Figure 4.12. The figure shows the avatar-participant attractiveness differences for participants with light, medium, and dark attractiveness. Negative differences indicate less attractive avatars. Positive differences indicate more attractive avatars.
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<td>( \Lambda = .964 )</td>
<td>.18</td>
<td>.04</td>
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<td>( \Lambda = .932 )</td>
<td>.02</td>
<td>.07</td>
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<tr>
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<td>( \Lambda = .902 )</td>
<td>.03</td>
<td>.10</td>
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<tr>
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<td>( F = 4.95 )</td>
<td>.03</td>
<td>.03</td>
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<td>H6</td>
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<td>( F = 4.64 )</td>
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<td>( F = 25.95, 24.37 )</td>
<td>&lt;.001</td>
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<td>( F = 30.80 )</td>
<td>&lt;.001</td>
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CHAPTER 5
DISCUSSION

Given that few main effects for game context condition (online vs. single-player) on avatar selection were found, the researcher must consider the possibility that simply how one plays a game or perhaps even the type of game one plays has little direct effect on how a person presents themselves online. However, that is not to say game context is not still an important variable. Indeed, in tandem with gender, game context can be a significant influence on online self-presentation. Males in the online condition showed the most avatar alteration, whereas, women in the single-player condition showed the most. Given that men may see an online video game as an opportunity to advertise particular capabilities to others, this could be a reason for selecting more alter-self avatars. However, it is interesting to note that the findings trended away from men picking larger, hulking avatars and instead skewed to smaller avatars. This contradicts much of the research into hypermasculinity, which argues men often aspire to the macho stereotypes ascribed to their gender (Mosher & Thomkins, 1988), and into muscularity, which argues men often aspire to have more muscle definition (Pope, Gruber, Choi, Olivardia, & Phillips, 1997). This contradiction may not be so clear cut as many of the races offered in the pantheon of Dungeons & Dragons and Neverwinter Nights 2 are short but very muscular and known for their machismo, such as dwarves. It is possible that men may have felt more familiar with the classifications offered by the game, understanding that rogues and rangers require may require more nimble avatars than do barbarians and fighters. There is also the possibility that the
male standard of “bigger is better” (Gunderson, 1965; Mosher & Thomkins, 1998; Pope et al., 1997) may not apply to the gaming world or is no longer a valid assumption. It is also possible that video games trigger a certain elasticity in male body image that is similar to the elasticity in female body image documented in other media consumption (Myers & Biocca, 1992).

The fact that women in the single-player condition altered their avatars the most could indicate that women, in the absence of others, may revert to Higgins’s (1987) thoughts on ideal self (thinner, smaller). The trend did indicate women in the single-player condition were picking thinner and smaller avatars. However, when women play online, they may consider the ought self, which in this case would be an avatar that possesses a certain prowess or capability that others expect in a gaming environment. There is also the possibility that women want to conform to what is perceived as male-dominated world. In fact, of the 14 participants who gender-swapped, all were women. Of course, this finding could be confounded since the avatar default is a dwarf male.

Gender did appear to be a significant factor in avatar selection. Women chose more slender avatars than their true selves. They thought their avatars looked like themselves. Though regression analysis using women’s views on how much their avatar looked like them as a predictor and avatar girth as an outcome was only approached significance ($p < .10$), it is noteworthy that the relationship was a negative one. Thus, some of the same insecurities that plague women in the real world may very well carryover into the gaming world. In particular the thin ideal seems to migrate particularly well (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999; Thompson & Stice, 2001).

Race and skin tone also seemed to effect how avatars appeared. Non-white participants and darker-skinned participants showed a preference for lighter-skinned avatars, which supports
much of the research in that area (Averhart & Bigler, 1997; Espino & Franz, 2002). Equally interesting is that white and lighter-skinned participants showed a preference for darker-skinned participants. This supported what limited research is available on the preference for tans in the white community (Vasalou, Joinson, Banziger, Goldie, & Pitt, 2008).

There is little support for the idea that personality in general (all of the Big Five personality factors) works as a moderator for gender’s effects on avatar selection. However, certain aspects of personality did appear to work as moderators. Agreeableness served as a positive moderator for gender’s effect on avatar-participant chest size differences, meaning the more agreeable the participant, the larger the corresponding avatar’s chest. It would not be out of the realm of possibilities that agreeable women may select larger chests to conform to a popular beauty standard (Higgins, 1987) and agreeable men to conform to a popular masculinity standard (Gunderson, 1965). Also, openness served as a positive moderator for gender’s effect on avatar-participant skin tone differences. The more open a participant was to new experiences, the darker the corresponding avatar’s skin tone. This would seem to make since that men and women who are open to new experiences may want to experience what it would be like to look different from themselves or to try on a different race altogether.

Attractiveness seems to be a variable not unlike skin tone in that less attractive people appear to select avatars that are more attractive. Such a finding is in line with much of the arguments on the benefits of computer-mediated communication (Turkle, 1995; Walther, 1996). However, finding that participants who were judged to be more attractive actually selected less attractive avatars seems to be yet another contradiction to the normative assumption that all people will opt for the best possible route for presenting themselves online. In fact, along with attractiveness, it is noteworthy that 12% of the participants in the present study opted to select
dwarves or other abnormally short characters, and 9% opted to select orcs, an unattractive, even monstrous avatar. Such selections were made regardless of gender or game context condition. Surely this is more than what Schlenker (1980) would refer to as “aberrant images” (p. 285).

The present research, therefore, proposes a new theory of virtual self-presentation based on Lee’s (2004) concept of self presence. Though Lee’s arguments were part of a much larger explication of a much different concept, that of telepresence (Lombard & Ditton, 1997; Minsky, 1980), the implications of those arguments for presenting oneself in a virtual environment must not be overlooked. Most theorists have taken a more normative approach when discussing self-presentation or impression management (Goffman, 1959; Schlenker, 1980), even within computer-mediated communication (Walther, 1996). Lee, on the other hand, offers a theoretical perspective vacant any prescriptive language.

As described above, Lee (2004) defined self presence as the difference between a real person and his or her representation within a virtual environment, such as an avatar. The continuum Lee presented ranged from a “para-authentic self,” a virtual self-presentation that is similar to that of the owner, to an “alter-self” a virtual self-presentation that is dissimilar to that of the self (p. 40). Lee made no argument as to whether a person will always or even typically choose an alter-self or a para-authentic. He only argued that one would choose a virtual self somewhere on the continuum between the two.

Self-presentation is founded on Goffman’s (1959) dramaturgical theory and has been expanded upon by Schlenker (1980) and Walther (1996). The consensus from all three scholars has been that people will attempt to present themselves in ideal or, at the very least, appealing ways. These arguments are further supported by Higgins’s (1987) Self-Discrepancy Theory, which explains that people’s internal concepts of themselves include who they actually are, who
they would like to be ideally, and who they believe they ought to be. However, as mentioned above, Schlenker has acknowledged that, on occasion, people’s presentations of themselves can be intentionally unfavorable or disadvantageous. He lacked a clear explanation for why such “aberrant images” (p. 285) may be presented, in part, because his theoretical approach relied on normative rather than purely descriptive assumptions. Lee’s (2004) approach, because it relies solely on description, can account for all measures of deviation from the so-called norm or ideal.

Using Lee’s (2004) arguments as a theoretical foundation and the research detailed in the present study, this researcher offers a new theory of virtual self-presentation. This researcher argues that given an opportunity to present themselves in a virtual environment, people will select a representation that falls somewhere between a near-perfect reflection and a completely dissimilar fabrication. This choice will be affected by a myriad of moderators, including gender, demographics, personality, and motive.
CHAPTER 6
CONCLUSION

The present research offers a comprehensive examination of the myriad of factors that affect how people present themselves virtually via video games and should have broad implications for both social psychology and computer-mediated communication. Whether a person plays a game by themselves or online with thousands of others, avatar selection seems to be primarily an individual choice based on gender, appearance, and personality. Each factor may guide the user’s hand, either setting one further adrift from reality by selecting an avatar that in no way resembles the owner or blurring lines between virtual and reality by selecting an avatar that is a carbon copy of the owner. Though some findings did indicate that people would use the unique characteristics of virtual self-presentation to their own advantage, other findings suggest that some people do not. Moreover, some people actually select avatars that would put them at a disadvantage in terms of self-presentation. Thus, more research should be conducted to determine why some people choose paths that fail to serve their self-interest.

For instance, why would the most attractive participants select less attractive avatars in this study? Is there a stigma against being too attractive? Do people regress toward the mean, even with such positive characteristics as beauty? Or is it just that participants do not see themselves as attractive and select avatars that represent how they see their “true” selves (Higgins, 1987)? Or does attractiveness have elasticity akin to elastic body image (Myers & Biocca, 1992) in that the activity of selecting an avatar causes more negative reflection on the
self, distorting one’s image for the duration of the task at hand. More should be invested in learning how attractiveness manifests in avatars.

Yet, such considerations fail to address why any participant would choose an orc character or a character with noticeably smaller stature. It is possible that some participants chose avatars with little thought as to how they might be received by others or how they may be considered reflections of the user. But it is also quite possible that some people are characterized with a desire to try on alternate personas and personalities, not necessarily aberrant or deviant, as Schlenker (1980) would have deemed it, but simply in the interest of role-play, as Turkle (1995) would have deemed it. More research should be conducted to determine if this is a personality trait that perhaps shares commonalities across a minority people or if it is simply the idiosyncratic nature of a handful of individuals.

Given the popularity of gaming with boys and men, studying the effects of such activities on their body image can be no less important than studying the effects of beauty magazines or fashion magazines on girls and women. Men selected smaller avatars in this particular study. This could be seen as a contradiction to much of research on hypermasculinity and muscularity (Mosher & Thomkins, 1988; Pope et al., 1997). However, men themselves may see masculinity and muscularity manifesting in different ways in a fantasy game world. While choosing a tall and attractive elf may not seem like an expression of masculinity, a gamer may point out that this elf is a very powerful warrior and is indeed macho. While choosing a squat, even portly dwarf may not seem like an expression in muscularity, a gamer may point out that dwarves are among the strongest characters and carry higher levels of hit points (Atari, 2009). Thus, more research should be done to determine the effects of video games on male body image. In addition, more
research should be done to determine what the modern ideal male body is today, if one exists at all.

One limitation of this study is the lack of control condition. Given the problems with the manipulation check cited above, the researcher had little choice but to drop the control. Though a 2 x 3 designed would certainly have added more validity, rigor, and complexity to the research, the present results still reveal robust and noteworthy findings. Another limitation is the lack of diversity among the participants, which has also been cited previously. Given the location of the school and its demographics, diversity poses a persistent challenge. However, the addition of the skin tone variable served as one way of incorporating some of the complexities of race, such as people of multiracial or multicultural backgrounds, in a unique way.

Another limitation of this study is the lack of gaming experience by 28.7% of the participants. It is quite possible that such people have very little understanding of the differences between an online game and a single-player game. This could explain, in part, why game context yielded so few results. Inexperienced gamers or non-gamers may be unfamiliar with the importance of avatars to role-playing games or that their selections may actually be interpreted by others as an act of identity expression. Thus, their selection of an avatar may be a by-product of an undetermined motivation.

Though comprehensive, the present research is certainly not exhaustive. As cited above, more attention should be paid to the role that race (as well as ethnicity or culture) plays in avatar selection. What would have been the findings had this study featured a more diversified sample? What would the differences have been comparing eastern versus western cultures or gay versus straight sexual orientations? In addition, more research should focus on what appears to be significant differences between online gamers and the rest of the gaming population. If there are
differences in how this group approaches their avatars, then there may be a multitude of ways this group may be affected by video games differently from other gamers.

Body image distortion is yet another factor that could and should be explored in virtual environments. Video games often rely on archetypal characters. Are women, or even men, with body image distortion issues more likely to select one type over another? Such an issue would offer rich potential for serious gaming researchers. Off-the-shelf video games rarely offer an actually emaciated character or avatar option or even obese character or avatar option. However, a serious game researcher may consider incorporating such aspects into a program addressing body image distortion problems.

Other aspects of avatars offer additional avenues for research. For instance, what does it mean to select evil character as opposed to good characters? What kind of person selects a brutish warrior, a nurturing healer, or a duplicitous thief? Is the selection of certain characters an effort to inspire fear, respect, camaraderie, even hatred? Moreover, what effects do the variables addressed here (gender, personality, game context, race) have on these additional facets of avatar selection. Exploration of such questions should yield fascinating results and certainly warrant the effort.
REFERENCES


APPENDIX A

Post-Test

Please read each set of questions carefully and answer according to the accompanying instructions.

Instructions. Please read the question and blacken the circle next to your answer.

1. While playing the game, did you expect to be playing with other people online?

Instructions. Below is a list of statements dealing with your general feelings about yourself. Please blacken the number that indicates the extent to which you agree or disagree with that statement. Blacken 0 for strongly disagree, 1 for disagree, 2 for agree, and 3 for strongly disagree on your answer sheet.

2. The character I designed for myself in the game looks like I do in real life.

3. I see the character I designed for myself in the game having a similar personality to mine.

A self avatar B self avatar C self avatar
D self avatar E self avatar F self avatar
G avatar

73
4. By selecting the appropriate figure from above, please indicate the extent to which you and the avatar you selected to represent yourself online are connected.

**Instructions.** Blacken the circle next to your answer.

5. Next, please indicate the extent to which you would use the term “We” to characterize you and the avatar you selected to represent you online.

**Instructions.** Below is a list of statements dealing with your general feelings about yourself. Please blacken the number that indicates the extent to which you agree or disagree with that statement. Blacken 0 for strongly disagree, 1 for disagree, 2 for agree, and 3 for strongly disagree on your answer sheet.

   6. I feel that I am a person of worth, at least on an equal basis with others.
   7. I feel that I have a number of good qualities.
   8. All in all, I am inclined to feel that I am a failure.
   9. I am able to do things as well as most other people.
   10. I feel I do not have much to be proud of.
   11. I take a positive attitude towards myself.
   12. On the whole, I am satisfied with myself.
   13. I wish I could have more respect for myself.
   14. I certainly feel useless at times.
   15. At times I think I am no good at all.

**Instructions.** Below are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please blacken the number on your answer sheet that indicates the extent to which you agree or disagree with that statement.
Strongly disagree                      Strongly agree

I See Myself as Someone Who...

16. Is talkative. _____
17. Is reserved. _____
18. Is full of energy. _____
19. Generates a lot of enthusiasm. _____
20. Tends to be quiet. _____
21. Has an assertive personality. _____
22. Is sometimes shy, inhibited. _____
23. Is outgoing, sociable. _____
24. Tends to find fault with others. _____
25. Does a thorough job. _____
26. Is depressed, blue. _____
27. Is original, comes up with new ideas. _____
28. Is helpful and unselfish with others. _____
29. Can be somewhat careless. _____
30. Is relaxed, handles stress well. _____
31. Is curious about many different things. _____
32. Starts quarrels with others. _____
33. Is a reliable worker. _____
34. Can be tense. _____
35. Is ingenious, a deep thinker. _____
36. Has a forgiving nature. _____
37. Tends to be disorganized. _____
38. Worries a lot. _____
39. Has an active imagination. _____
40. Is generally trusting. _____
41. Tends to be lazy. _____
42. Is emotionally stable, not easily upset. _____
43. Is inventive. _____
44. Can be cold and aloof. _____
45. Perseveres until the task is finished. _____
46. Can be moody. _____
47. Values artistic, aesthetic experiences. _____
48. Is considerate and kind to almost everyone. _____
49. Does things efficiently. _____
50. Remains calm in tense situations. _____
51. Prefers work that is routine. _____
52. Is sometimes rude to others. _____
53. Makes plans and follows through with them. _____
54. Gets nervous easily. _____
55. Likes to reflect, play with ideas. _____
56. Has few artistic interests. _____
57. Likes to cooperate with others. _____
58. Is easily distracted. _____
59. Is sophisticated in art, music, or literature. _____

**Instructions.** For the next two answers, please read the question and answer freely in the space provided below. Be as detailed as you can in your written answer to each question.

60. What were you thinking as you created your character for the game?

61. When you interact with people you do not know online, are you honest about your identity? Your appearance? Your personality?

**Instructions.** Please type the number into the blanks provided.

60. How many days a week do you play video games?

61. How many hours per week do you play video games?

62. How many video game consoles, such as the Nintendo Wii, do you own?

63. How many individual video games do you own?

**Instructions.** Please select 0 for “I don’t play video games,” 1 for “Puzzle games,” 2 for “Simulator games,” 3 for “Action/adventure games,” 4 for “First-person shooter games,” and 5 for “Role-playing games.”

64. What kind of video game is your favorite to play?

**Instructions.** Please type your answer to the following questions into the space provided.

65. Do you play any online video games (e.g., World of Warcraft, Second Life, Warhammer, EverQuest, The Sims Online, Spore)?

65 a. If yes, please list the games

65 b. If yes, how many hours per day do you play online video games?

65 c. If yes, how many hours per week do you play online video games?

**Instructions.** Please select 0 for male and 1 for female.

66. What is your gender?
Instructions. Please select 0 for Hispanic/Latino or 1 for Not Hispanic or Latino

67. Are you of Hispanic or Latino heritage?

Instructions. Please select 0 for Asian/pacific islander, 1 for African American, 2 for Caucasian, 3 for Native American, 4 for other/multiracial

68. What is your race?

Instructions. Please select 0 for yes and 1 for no.

69. Have you ever played Neverwinter Nights 2 before?

Research associate portion:

What is the subject number? Open

What is the participant’s gender? Select 1 for Male and 0 for Female

What is the experimental condition? Select 1 for Offline, 2 for Online, and 3 for Control

Were there any technological glitches or other problems during the session? Open

Was the participant overly suspicious? Open
APPENDIX B

Coding Sheet

Self. Rate these photographs based on the scales below each question.

How tall do you think the person in this picture is?

1 2 3 4 5 6 7
Extremely Short     Extremely Tall

What do you think the girth of the person in the picture is?

1 2 3 4 5 6 7
Extremely Thin     Extremely Overweight

How attractive would you rate the person in this picture?

1 2 3 4 5 6 7
Extremely Unattractive     Extremely Attractive

Please rate the skin tone of the person in the picture.

1 2 3 4 5 6 7
Extremely Pale     Extremely Dark

Avatar. Rate these screenshots based on the scales below each question.

How tall do you think the avatar in the picture is?

1 2 3 4 5 6 7
Extremely Short     Extremely Tall

What do you think the girth of the avatar in the picture is?
How attractive would you rate the avatar in this picture?

1  2  3  4  5  6  7
Extremely Unattractive   Extremely Attractive

Please rate the skin tone of the avatar in the picture.

1  2  3  4  5  6  7
Extremely Pale   Extremely Dark

Enter the avatar's race using the following values:

1 = human
2 = elf (this includes all varieties of elf including planetouched)
3 = dwarf, gnome, halfling
4 = orc

Compare. Compare the photos of these people to their avatar screenshots.

How closely do you feel the height of this avatar matches that of this real person?

1  2  3  4  5  6  7
Completely Different   Extremely Similar

How closely do you feel the girth of this avatar matches to this real person?

1  2  3  4  5  6  7
Completely Different   Extremely Similar

How closely do you feel the attractiveness of this avatar matches that of this real person?

1  2  3  4  5  6  7
Completely Different | Extremely Similar

How closely do you feel the skin tone of this avatar matches that of this real person?

1  2  3  4  5  6  7

Completely Different | Extremely Similar

How similar are the two pictures above?

1  2  3  4  5  6  7

Not at all similar | Extremely Similar
# APPENDIX C

UNIVERSITY OF ALABAMA INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS

REQUEST FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS

## I. Identifying Information

<table>
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<tr>
<th>Principal Investigator</th>
<th>Second Investigator</th>
<th>Third Investigator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: Robert Andrew Doe</td>
<td>Second Investigator</td>
<td>Third Investigator</td>
</tr>
<tr>
<td>Department: Office for Graduate Studies</td>
<td>Department of Psychology</td>
<td>College of Communication</td>
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<tr>
<td>College: College of Communication</td>
<td>College of Arts and Science</td>
<td>University of Alabama</td>
</tr>
<tr>
<td>University: University of Alabama</td>
<td></td>
<td>Olin Hall Palmer 164-A</td>
</tr>
<tr>
<td>Address:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone: (850) 459-5912</td>
<td></td>
<td>(301) 348-7833</td>
</tr>
<tr>
<td>FAX: (205) 348-8774</td>
<td></td>
<td>(301) 348-3848</td>
</tr>
<tr>
<td>E-mail: <a href="mailto:radoe@bama.ua.edu">radoe@bama.ua.edu</a></td>
<td></td>
<td><a href="mailto:maugirer@bana.union.edu">maugirer@bana.union.edu</a></td>
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Title of Research Project: Hiding or Priding? A Study of the Impact of Gender, Skin Tone, Body Size, and Gameplay Mode on Avatar Selection.

Date Printed: 1/21/2009  
Funding Source:

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<th>Type of Proposal:</th>
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<th>Revision</th>
<th>Renewal</th>
<th>Completed</th>
<th>Exempt</th>
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UA faculty or staff member signature: 

## II. NOTIFICATION OF IRB ACTION (to be completed by IRB):

Type of Review: Full board  
Exempt

IRB Action:

- Rejected  
- Tabled Pending Revisions
- Approved Pending Revisions
- Approved—this proposal complies with University and federal regulations for the protection of human subject

Approval is effective until the following date:

<table>
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<th>Items approved:</th>
<th>Research protocol: dated</th>
<th>Informed consent: dated</th>
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<tbody>
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<td>Recruitment materials: dated</td>
<td>Other: dated</td>
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Approval signature: 

Date: 4/2/09