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Hypersexualism in video games as determinant or deterrent of game play:
Do men want them and do women want to be them?

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ABSTRACT

A long held, and research supported, contention about video and computer games purports that men play more games, more often, and of a wider variety, than women. Reasons for this gendered gap range from socialization to cognitive capacity. The hypothesized reason explored in this study focuses on the sexualized portrayal of female game characters. Portraying women as sexual objects may dissuade women from identifying and wanting to engage with them while enticing men to engage with them. In a 2x3 between-subjects experimental design, this study investigated how men and women perceive and react to female avatars that embody the hypersexualism body shape of big breasts, thin waist, and long, thin limbs, making the portrayal the composite of more naturally voluptuous and thin body shapes. Contrary to industry and academic arguments, it was found that men indicated more engagement with the game when playing as a curvaceous character, while women indicated more engagement playing as the hypersexualized character. Also, identifying with the character during game play was the only consistent predictor of engagement, and this was true regardless of the player's gender; thus, men were engaging in cross-gender identification, possibly due to the conditions of playing the game. The results on identification indicate a more complex way of understanding how we engage with media figures.

INTRODUCTION

When the women in the digital game industry and in academic research convened to launch the first Women's Game Conference in the summer of 2004, one point of discussion was how to entice more women to play video games. While the numbers of female players have been increasing in recent years, there still exists a discrepancy in the amount of time women engage with video games when compared to men. According to the Entertainment Software Association, an estimated 65% of US heads of households report they play video and computer games, with 60% of these players being male and 40% female¹. Additionally, the ESA's report shows that the majority of digital games played are considered masculine genres (Reinhard, 2008): action 22.3%; sports 14.1%; shooter 12.1%; racing 8.3%.

Various studies have been conducted to explore this gendered gap, resulting in various theories, largely untested in a systematic, experimental fashion. This study sought to provide new insight into this gendered gap by focusing on how women are represented in video games. The portrayal of women in games has received both empirical (Dietz, 1998; Ivory, 2006; Jansz & Martis, 2007; Miller & Summers, 2007; Provenzo, 1991) and critical scrutiny (Demaria & Mascio, 2000; Dunlop, 2007; Mikula, 2003). The consensus of the studies finds the portrayal consistently skewing towards sexuality and submissiveness, even when the female is the main character or in a substantive role.

The portrayal termed hypersexualism is embodied in the archetype of Lara Croft from *Tomb Raider*, whose advertised body size is 5'9", 132 lbs and 34D-24-35 (Polsky, 2001). Critics, scientists and players suggest women do not play more digital games because female avatars, the character the player controls in the game, are not ones they feel comfortable with or want to play as (Martinson, 2002; Ray, 2004). Initial steps to understand this possible deterrent

¹ The Entertainment Software Association is the organization that monitors the ratings and market for digital games. These figures come from the Entertainment Software Association's latest release about the industry, "2008 Sales, Demographics and Usage Data: Essential facts about the computer and video game industry," retrieved December 1, 2008 from http://www.theesa.com/facts/pdfs/ESA_FF_2008.pdf. Compared to their 2006 report, this gender gap has shrunk, slightly; it had been 52% male, 38% female.

have been taken (Hartmann & Klimmt, 2006), but none have directly addressed hypersexualism as the visual representation of the avatar. This study empirically tested how the body shape of the avatar can influence the engagement the player has with the video game, and specifically to what extent hypersexualism is a factor in whether men and women want to play that game.

Theories of the gendered gap

Most research has focused not on how to improve women's play but on why they play differently than men. Several reasons seek to combine the arguments of nature and nurture to explain this gender gap. Kubey and Larson (1990) believed that a combination of testosterone and socialization predisposes boys to prefer the violence and competition common to most video games. Because these socialized traits are common qualities in games, society positively reinforces this engagement, creating the norm and the discourse that only boys should play any video games (Gilmour, 1999; Lucas & Sherry, 2004). As for social acceptability, girls are raised with an emphasis on social interaction, self-discovery and cooperation with peers, and this norm has been related to how much women said they might enjoy a game, resulting in a series of "pink games" that reinforced feminine stereotypes (Hartmann & Klimmt, 2005; Taylor, 2006).

This gender socialization process is further supported by research indicating that girls are turned off by violence in video games (Gailey, 1993) or prefer just cartoon violence in comparison to more realistic "human" violence (Funk & Buchman, 1996; Wood, Griffiths, Chappell & Davies, 2004). However, girls have said they like action in games (Funk, 2001), where their labeling of content as action was synonymous with boys labeling the same content as violent. Labeling the same game with different terms shows the influence of society on how boys and girls interpret the same content to make it acceptable for them to play these games.

Attached to the biological argument, Sherry (2004), utilizing Csikszentmihalyi's flow theory, believed an important component in enjoying video games is the extent to which one feels a continuous, uninterrupted engagement, or flow, with the game. If cognitive ability is not in-sync with the cognitive requirement of the game, then this hinders flow and the player may

prefer not to play that game. Women have said they do not care as much for the competitive and violent games that require more hand-eye coordination while men, who have higher innate hand-eye skills, like these games (Lucas & Sherry, 2004). Sherry (2004) argues women are not deterred from violent games because they do not or should not like violence, but because cognitively they are not as equipped to manipulate the game's requirements as men and are thus more easily frustrated by playing. The biological argument has been furthered, by using evolutionary psychology, to differentiate men as hunters and women as gatherers in their reactions to digital games (Cherney & Poss, 2008).

While these arguments may be part of the explanation, another possible reason is offered by the portrayal of female characters and avatars. The history of video games has seen male characters acting aggressively towards women and/or female characters having only subordinate or non-integral roles as the victim, prize or damsel-in-distress (Provenzo, 1991; Martinson, 2002). Even when a woman was a hero, she was often relegated to being subordinate to the main male character, or she was sexualized in terms of build, clothing or behavior (Dietz, 1998). Even in more recent games, this portrayal has changed little. Female characters continue to be participants rather than competitors and to be less physically aggressive than male characters (Glaubke, Miller, Parker & Espejo, 2001). They are more likely to be depicted as partially nude and even engaged in sexual behaviors (Haninger & Thompson, 2004), and there continues to be a preponderance of buxom women whose cleavage is very evident due to low necklines or very little clothing (Beasley & Collins, 2002; Glaubke et al., 2001). In other words, they are hypersexualized.

Focusing on the characteristics that constitute hypersexualism, Downs and Smith (2005) conducted a content analysis specifically addressing this portrayal along several dimensions. One dimension focused on costume: whether or not the character was wearing sexually revealing clothing designed to enhance, exaggerate or call attention to the female's body; how appropriate this costume was for the game's action; and, the level of the character's nudity.

Another dimension focused on behavior, such as engaging in sex talk and other behaviors designed to elicit sexual intimacy. The final dimension was body manipulation, which included having an exaggerated chest and a disproportionately small waist. In the games analyzed, female characters were overall less frequent than male characters, but more likely to be hypersexualized along all the dimensions.

Of course, hypersexualism does not only occur in digital games. There exists in other media texts portrayals that emphasis having a "curvaceously thin" body shape (Harrison, 2003) -- a thin woman with breasts too large for the proportionate amount of body fat on her body, which makes this body shape largely unattainable without the intervention of cosmetic surgery (Tantleff-Dunn, 2001; Millsted & Frith, 2003; Murnen, Smolak, Mills & Good, 2003; Goodman & Walsh-Childers, 2004). These physical patterns are then coupled with content to make the woman appear as attractive, successful, and the societal ideal for femininity. In video games, this coupling is seen with hypersexualized character being the game's hero or the hero's helper, both positive societal roles. "Female characters, such as Lara Croft, send a clear message to male and female players that it is okay for a woman to be tough and stand up for herself, as long as she looks sexy doing it." (Dunlop, 2007, p. 102). Having such potential role models and sources of information about femininity can be detrimental for both men and women, although it is women who may be doubly in peril from learning actions and idealized body images (Miller & Summer, 2007).

The presence of hypersexualized portrayals in digital games may impact the level and extent to which a player engages with the game in one of two ways, dependent upon the sex of the player. Women may be dissuaded from playing the game if they do not feel they can identify with the character due to her sexualized appearance and behavior. Men may be interested in playing the game if they feel the portrayal is attractive. Thus, it is hypothesized, that the player's reaction to the depiction of female characters in digital games can impact their

desire to engage with that game. The explanations for why identification and attraction can be considered as mediating variables in this equation are outlined in the next two sections.

Women and hypersexualized portrayals

The developers of the *Tomb Raider* series sought to design a game that would appeal to women and men by creating the first strong, independent and heroic female avatar, Lara Croft. However, her appearance, with large breasts, narrow waist and scanty clothes, is one of the reasons more men were drawn to the game (Mikula, 2003), and this sexual portrayal only increased as the series progressed. Lara Croft embodies what researchers see in female avatars -- that it is okay to be as active and tough as her male counterpart, as long she is hypersexualized to downplay her strength (Glaubke et al., 2001). While women may be interested in games that give them strong characters, the industry provides characters modeling a body they cannot achieve, more an object for the male gaze than female empowerment.

For a woman, who may not be voluptuous or want to be objectified by men, there may not be much desire to engage with a media product where this is the common depiction of femininity (Martinson, 2002), and this deterrence has been seen in previous research on the sexualized portrayal of women (LaTour, 1990). Nowhere in mainstream video games are men portrayed with any sexual organ shown "larger than life" (Ray, 2004). Male characters may be shown with broad shoulders, a square jaw and a narrow waist, but these exaggerations do not connote sexuality in mainstream Western as does the manipulation of a female character's bust and hip size. If men would feel uncomfortable playing a male avatar whose sexual organs were magnified to the extent a woman's are, then it seems plausible the same would hold true for a woman.

Harrison (2000) found that girls liked and identified more with average body type female television characters more than Thin or fat body type. Showing a woman a hypersexualized body type may be akin to these non-average types, which may be particularly true if they do not find the hypersexual avatar to be physically attractive. Hoffner (1996) found the only significant

indicator for a girl to engage in wishful identification with a model was whether or not she perceived this model to be physically attractive (see also Williams, LaRose & Frost, 1981). If the hypersexual is not seen as attractive or desirable in some way, then the player may engage in less identification with that avatar.

Research has shown that identification influences how immersed within the game the player feels (McDonald & Kim, 2001; Schneider, Lang, Shin & Bradley, 2004; Eastin, 2006), to the point where it feels like the immersion into the diegesis depicted in the content (Green, Brock & Kaufman, 2004). Identification could be a safeguard against frustration; the more immersed a person is in the game, then perceived cognitive fit and flow with the game likewise increases, which may initiate longer periods of play as well as desire to play the same or similar. Similar to how identifying with a film's protagonist is related to desire to see that character do well (Cohen, 2001), the more immersed a player is in a game due to identifying with their avatar, the more they would want to see the game to its rightful end to "help" the character, overcoming obstacles to do so. By this logic, identification with a female avatar may improve a woman's reaction to and subsequent engagement with a video game.

However, due to hypersexualism, women may have trouble identifying with these characters, creating a barrier for them to overcome to enjoy the game (Funk, 2001; Martinson, 2002; Hartmann & Klimmt, 2005). Female players have indicated the importance of identifying with one's avatar when playing a game (Funk, 2001), and may become irritated when they cannot identify (Mikula, 2003). In a discussion with women regarding Lara Croft, Yates and Littleton (1999) heard how women would like to have a female character as long as she is "not too way out" in terms of physical appearance, indicating the desire for an avatar not to be hypersexualized but one with they could visualize being. If the woman cannot identify with the avatar, she may not be able to immerse herself into the game to the extent that she would want to keep playing, especially if difficulty arises. The presence of a hypersexualized avatar, in this equation, may reduce engaging with the game.

Men and hypersexualized portrayals

Thus far the discussion has been on how women may be dissuaded by these portrayals, however, it is likewise important to understand if men find these digitalized sexual portrayals attractive. The extent of evidence, both empirical and anecdotal, promotes the belief that men are attracted to buxom, or voluptuous, woman. The logic behind such beliefs comes from evolutionary psychology. Observable cues for successful fertility in women (breasts, hips) create a low waist-to-hip ratio or hour-glass figures (Barber, 1995; Singh, 2006). This resulting body figure has been shown to be desirable to men, and visual representations of femininity often enhance this figure by poses, fashion and behaviors that suggest sexual willingness (Stankiewicz & Rosselli, 2008). Recent content analyses found that 50% of advertisements portrayed women as sexual objects using these techniques (Stankiewicz & Rosselli, 2008). Even when sexual ads were a small percentage of ads available, they were often directed towards men and featured sexualized women (Monk-Turner et al, 2008). In Western cultures, women are commonly objectified as sexual objects to sell products to men by the implication that using the product will increase the man's chance for more and better sex (Reichert & Lambiase, 2003).

Sexualized portrayals of women occur because they work, as the adage "sex sells" demonstrates. The evidence from pornographic research shows the influence of watching sexualized women in non-sexual situations (McKenzie-Mohr & Zanna, 1990). Being exposed to sexualized portrayals can influence how a man responds towards women (Stankiewicz & Rosselli, 2008), and the suggestion of possible sex will apparently induce a man to engage in behaviors to increase that possibility. Advertisements or other promotional material portray women as sexual objects to induce purchasing behavior. In cases of men's magazines, those that display sexualized women on their covers are more likely to interest a potential male consumer (Reichert & Zhou, 2007). Women are more likely to scrutinize a sexualized ad, with

men paying less attention to how well the advertisement fits the brand if the ad is sexual (Putrevu, 2008).

The digital games industry and researchers alike believe these sexualized portrayals will not only attract the attention of male players, but have them come back for more (Downs & Smith, 2005). Many in the industry rely on sexualized portrayals of women to market their product, even if the game is not populated with hypersexual females, such as the online role-playing game *Everquest* (Griffiths, Davies & Chappell, 2004), as it is assumed using women in their marketing will appeal to males, especially the adolescent boys seen as the main audience for digital games (Martinson, 2002). When the first *Tomb Raider* game was released, it was marketed through the use of a scantily clad impersonator at trade shows and an ad campaign depicting men leaving strip clubs to find Lara (Cassell & Jenkins, 1998). Lara Croft became a hypersexual avatar that men can look at and control while playing her. They can also manipulate the game's camera angles to create the optimal gazing opportunity (Mikula, 2003).

The industry essentially reinforces itself by creating games they believe men will want to play, and not providing a large amount of games with counter-portrayals as an option for male and female gamers to choose. Building off of traditional conceptions about the average heterosexual man's desires, the industry utilizes the hypersexualized portrayal to induce expectations of sex. The conceptualization posits that if a man sees a hypersexual portrayal, he will connect the content associated with it to sexual thoughts, which will induce behaviors believed to insure a sexual outcome; in this case, the purchase of the game featuring that character, or the desire to continue playing that game.

Study overview

The goal of this study was to understand to what extent playing as a hypersexual avatar would impact a player's level of engagement with a video game. It is possible women would not want to play a video game containing such a character due to their unwillingness or inability to identify with the character, whereas men would want to play such a game due to their attraction

to the character. To test these possibilities, an experiment was designed that manipulated the body type of the player's avatar, and both men and women were randomly assigned to play one particular type of avatar. Taking into account the intentions of the game designers, as well as research into gender differences in perception and reaction to sexual portrayals of women, the following hypotheses were generated as a means of testing the validity of the assumptions involved in this issue of hypersexualism.

H1: Women will identify least with the hypersexualized avatar vis-à-vis the non-hypersexualized avatars.

H2: As identification with the avatar increases, engaging with the game will increase.

H3: Women will engage with the game the least while playing the game as the hypersexualized avatar vis-à-vis the non-hypersexualized avatars.

H4: Men will find the hypersexualized avatar the most attractive avatar vis-à-vis the non-hypersexualized avatars.

H5: As attraction to the avatar increases, engaging with the game will increase.

H6: Men will engage with the game the most while playing the game as the hypersexualized avatar vis-à-vis the non-hypersexualized avatars.

METHOD

Sample

The sample consisted of 60 men and 60 women from a large Midwestern university who participated to receive extra credit for their coursework. Among the men, 78% were Caucasian, and the age range was 18-35, with a mean age of 23. Among the women, 58% were Caucasian, and the age range for women was 19-44, with a mean of 22. When asked if they played digital games, either computer or video games, 52 men said yes while only 27 women did, which shows the gender split in experience with digital games. This item was a statistical control variable, Gaming Experience, in all analyses to see if experience with digital games impacted the hypothesized relationships.

Design

As this research was intended to explore men and women's interaction with hypersexualized characters, the first independent variable was the Gender of the participant. The second independent variable, Character Type, consisted of manipulating the avatar's physical characteristics through body part exaggeration, as discussed by Downs and Smith (2005). The three body types, detailed below, consisted of the hypersexualized figure, a voluptuous figure, and a thin figure. These variables resulted in six conditions, a 2 (participant gender) x 3 (character type) structure.

Stimuli

The avatars. The avatar design was accomplished with a computer program for designing digital characters, Curious Labs' *Poser 6*[®]. One model was chosen and specific parts of its body parameters were manipulated to represent the three body types. The specific parameters for the body manipulations were the result of pilot testing 16 images across a group of 40 gamers who were familiar with the concept of hypersexuality after having discussed in a class on video games and society. By averaging what they rated as the most thin, most curvy

and most hypersexual, each figure's body part parameters were transferred unto the main model, creating the three separate avatars (Figure 1).

The Thin body image is similar to the "thin ideal." The Curvy increased both the hip and bust size while increasing the breadth of the waist and limbs. The Hypersexual body type was a combination of the Thin's long and narrow limbs and the Curvy's large bust and derriere, which appeared exaggerated further due to their juxtaposition on the narrow frame. The facial expression, hair and clothing of each avatar were kept the same, and the lighting direction of the three-dimensional model was kept similar while still properly lighting the figure to display the body shape.

The game. The game was a computer first-person perspective game, in which the avatar is not present within the game world, allowing the player to experience the virtual environment through the avatar's point of view. Named *Schizm: Mysterious Journey*, the purpose was to explore a photorealistic yet fantasy world and solve puzzles, such as manipulating objects in order to uncover secret transportation. This type of game has shown to be rather gender neutral as both men and women like to play it (Cassell & Jenkins, 1998), while at the same time can be seen as either too complex due to the puzzles or too boring due to the low action content. Also, the game's settings are aesthetically realistic, which both genders have said is important in a good game (Wood et al., 2004).

Procedure

For the first part, to gauge their evaluation of the avatar, participants were shown the image of the avatar projected onto a large screen. The participant was asked to write a description for this character, about who they think she was. After writing, they completed close-ended items to measure evaluations of similarity, wishfulness or desire to be the character, identification, and Attractiveness of the avatar. To control for perception of the avatar's body shape, participants were asked to choose an image on a somatotype scale that

most closely matched the avatar's. The majority of participants saw the character as the intended body type.

After this section of the questionnaire was completed, the image was accompanied by a text introduction of the game. Each avatar was paired with the same introduction, setting up the character as a normal college student who woke up one day to find herself transported to an alien world. The introduction was created to provide a connection between the character and the game, as the game's environment consisted of an alien landscape while the character was designed to appear to be a college woman without any costume to indicate she would be particularly well-suited for exploring an alien world. This image then provided a link between the two parts of the study and was maintained while the participant played the game.

The participant then played the game's beginning, set to start after the game's introduction that did not coincide with the text introduction. Players were given only minimal rules for engaging with the world, such as how to turn around to see more of the environment and how to interact with this world. Participants were timed for how long they played the game. If they had not indicated a desire to end the game before the 15 minute allotment expired, they were asked to stop what they were doing to move on to the questionnaire. The scales to measure engagement were completed, along with additional identification questions to assess similarity and wishfulness ratings on the behavior and situation of the avatar. These questions were followed by demographics, media use and gamer status questions. Participants averaged roughly 45 minutes to complete the study. All participants were debriefed upon completion of the experiment.

Measures

Attractiveness. How attractive the participant saw the character was measured by asking how attractive the character was seen and how much the participant liked the character. The two attractive items were rated on a 10 point scale, where 1 was "not at all" and 10 was

"very much so". These two variables were strongly positively correlated with each other ($r=0.76$, $p<0.001$). This variable is labeled Attractiveness for the purposes of this paper.

Identification. The scale measuring identification, with both similarity and wishfulness components, was based upon previous scales (Perosanz & Rovira, 1998; Reinhard, 2005). Similarity means the perception of closeness to one's own self on dimensions of appearance, behavior, beliefs, and experiences. This perception occurs from comparing oneself to another in terms of how one currently is or how one has been in the past. Wishfulness means the perception of desirableness to be more similar to the other individual. The individual does not sense a great amount of similarity at that time or sometime in the past, but does have the wish to be similar at some point in the future.

This conceptualization of identification was chosen due to their shown interrelationship and importance in understanding identification (von Feilitzen & Linné, 1975; Hoffner & Cantor, 1991; Cohen, 2001; Reinhard, 2005). Items were developed to measure how similar the participant felt to the character in terms of physical appearance, behavior, thoughts and feelings, and the situation, as well as how much the participant would want to be similar to the character. Eight items were asked before the participant played the game, rated on a 10 point scale, where 1 was "not at all" and 10 was "very much so". Seven items were also asked after the game was played, and were then rated on a 7 point scale, where 1 was "not at all" and 7 was "very much so". For comparisons, these scales were standardized before analysis.

While there was a high internal reliability across these before and after game play items, a Cronbach's α of 0.92 overall, a factor analysis showed that there was indeed a split between these sets. One group consisted of the items asked when the participant was only seeing the image of the character, before playing the game. This group of items showed an internal reliability of 0.92 Chronbach's α . As such, this scale was treated as a separate variable termed Before Game Play Identification (BGPI). The other group were the items asked after the

participant finished playing, arguably the identification with the character during game play. This subset showed a likewise high internal reliability of 0.91 Cronbach's α . As such, this scale was treated as a separate variable termed During Game Play Identification (DGPI).

Time spent playing. One measure of engagement was the length of time the participant played the game, recorded in seconds. It was assumed that Length Game Play would correspond to desire to play the game, thus serving as an objective measure of engagement. Indeed, the length of time the player engaged with the game was positively correlated to how much they reported enjoying the game ($r=0.27$, $p<.01$), how much they would like to continue playing the game ($r=0.33$, $p<.001$), and their feeling of immersion in the game ($r=0.24$, $p<.01$).

Presence. Presence was conceptualized as how much a gamer was involved with and immersed in the game play experience to measure how much a gamer enjoys the experience. Presence is conceptually similar to involvement with a drama, which studies have shown relates to how well audience members enjoy fictional work (Klimmt & Vorderer, 2003; Green et al., 2004; Vorderer, Klimmt & Ritterfeld, 2004). Engaging with an avatar that is located within the virtual environment may foster this immersion into the virtual environment (Taylor, 2002). The method for measuring presence elicits confusion and debate (Insko, 2003). This study relied on a scale created by combining items from several established self-report scales (Schloeb, 1995; Slater, Usoh & Steed, 1994; Kim & Biocca, 1997; Witmer & Singer, 1998). This combined scale, rated 1 to 7 where 1 was "not at all" and 7 was "very much so", had a resulting internal reliability of 0.84 (Cronbach's α).

Engagement scale items. The final sub-component was measured via scale items, rated 1 to 7 where 1 was "not at all" and 7 was "very much so". These items were designed to measure the extent to which the individual liked engaging with the game, Game Enjoyment. Four items were also intended to measure the individual's potential future behavior: if they would like to continue engaging with the game, Like to Continue; if they would recommend the

game to a female or male friend, Recommend Female Friend and Recommend Male Friend; and if they would like to play a game similar to this one, Desire for Similar. These items were modified from Kim and Biocca (1997) and their work to link presence and persuasion. The five items created to measure enjoyment and intention to engage had an internal reliability of 0.94 (Cronbach's α). For purposes of analysis, the scale-items were explored as separate dependent variables due to their conceptual uniqueness.

Analysis

Two main statistical tests were utilized to test the hypotheses of this study. To compare for the effects of Gender, Character Type, and their interaction, Gender x Type, on the variables of Attractiveness, Before Game Play Identification, During Game Play Identification, and the seven engagement variables, a series of univariate analyses of covariance, controlling for Gaming Experience, were conducted. The results of these ANCOVAs can be found in Table 1. The first three columns in Table 1 indicate whether or not the test was significant and at what p-value. The remaining columns break down the main and interaction effects with their respective means and indications of where lie the significant differences. For the interaction effects, significant differences were determined by conducting univariate ANCOVAs within each Gender, and comparing the Character Types with Bonferonni post-hoc analyses. The graphs for the significant interactions can be found in Figure 2.

To ascertain the extent to which Attractiveness and the two Identification variables predicted the variance of the seven engagement variables, a series of hierarchical linear regressions were conducted. The three Character Types were separated into three dichotomous variables where 0=no and 1=yes, and all three variables were entered as one step in the model. The Gender x Type interaction variable resulted in six dichotomous variables, such as Male-Curvy and Female-Hypersexual, where 0=no and 1=yes, and all six variables were entered as one step in the HLM. The results of these regressions can be found in Table 2. In this table, the R^2 and ΔR^2 values are provided to demonstrate the predictive impact of the

variable alone and when inputted last into the model, as well as whether or not the addition significantly improved the predictability of the model for that variable.

RESULTS

Women, Identification, Engaging Measurements

H1: Women will identify least with the hypersexualized avatar vis-à-vis the non-hypersexualized avatars.

As seen in Table 1, women were more likely than men to have higher Before Game Play Identification, regardless of which character they were shown ($F(1,113)=6.301$, $p<.01$). However, this gender difference was not significant for the measurement of During Game Play Identification ($F(1,113)=0.134$). Additionally, for Before Game Play Identification, ANOVAs and Bonferroni post-hoc analyses indicated women were not less likely to identify with the Hypersexual than either the Curvy or the Thin ($F(2,57)=0.681$). The same is true for During Game Play Identification, for both men ($F(2,57)=0.233$) and women ($F(2,57)=0.366$). Thus, the hypothesis was not supported; women did not identify with the Hypersexual less than the other two Character Types.

H2: As identification with the avatar increases, engaging with the game will increase.

As seen in Table 2, Before Game Play Identification, when alone in predicting the engagement variables, was significant in predicting the measured variance for all of the engagement variables but Length Game Play: Game Enjoyment ($\Delta F(1,118)=9.233$, $p<.01$); Like to Continue ($\Delta F(1,118)=9.473$, $p<.01$); Recommend Female Friend ($\Delta F(1,118)=8.974$, $p<.01$); Recommend Male Friend ($\Delta F(1,118)=9.763$, $p<.01$); Desire for Similar ($\Delta F(1,118)=17.090$, $p<.001$); and, Presence ($\Delta F(1,118)=11.651$, $p<.001$). However, when included with the other predictor variables in the regression model, Before Game Play Identification had no significant impact on predicting the player's engagement with the game.

In contrast, During Game Play Identification was consistently and strongly predictive both alone and with the full model for each engagement variable. When the variable was entered alone in the regression model, it was significant in predicting the variance of all the engagement variables at $p<.001$ except for Length Game Play, where it was significant at

$p < .05$. These significance tests remain the same when the variable is added in last in the model for all the engagement variables: Game Enjoyment ($\Delta F(1,110)=53.576$, $p < .001$); Like to Continue ($\Delta F(1,110)=53.980$, $p < .001$); Recommend Female Friend ($\Delta F(1,110)=26.593$, $p < .001$); Recommend Male Friend ($\Delta F(1,110)=24.744$, $p < .001$); Desire for Similar ($\Delta F(1,110)=35.400$, $p < .001$); Presence ($\Delta F(1,110)=46.877$, $p < .001$), and Length Game Play ($\Delta F(1,110)=5.439$, $p < .05$). Of the independent variables in the regression models, it appears During Game Play Identification accounted for the most variance in how likely the men and women were to engage with the game they played. Thus the hypothesis is supported; as identification increased, especially while playing the game, the engagement with the game increased, for both women and men.

H3: Women will engage with the game the least while playing the game as the hypersexualized avatar vis-à-vis the non-hypersexualized avatars.

As seen in Table 3, and plotted in Figure 2, several significant and nearly significant interaction effects of Gender and Character Type were found for the engagement variables: Like to Continue ($F(2,113)=2.311$, $p < .10ns$); Recommend Female Friend ($F(2,113)=2.340$, $p < .10ns$); Recommend Male Friend ($F(2,113)=3.501$, $p < .05$); and, Presence ($F(2,113)=4.156$, $p < .05$). All of these interactions are plotted in Figure 2. The pattern indicated by these figures is contrary to the hypothesis: instead of indicating less engagement when playing as the Hypersexual, for these four variables the women appear more likely to respond with higher values. When Bonferroni post-hoc analyses were conducted to compare the Character Types within the women who participated, only Recommend Male Friend showed a near significant difference between the Hypersexual and the Curvy ($F(2,57)=2.368$, $p < .10ns$). Thus, the hypothesis is not supported; women were not less likely to engage with the game when playing as the Hypersexual character – indeed, the tendency was for the opposite to occur.

Men, Attractiveness, Engaging Measurements

H4: Men will find the hypersexualized avatar the most attractive avatar vis-à-vis the non-hypersexualized avatars.

As seen in Table 1, men were more likely than women to find any of the characters attractive ($F(1,113)=8.603, p<.01$). Additionally, an interaction effect, investigated with a Bonferroni post-hoc analysis, showed that men were slightly more likely than women to find the Hypersexual as the most attractive ($F(2,113)=2.501, p<.10ns$). However, Bonferroni post-hoc analyses indicated there was no tendency for just the men to find the Hypersexual character more attractive than the other Character Types ($F(2,57)=0.897$). Thus, the results are mixed for this hypothesis; men may find the Hypersexual more attractive than women do, but that did not mean they found the portrayal more attractive than the other two Character Types.

H5: As attraction to the avatar increases, engaging with the game will increase.

As seen in Table 2, when it was entered alone in regression models to predict variance in the engagement measures, the Attractiveness rating was a significant predictor for all engagement measures except for Length of Game Play: Game Enjoyment ($\Delta F(1,118)=11.853, p<.001$); Like to Continue ($\Delta F(1,118)=14.311, p<.001$); Recommend Female Friend ($\Delta F(1,118)=6.214, p<.01$); Recommend Male Friend ($\Delta F(1,118)=8.127, p<.01$); Desire for Similar ($\Delta F(1,118)=14.141, p<.001$); and, Presence ($\Delta F(1,118)=12.762, p<.001$). However, when Attractiveness was added in last with the other variables in the model, the variable was a positive predictor for only three engagement measurements: Game Enjoyment ($\Delta F(1,110)=3.276, p<.10ns$); Like to Continue ($\Delta F(1,110)=4.791, p<.05$); and, Desire for Similar ($\Delta F(1,110)=2.715, p<.10ns$). Thus, the results indicate mixed support for the hypothesis; alone Attractiveness accounted for all measurements of engagement except for Length Game Play, but when the other variables were accounted for its predictive capability was greatly reduced.

H6: Men will engage with the game the most while playing the game as the hypersexualized avatar vis-à-vis the non-hypersexualized avatars.

As seen in Table 3, plotted in Figure 2, and discussed in regard to the third hypothesis (H3), four engagement variables saw interaction effects between Gender and Character Type. The pattern indicated by these figures is contrary to the hypothesis: instead of indicating more

engagement when playing as the Hypersexual, for these four variables the men appear less likely to respond with higher values. When Bonferroni post-hoc analyses were conducted to compare the Character Types within the men who participated, two engagement variables showed a tendency for engaging to be higher when playing as the Curvy compared to the Hypersexual: Like to Continue ($F(2,57)=3.287, p<.10ns$); Presence ($F(2,57)=3.421, p<.05$). Thus, the hypothesis is not supported; men were not more likely to engage with the game when playing as the Hypersexual character – indeed, the tendency was for the opposite to occur.

DISCUSSION

The common approach in the digital game industry has been to create female characters for their main demographic, men, resulting in an abundance of hypersexualism and other feminine stereotypes. Contrary to industry beliefs and theoretical suggestions, this study's exploration into the hypersexualized portrayal suggests men do not inherently prefer this portrayal, whereas women may be more interested in such a portrayal due to cultivated ideas of the portrayal as normative and their beliefs about men's preferences. Also, it appears that when it comes to playing as an avatar in a game, the avatar's actions and abilities take precedence over the avatar's appearance, especially when the avatar is not on the screen.

The study was created to explore a hypothesis to explain the gender gap in video and computer game usage. The study contended that the presence of hypersexualized female characters increases men's desire while reducing women's desire to play the games due to different reactions to the characters. As for the role of the Hypersexual in fostering the gender gap, this study indicates that this portrayal is not the determinant or deterrent those in the industry and academy believe it is. There was a gender difference in how likely a participant was to identify with the character based on only seeing the character's image, most likely because the character was female and associated with gendered feminine stereotypes. However, this difference disappeared after the participants played the game as the character, and it did not matter which body type the character had.

The level of identifying with the avatar, whether based on a feeling of similarity or a desire to be more similar, appears to be predictive in understanding the extent to which a player engages with or wants to engage with a digital game, regardless of who is playing or how the avatar is visually portrayed. Also, because there was no significant difference between how attractive the men saw the Hypersexual compared to the others, having this portrayal in a game or for marketing probably will not appear to guarantee engagement. While men were more likely to find the hypersexualized portrayal more attractive than women did, they did not

distinguish this portrayal as more attractive than the other body types. While the player's perception of the character's attractiveness was predictive to some extent of the player's engagement with the game, the predictive power of attractiveness was not above 3% when other factors were controlled for, indicating it is important, but perhaps not as much as theorized. As far as reacting to the characters in a digital game, being able to identify with the character appears to be a far more useful determinant of engagement with the game than simply how attracted the player is to the character².

Conclusions about the Women

It was predicted that women would not like a digital character whose breasts were overly exaggerated; however, the results of this study indicate that the opposite occurs. While they may have tended to find the hypersexualized woman less attractive, this did not hinder their identification with that character, nor did it deter them from being more immersed when playing as her, or tending to like to play more of the game, to the point of recommending it to both male and female friends. The results here add to the observation that a tension exists in how women talk about and react to sexualized portrayals.

Past research has found a level of ambivalence among women as they deal with the media's depictions of female beauty, such as the curvaceously thin (Latteier, 1998; Goodman & Walsh-Childers, 2004). Women shown idealized or sexualized body types have indicated more dissatisfaction with their own body, especially if they have internalized the norms portrayed (Lavine, Sweeney & Wagner, 1999; Morry & Staska, 2001; Sands & Wardle, 2003), all the while being critical of sexualized portrayals in general (Rossi & Rossi, 1985; LaTour, 1990; Rouner, Slater & Domench-Rodriguez, 2003). Rejecting the images does not appear to buffer women from being affected by them, nor do they stop buying the packages that contain them, such as

² This conclusion is with the understanding that being attracted to the character is correlated with identifying with the character, and commonly the two reactions are theorized as complementary components (Cohen, 2001). However, focusing specifically on identification as separate then attractiveness, it does appear that identification is more predictive of the level and extent of engaging with a digital game.

Victoria's Secret or women magazines like *Cosmopolitan*. Women will openly discuss how they struggle with this cultivated and normalized depiction, even desiring to be both thinner and have larger breasts (Millsted & Frith, 2003; Goodman & Walsh-Childers, 2004). When the societal and cultural discourse swirls one way, a woman caught in the current has a limited range of actions -- from going with the flow, to continually struggling against it, to drowning.

Hartmann and Klimmt (2006) found similar conflicting results in examining factors that may dissuade women from playing games. Women reported higher entertainment when shown a game that contained a gender inappropriate female characters, which was defined as exhibiting the sexual object stereotype, depicted by having the character dressed in leather. Such a positive reaction is understandable given that in our pop culture it is often the woman in leather, who is sexualized to some degree, that is the strong, active, independent and competent fighter alongside her male counterparts (Brown, 2004). It may be that the women who picked the hypersexualized character were responding to this common portrayal, interpreting the hypersexualized as the more powerful, and thus the most likely to be successful in the game.

Cultivation, social learning and priming theories could explain the impact of such portrayals on body dissatisfaction and related behavioral outcomes (Morry & Staska, 2001; Hendricks, 2002; Markey, Tinsley, Erickson, Ozer & Markey, 2002). If society and culture propounds that to be a successful woman one also has to be hypersexualized to some degree, then women may feel they need this appearance to fulfill their role in society. It is possible that consistent exposure to this portrayal, either as a player or as a spectator, may result in women learning that this portrayal is the standard by which women should seek to achieve through their own actions. The media portrays strong women simultaneously and unerringly as sexual objects, such as the hypersexualized video game characters. As the female participants were informed that the image shown was that of a video game character, there may exist a common perception, even among non-gamers, that a Hypersexual body type is the common mold for

female action heroes in this medium. The perceived appropriateness of the hypersexualized avatar given the context of playing a video game may have resulted in their being more interested in the game, as well as believing others would be just as interested – especially men, to whom the sexualized portrayal is most commonly thought of as intended for.

Conclusions about the Men

Contrary to what the industry believes, and what research into how men respond to sexual content in other media content has found (Rossi & Rossi, 1985; LaTour, 1990; Rouner et al, 2003), men appear more interested in a voluptuous woman than a hypersexual woman. This result is not surprising from an evolutionary theory perspective. Evolutionary theory predicts that men are attracted to women who have a low waist-to-hip ratio, which results in a more voluptuous figure, as this body type is typically healthier, has better reproductive capabilities, and is a more evolutionarily successful mate (Furnham et al, 1998; Markey et al, 2002). Men are also more likely to choose a body shape that is heavier and curvier than the one women choose for them (Fallon & Rozin, 1985), which here was the Hypersexual woman. Additionally, several men commented, upon exiting, on the absurdity and abnormality of the hypersexualized portrayal in games. In other words, men prefer natural curves, not artificial ones.

However, while attraction did not play a significant role in determining game play when other factors were accounted for, identification during game play did. What is interesting is that such identification occurred across genders in a direction not often predicted: male players were identifying with a female avatar (Hoffner, 1996; Harrison, 2000). Special attention needs to be paid to how this identification was occurring.

Identification can be broken down into several categories within which the person can compare him or herself to another individual as being similar based on past, present or desired attributes. Comparing oneself to another on past or present attributes is commonly referred to as similarity identification. Comparing oneself to another on desire future attributes is commonly referred to as wishful identification. Reinhard (2005) discussed at least four categories that

were used to structure the scale for this study: Physical; Psychological; Behavioral; and, Situational.

Before playing the game, participants were only shown an image of the character, with which they could compare themselves in the Physical category, with explicit sex and gender cues, and presuming comparisons for the other categories. During game play they were no longer seeing what the character looked like. Instead, they were experiencing what the character was doing, where she was, and projecting from themselves what she was thinking. In other words, they were basing their identification on the conditions of the playing game rather than on the appearance of their avatar. As Calvert, Kondla, Ertel and Meisel (2001) pointed out, personality characteristics can be more important than gender when people make similarity decisions, and evaluations of similarity are a cornerstone for identifying with another person.

Men may be more able to identify with a character if they can find similarity in psychological and situational aspects of the character, as evidenced by the identifying during game play. If a female model is not stereotyped as "girlie", by focusing on gender-neutral traits of personality and behavior, or balancing feminine and masculine traits, then such cross-gender identification is feasible. This may be especially true given game play conditions that allow the man to slip into the woman's perspective. This provides men the opportunity to identify with a woman based on her abilities, as well as in the situations the avatar faces, and not solely interacting with her as being of the opposite sex.

Limitations and future directions

By the nature of the experiment and what could be done with the digital game used, there were restrictions that need to be explored in future studies. The manipulation of hypersexualism in this study only occurred along one of the dimensions reported by Downs and Smith (2005). It may be that women would be more dissuaded if the avatar was engaging in overt sexual behavior while men would be more attracted to this portrayal. Also, a related negative portrayal could be exaggerations of hyperfeminism, more about feminine stereotypes

with an emphasis on helplessness (i.e. damsel-in-distress). Manipulating the avatar along any of these dimensions could change the results, as this study has already indicated the importance of perceptions of behavior, via identification, on how much the player engages with the game.

Along with this behavior manipulation, there is the obvious reality that the character was not visible in the game. Although the avatar was continuously projected on a large screen while the player engaged with the game, this is different than having the character appear in the game in front of the player, as is the case with Lara Croft in her *Tomb Raider* games. Having this constant image of the avatar, and being able to see her not only as a body type but as a performer of actions and an experiencer of situations, may influence these findings. Men may indeed prefer the Hypersexual if they can watch her, while women may be deterred if this portrayal was constantly in front of them.

These two limitations may indeed impact the identification as it occurred during game play, which is the foundation of the appearance versus abilities argument detailed above. If characters could be manipulated not only for body shape but also for their ability, or behavior, or situation, then this particular aspect of identification can be better understood. It would also aid in understanding just to what extent men can engage in cross-gender identification with female avatars. If a man plays a Hypersexual character that acts like a damsel-in-distress and does not have many abilities to allow him to interact with the game, then he may not identify with this character, which may impact his overall engagement with the game.

Conclusions

The findings highlight the tension that women are dissatisfied with hypersexualized portrayals but are not deterred by them. However, the results do not clearly show whether or not hypersexualism in a video game is a detriment to women's engaging with them. Had the women had a choice in selecting their avatar, these results may have more clearly shown the Hypersexual as being less favored and thus a detriment to engaging with the game. Neither

were men all that impressed by the hypersexualized character as she was not the determinant game creator's believed her to be. Although she was seen as marginally more attractive, the men reported less engagement with the game when they had to play as her.

The findings also point to the importance not of the character's appearance but her abilities in the game and the situations she and the player face during game play. When identifying with the character on both psychological and situational traits, both men and women showed higher levels of engaging with the game. Because men were more interested in a non-hypersexualized character, and women may yet be less interested in her if they were given the choice, the industry should consider focusing on non-sexualized avatars with which both men and women can identify and thus engage with the game on a higher level.

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Figure 1. The avatar stimuli, from left to right: Thin; Curvy; and, Hypersexual

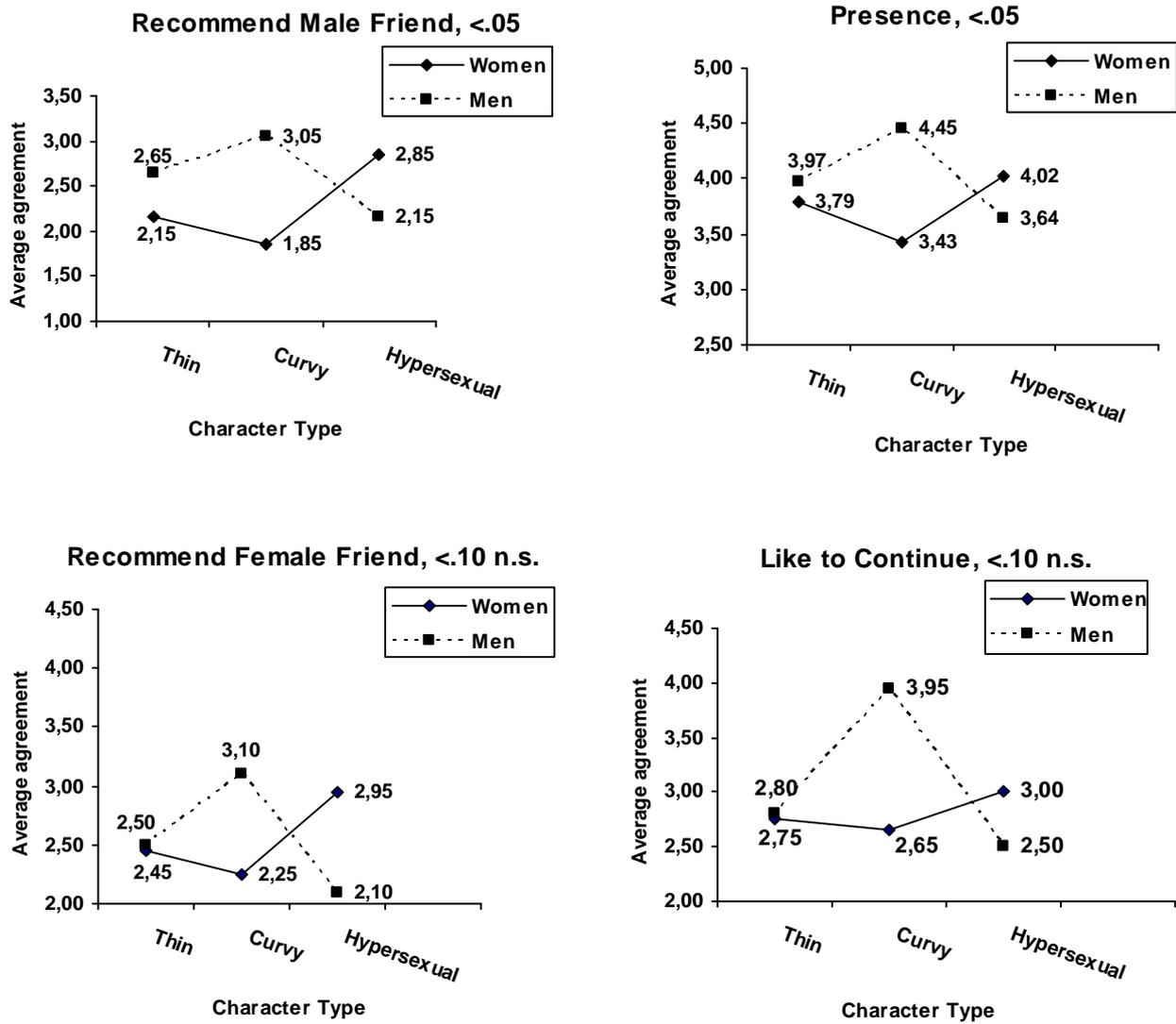


Figure 2. Interaction plots for all significant and near significant effects of participant gender by character type on engagement variables.

Table 1. Means and results of ANCOVAs for measurements of reactions to characters.

	SIGNIFICANT P-VALUES at <.10 ns or higher			mean across gender, character type	PARTICIPANT GENDER		CHARACTER TYPE			FEMALE			MALE		
	GENDER	CHAR-ACTER TYPE	GENDER xTYPE		FEMALE	MALE	THIN	CURVY	HYPER-SEXUAL	THIN	CURVY	HYPER-SEXUAL	THIN	CURVY	HYPER-SEXUAL
Attractiveness	<.01	n.s.	<.10 n.s.	6.50	5.98 a	7.00 b	6.61	6.53	6.35	6.63	5.88	5.45 a	6.60	7.18 b	7.25 b
Before Game Play Identification	<.01	n.s.	n.s.	3.43	4.03 b	2.84 a	3.41	3.31	3.58	4.39	3.91	3.78	2.43	2.71	3.38
During Game Play Identification	n.s.	n.s.	n.s.	2.87	2.85	2.87	2.94	2.75	2.91	2.84	2.74	2.99	3.05	2.76	2.82

Significant differences tested at p-values: <.001; <.01; <.05; <.10 n.s. Instances of significant differences, within main ANOVA or by post-hoc Bonferroni, indicated as follows: a, lowest value; b, highest value.

Table 2. Hierarchical regression models for predicting all measurements of engaging with digital game.

Regression predictor variable		Game Enjoyment	Like to Continue	Recommend Female Friend	Recommend Male Friend	Desire for Similar	Presence	Length Game Play
Gender	R ²	.009	.005	.000	.001	.004	.016	.023 ***
	ΔR ²	.001	.000	.001	.004	.000	.000	.000
Character Type	R ²	.012	.017	.002	.001	.006	.002	.014
	ΔR ²	.001	.000	.001	.001	.000	.000	.000
Attractiveness	R ²	.091*	.108 *	.050 **	.064 **	.107 *	.098 *	.005
	ΔR ²	.016 ****	.02 ***	.007	.006	.014 ***	.011	.002
Before Game Play Identification	R ²	.073 **	.074 **	.071 **	.076 **	.127 *	.090 *	.005
	ΔR ²	.001	.003	.000	.003	.004	.001	.002
During Game Play Identification	R ²	.397 *	.378 *	.266 *	.275 *	.344 *	.364 *	.045 ***
	ΔR ²	.263 *	.261 *	.166 *	.146 *	.185 *	.223 *	.044 ***
Full Model with all predictors		.421	.424	.258	.296	.378	.434	.028

R² accounted for by factor alone (R²), last (ΔR²) and as full model to predict engagement with game variables at significant p-values: * < .001
 ** < .01 *** < .05 **** < .10 ns. All significant relationships found were positive in direction of prediction.

Table 3. Means and results of ANCOVAs for measurements of engaging with digital game.

	SIGNIFICANT P-VALUES at <.10 ns or higher			mean across gender, character type	PARTICIPANT GENDER		CHARACTER TYPE			FEMALE			MALE		
	GENDER	CHARACTER TYPE	GENDER xTYPE		FEMALE	MALE	THIN	CURVY	HYPER-SEXUAL	THIN	CURVY	HYPER-SEXUAL	THIN	CURVY	HYPER-SEXUAL
Game Enjoyment	n.s.	n.s.	n.s.	3.51	3.33	3.68	3.48	3.78	3.28	3.10	3.35	3.55	3.85	4.20	3.00
Like to Continue	n.s.	n.s.	<.10 n.s.	2.94	2.80	3.08	2.78	3.30	2.75	2.75	2.65	3.00	2.80	3.95	2.50
Recommend Female Friend	n.s.	n.s.	<.10 n.s.	2.56	2.55	2.57	2.48	2.68	2.53	2.45	2.25	2.95	2.50	3.10	2.10
Recommend Male Friend	n.s.	n.s.	<.05	2.45	2.28	2.62	2.40	2.45	2.50	2.15	1.85	2.85	2.65	3.05	2.15
Desire for Similar	n.s.	n.s.	n.s.	2.53	2.42	2.63	2.45	2.73	2.40	2.45	2.15	2.65	2.45	3.30	2.15
Presence	n.s.	n.s.	<.05	3.88	3.75	4.02	3.88	3.94	3.83	3.79	3.43	4.02	3.97	4.45	3.64
Length Game Play	n.s.	n.s.	n.s.	687	652	722	690	720	653	678	667	613	702	773	692

Significant differences tested at p-values: <.001; <.01; <.05; <.10 n.s. Instances of significant differences, within main ANOVA or by post-hoc Bonferroni, indicated as follows: a, lowest value; b, highest value.