HYPERSEXUALISM IN DIGITAL GAMES AS A DETERMINANT OR DETERRENT OF GAME PLAY: DO MEN WANT THEM AND TO WOMEN WANT TO BE THEM?

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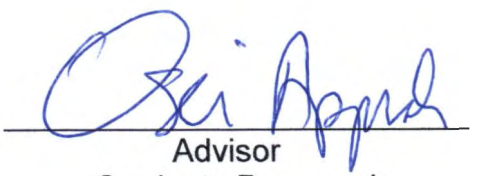

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ABSTRACT

The digital game industry and the academy recognize that women play fewer video games than men. One theorized reason for this is the sexualized portrayal of female game characters, which may dissuade women from identifying and wanting to engage with them. This sexualized portrayal consists of over-exaggeration of a female character's buxom while the waist is overly narrow, a costume of tight-fighting and cleavage-revealing uniforms, and even engaging in overtly sexual behavior. Such hypersexualism is theorized as being designed to attract men to play the games that feature character or marketing in this fashion.

In a 2x3 between-subject design of participant gender by avatar body shape, 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. One-hundred and twenty men and women from a Midwestern university participated in the study. Participants were asked to describe a character after being presented an image of the avatar, to rate how attractive and realistic they perceived the avatar to be, and to what extent they identified with the character. After playing a computer game, to gauge their levels of engagement with the game, participants were measured for how long

they played, the extent to which they felt immersed within the game, and the extent to which they would like to engage with the game. At this point, they were again asked questions about the extent to which they identified with the character whilst playing the game.

Contrary to industry and academic contentions, it was found that men indicated more engagement with the game when playing as a voluptuous character while women indicated more engagement playing as the hypersexualized character. Also, identifying with the character during game play was a 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. Implications for how women react to sexualized portrayals and men's preferences for digital game characters were discussed, as well as the nature of identifying with digital game characters.

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CHAPTER 1

Introduction

According to the Entertainment Software Association, which is the industry regulatory agency in charge of monitoring sales and adding ratings to games, 50% of all Americans play digital games, which are defined as any form of interactive game play that requires a level of computer technology in order to operate, and thus subsumes games that could be found on computers (i.e. computer games), consoles or even handheld devices (the latter two are referred to as video games). Of those players, 53% said they plan on playing as much if not more games in ten years compared to what they currently play. While the numbers have been going up in the recent years, there still exists a discrepancy in the amount of time women engage with digital games when compared to men. Current estimates put this discrepancy as 55% of all video game players are men while 43% are women. While the gap measuring time spent on playing games has narrowed, men continue to spend more time with this form of entertainment and consumer good then women (www.theesa.com/facts/gamer_data.php).

When the women in the digital game industry and in academic research convened for the first Women's Game Conference in the summer of 2004, one of their main points of discussion was how to entice more women to play video

games. The need to incorporate the female demographic has been recognized within the game industry (Slagle, 2004, online). There have been action/adventure and more violent games with female lead characters; unfortunately they fall back into catering to the male audience by over-exaggerating sexual features (ex. *Lara Croft Tomb Raider*) (Ray, 2004). This includes games based on a television series that was very successful among women, *Buffy the Vampire Slayer* (Labre & Duke, 2004). Typically, women do not choose to play the games, such as *Grand Theft Auto*, that fuel this billion-dollar entertainment industry.

Various studies have been conducted to explore this difference, resulting in various theories, with many of them remaining untested in a systematic, experimental fashion. The purpose of this study was to conduct an exploratory experiment to provide new insight into answering why women typically do not consume digital games as much as men. Along with this goal, due to the specific nature of the reason being tested, the study also explored how men react to a common portrayal of women in digital games.

Exploring how men and women perceive and interact with elements of digital games also assisted to further the exploration of people's identification with media personae. A media persona is any individual a member of the audience only experiences or is aware of due to the audience's interaction with some medium, such as a television show, a radio broadcast, a video game, etc (Reinhard, 2005). This media persona can be fictional, such as Mickey Mouse or Luke Skywalker, or real, such as Brett Favre or Jessica Simpson. A media

persona could even be an individual one engages with in parasocial interaction (Horton & Wohl, 1956), which can impact the effect the message and the medium has on the audience member.

Avatars could serve as a media persona when the avatar is visually presented to the player, either before or during game play. Originally used to describe a deity's physical manifestation on Earth, an avatar is the digital manifestation of the player in the world of the game; it is the supposed virtual embodiment of the player in that it is the game character the player controls and experiences the game through (Taylor, 2002). Identification with an avatar could provide the opportunity to increase the player's comfort level whilst engaging in the virtual world of the game, which may increase a perceived sense of actually being present in the game's world (Taylor, 2002) and create a more enjoyable and repeated playing experience (Ray, 2004).

For this particular study, the goal was to understand how male and female gamers perceive and respond to a type of female avatar typical to the video game industry. The portrayal of women in video games has received both empirical (for example: Dietz, 1998; Provenzo, 1991) and critical scrutiny (for example: Demaria & Mascio, 2000; Mikula, 2003), and these content analyses show that this portrayal has been consistently in the vein of sexuality and submissiveness. Critics, scientists and players have suggested one reason more women do not play video games is that the female characters presented as avatars are not ones with which they feel comfortable or want to play as (Martinson, 2002; Ray, 2004), and little research has been conducted to

investigate this proposed causal relationship, although the initial steps to understand this possible deterrent have been taken (for example, Hartmann & Klimmt, 2005).

This study focused on a particular aspect of this portrayal, being the shape female avatars come in, an aspect of what is referred to as hypersexualism. This portrayal is embodied in the archetypical image of Lara Croft (*Tomb Raider*), whose advertised body size is 5'9", 132 lbs and 34D-24-35 (Polsky, 2001), and other popular digital game characters (Appendix A, Figure 1). The argument in the industry is that men want to play as or with hypersexual female characters, so the industry designs the characters to match the interests of their steady market, teenage and young adult men. However, no research has been conducted to test this assumption. This background of content analyses, assumptions and possibilities has led to the following research questions: (1) Do men and women differ in how they perceive hypersexual portrayals of female avatars? (2) Is there a gender difference in how attractive they perceive this portrayal? (3) Is there a gender difference in how they identify with such a portrayal? (4) Is there a gender difference in how they engage with a video game where this type of portrayal is their avatar?

CHAPTER 2

Literature Review

2.1 Why do we want women to play more?

One of the goals behind this study was to explore if creating a better female avatar would increase a woman's engagement with the types of digital games commonly played only by men, even if such exploration is limited as to the effect of body shape on engagement. Why is it important to get more women to play more video games? The first reason is logically fiduciary, as enticing women to consume digital media is a means of expanding the marketplace for the respective industry. Martinson (2002) reports that there is a potential market, as 85% of girls surveyed said they would be interested in games if they were designed for them.

Such an expansion has been attempted in the past, most notably in the 1990s with the Barbie franchise of video games (Ray, 2004). However, the practice of making "pink" games failed to create a large sub-market of female gamers, and now those outside and inside the industry are moving towards the idea of making gender equal games that do not rely on gender stereotypes to design the content (Cassell & Jenkins, 1998). An alternative means of producing a more gender neutral game is to use existing research to make more complex

games female gamers will be attracted to (Chezzi, 2004), incorporating more social interaction skills (as seen in the *Sims* games) and/or more puzzle-solving skills (as seen in the *Myst* games). Researchers and industry insiders alike worry that dividing digital games along supposed gender stereotypic game preferences, instead of making more gender neutral games, is not the best method for bringing more women to games. By restricting the games targeting women to a specific genre, such as pink games that allow girls to design clothes for their Barbie dolls, the industry may actually lose those females who, as Dr. Mia Consalvo have found, actually like playing high-action, competitive games (Laprad, 2004).

Reshaping the economic landscape could have benefits for more people than just game developers, as such a transformation may also improve gender socialization among both boys and girls and occupational socialization among girls. By not playing as many video games as boys, girls may feel less comfortable engaging with computer technology, do not learn the technical and computer literacy skills to facilitate computer technology abilities, and then may be less likely to seek such interaction as a career, impacting their role in a large and expanding techno-literate workforce (Cassell & Jenkins, 1998; Funk, 2001; Hartmann & Klimmt, 2005; Ray, 2004). Research has indicated that girls are more likely to use computers only for work-related tasks, not fun-related tasks like playing games; thus, it is believed girls show less interest in computer technology as a career (Chaika, 2001). The evidence for this assumption is mixed, with some studies showing increases among college women in their use

and enthusiasm towards computer applications (Rainer, Laosethakul & Stone, 2003) while among high school girls there is still the sense that computers are chiefly for boys (Colley & Comber, 2003). Martinson (2002) cites how while over half of the United States workforce is made up by women, less than 10% of the nation's engineers are women, and that the number of women graduating with computer science degrees has been declining in the past decade.

The impact on gender socialization will be discussed after a review of research on gender differences in game play. The essence of this argument lies in digital games growing importance to our cultural framework. Like movies and television before it, as digital gaming becomes more involved in storytelling and cultural maintenance, then the perspectives, norms and values displayed within them have the potential for influencing those who interact with the games (Sweedyk & de Laet, 2005). Such socialization should be considered as seriously as it is when the medium is television, radio or any other mass channel. These three possible results of interaction with video games (economic impact, gender and occupation socialization) are three reasons to study how to increase the amount of game play among girls.

2.2 Reasons for gender differences in playing

As of now, most of the academic research has focused not on how to improve women's play but why they play differently then men. There are several reasons along the nature/nurture divide to explain why women may not want to engage with this medium. Kubey and Larson (1990) theorized a gender discrepancy along biological and social lines. Biologically, they argue boys'

hormones predispose them to preferring the violence and action which are so common in games. Socially, in the United States at least, gender socialization for boys promotes controlling, competition and destruction as core personality traits. These socialized traits are also common qualities in games, along with the perception amongst gamers that only boys receive positive reinforcement to play computer and video games (Lucas & Sherry, 2004).

Such an explanation is supported by further research indicating that girls are turned off by the violence of video games (Gailey, 1993) or prefer just cartoon violence in comparison to more realistic "human" violence (Funk & Buchman, 1996; Wood, Griffiths, Chappell & Davies, 2004). When boys and girls were asked to describe very similar games they liked to play, boys would describe the activity as "violent" while girls called it "action" (Funk, 2001), which may indicate the influence of society on how boys and girls interpret the same content to make it acceptable for them to play these games. Along the lines of socially acceptable sex roles, it is also said girls are raised with an emphasis on social interaction with peers. While there may be a level of social interaction amongst gamers who play together, the prevalent nature of digital game play is solitary. This need for social interaction was a significant predictor in how much women said they might enjoy a game (Hartmann & Klimmt, 2005).

More attached to the biological argument, Lucas and Sherry (2004) reason the dislike is due to girls not caring for competitive games that require more hand-eye coordination skills and less cognitive perceptual skills. Sherry (2004) theorized an important component in enjoying digital games is the extent

to which one feels a continuous, uninterrupted interaction or flow, with the game. He cited uses and gratifications work indicating that both men and women want a certain level of challenge and stimulation from games, but this sought gratification may be impacted by their cognitive abilities to interact with a game. If the cognitive ability is not in-sync with the cognitive requirement of the game, then the player may not prefer to play that game. Sherry thus sees the gender disparity due to gender differences in cognitive abilities, which have been refuted by research in psychology. Men have been shown to be better at 3D object rotation, spatial perceptions and targeting, all of which are common requirements for playing such violent games as first-person shooters and even most sports games. Women, on the other hand, are better at memory and verbal skills, which are common requirements for puzzle games. Thus, 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 requirements as men are and are thus more easily frustrated by these games.

While the "girls don't like violence" or "girls and boys have different cognitive skills" arguments may be part of the explanation, another possible explanation is offered by content analysis on the portrayal of women in video games. Many of the popular video games on the market have male characters acting aggressively towards female victims, while at other times the female characters have only subordinate or non-integral roles in the game's storyline (Martinson, 2002; Provenzo, 1991). Dietz (1998) found that of 33 games, across

a variety of genres, women were consistently portrayed as "damsels in distress" or as sexual objects with large breasts and thin waists, and 21% of the games had violence directed towards women. Although 15% of these games had women as the heroes or action character, the women were physically stereotyped by their clothing. To this Dietz concluded that even when a woman is a hero of the game, she is still often relegated to being subordinate to the main male character, or she is sexualized in terms of appearance. This portrayal of female action heroes would make them similar to other depictions in television, comic books and films, such as Trinity from *The Matrix*. Even in more recent games, this portrayal of women has changed little (see Appendix A, Figure 1, for examples on recent portrayals).

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). Beasley and Collins (2002) found a preponderance of voluptuous women with large breasts where their cleavage is very evident due to low necklines or very little clothing. Glaubke et al. (2001) found that nearly 20% of the female characters in digital games were hypersexual, modeling disproportionate, unhealthy and unrealistic body sizes. This continual portrayal of women in a depiction that is stereotyped along both behavioral and physical dimensions may be considered offensive to women, not only to the girls who play the games but to the mothers who buy the games for their children.

Downs and Smith (2005) conducted content analysis specifically addressing the occurrence of hypersexual portrayals. They examined 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 nudity the character had. Another dimension focused on behavior, such as engaging in sex talk and other behavior designed to elicit sexual intimacy. Then there was a body manipulation, which included having an exaggerated chest and a disproportionately small waist. In the games analyzed, female characters were less frequent than male characters, but more likely to be hypersexualized along the defined dimensions.

Even Buffy from *Buffy the Vampire Slayer*, a recent icon of modern feminism, was given a "boob job" in her video games (Labre & Duke, 2004). In video game form, the story was less about the mystery common in every television episode and more about hunting down and killing vampires and other demons. Additionally, the female avatar of Buffy is noticeably more voluptuous than Sarah Michelle Gellar, the actress who played the character on television. Thus, even in a video game one would expect to be directed towards the female audience that watched the television series, the game itself contains those elements research has indicated might dissuade women from engaging in video games.

Before Buffy moved to the digital arena, there was Lara Croft in *Tomb Raider*. The developers hoped to make a game that would appeal to women as

much as men by creating a game with the first strong female avatar. However, her appearance, with large breasts, narrow waist and scanty clothes, is one of the factors cited as the reason more men than women were drawn to the game (Mikula, 2003), and this sexual portrayal only increased as the series progressed. When the game first came out, 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). As Glaubke et al. (2001) put it, although female characters can now be as active and as tough as male characters, "their powers and strengths can be overshadowed by their hyper-sexualized bodies and attire." (p. 30). While women may be interested in playing games that give them strong characters, ones they can relate to, often the industry provides strong characters modeling a body they cannot possibly achieve.

The portrayal of women in this fashion may be a deterrent to women's engaging with digital games (Martinson, 2002). For a woman who may not be voluptuous, and who may never want to be victim or subordinate to a man, there is not much inducement to engage in a media product where this is the common perception of femininity. Nowhere in mainstream video games are men portrayed with any part of their body that could be directly linked to their sexuality shown as "larger than life" as is the case with women (Ray, 2004). Male characters may be shown with broad shoulders, square jaw and a narrow waist, but these exaggerations do not connote the same level of sexuality as does manipulations of a female character's bust and hip size. As Ray assumed, 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 having to play an avatar with exaggerated breasts, waist, and lips. However, this assumption has not yet been empirically tested, and is included here only as a means of explaining the rationale for conducting this study. The argument explored in the study was to understand the discrepancy between men and women in playing digital games as it is affected by the presence of a hypersexualized female avatar.

CHAPTER 3

Purpose of the Study

Using the dimensions as discussed by Downs and Smith (2005), the particular aspects of hypersexualism under study here are in regard to the proportions of certain body parts, namely the chest, waist and overall somatotype. To be clear, hypersexualism does not only occur in digital games. There does exist in other media outlets portrayals of women that emphasis the importance of thin waists and large breasts. In television, film, music videos and magazines, the media pattern women as having "36-24-36" dimensions, what is referred to as a "curvaceously thin" body shape (Harrison, 2003). This unnatural media norm is represented as 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 (Goodman and Walsh-Childers, 2004; Millsted & Frith, 2003; Tantleff-Dunn, 2001). These physical patterns are then coupled with content to make the woman appear as attractive, successful, and the societal ideal for women. While the term hypersexual has not been applied to these portrayals as commonly as it is applied to digital games, the portrayals are very similar in concept, and it would

be expected that research focusing on traditional media effects could be applied to the digital game arena.

3.1 Theoretical framework

As discussed earlier, there are three main reasons to encourage more women to enter a marketplace traditionally dominated by men. The third reason of gender socialization was seen as the main driving force behind the necessity for conducting this study. An aspect of gender socialization is how the mass media can present the expected attitudes and behaviors for males and females, where acceptance of such norms can influence a person's sexual, gender and overall identity (Dietz, 1998).

Gender socialization occurs as societal institutions, from churches to parents to peers to mass media, impart unto societal members the normative attitudes and behaviors for successful integration into society. While some socializing institutions may have a larger impact on the development of boys and girls than other institutions, the mass media is often studied as being either a secondary or reinforcing socializer (Kelly & Donohew, 1999). This may be particularly pertinent for the main market audience of digital games, adolescents and young adults, as during this period the mass media are a more influential source of identity-related information (Arnett, 1995). For the purposes of this study, gender socialization could be explained by the conjoint interactions of several theoretical social and cognitive processes (Tan, Nelson, Dong & Tan, 1997; Hendricks, 2002), until identity recapitulates hegemony.

3.1.1 Cultivation theory. The first step in this theoretical framework is to analyze how the content of the media consumed can impact perceptions as to the nature of the society's norms. Cultivation theory predicts heavy exposure to the representations in the media will influence people's perceptions of social reality, such that their beliefs of the real world will come to reflect the portrayals as seen in the media (Gerbner, 1998; Gerbner, Gross, Morgan, Signorielli & Shanahan, 2002). If the portrayal in the media consumed is consistently depicting certain attitudes and behaviors, then these depictions could be perceived as being norms if they are not challenged by contradicting socializers, such as parents or peers (Morgan & Rothschild, 1983).

Cultivation theory originally was conceived to explore how the violence depicted in television can result in heavy viewers coming to perceive of the world as a dangerous place (Gerbner, 1998; Gerbner, Gross, Morgan, Signorielli & Shanahan, 2002). Since this beginning, cultivation theory has been used to explore other consistent media content, such as the depiction of women and gender stereotypes on television (Morgan & Rothschild, 1983; Signorielli, 1989; Signorielli, 1990). As with the violence research, heavy viewers of media that consistently depicts women in restricted roles will endorse beliefs that this is the normative role for women in society. Signorielli and Lears (1992) found that children who watched more television were more likely to differentiate who should do household chores based along stereotypical lines (e.g., women wash dishes and cook while men fix appliances and mow grass). While this research is almost exclusively conducted on television, researchers have sought to

expand the theory to other media forms, which most recently includes digital games.

In order to prove the existence of cultivation theory, content analyses of the focus media are conducted to determine the consistency of media portrayals. As discussed, content analyses of video games have found that women have been and continue to be portrayed in physical and behavioral stereotypes. The next step would be to question heavy consumers of these games, those who play digital games a lot, to measure the extent to which their beliefs about women's role in society mirror the depictions in the games. As of this study, no such study is known to have been conducted. Van Mierlo and Van den Bulck (2004) did examine the relationship between playing video games and cultivation's predictions on perceiving crime in the world, and they did find a weak relationship.

However, Van Mierlo and Van den Bulck (2004) did not control for the type of game played, which may or may not have violent content that related to the questions being asked to measure the cultivation effect. These questions were about police procedures and criminals, whereas the children may have been playing martial arts fighting games, alien shooting games, or any other fantasy-related violence game that does not have a real-world correlate. However, depictions of women in digital games could have a stronger real-world correlate, as women exist where aliens do not. Thus, will not currently shown as a factor in how digital games may impact players, cultivation theory is still considered in this

theoretical framework do to the research into gender stereotypes on television providing a parallel research model.

3.1.2 Social learning theory. The next step in the theoretical framework, after understanding whether or not the media content is being perceived to reflect the reality of society, involves the concept of observational learning. From Bandura's work on observation learning (1963) is the idea that children can learn behaviors by watching a model engage in the behavior, and this learning and subsequent application will be strongest when it is perceived by the child to be rewarded. Social learning theory predicts that if the media's portrayals of behaviors and attitudes are positively reinforced and seen as attractive, then these representations will influence whether or not the viewer engages in the same behavior or attitude (Bandura, 2002; Downs & Smith, 2005). Various studies have been conducted to show how the positive portrayal of violence in the media can impact the imitation of such aggression, or the instigation of overall aggression against another seemingly unrelated object.

Using social learning theory to explain the effect on user aggression has also been applied to the numerous studies on video games causing aggression in players (for examples: Dill & Dill, 1998; Uhlmann & Swanson, 2004). The results from these studies does show a similar impact as the results focusing on more passive media viewing experiences in television and film studies: playing violent games seems to increase aggressive tendencies. Social learning theory's proposition about linking behavior to reward occurs in digital games not only by passively watching the content unfold, but by also actively engaging in particular

actions that are rewarded by a higher score or some other cumulative indicator of success that is the means of advancing in the game (Downs & Smith, 2005). These particular actions could also include actions against women, such as in the *Grand Theft Auto* series where the main character can have sex with a hooker to receive more life, and then kill the hooker for more money.

However, it may not be necessary to engage in violence against women to learn perceived socially acceptable behaviors and attitudes towards women. Research into how depictions of the "thin ideal" or "curvaceously thin" media portrayal of women have also employed social learning theory to explain the impact of such portrayals on body dissatisfaction and related behavioral outcomes (Markey, Tinsley, Erickson, Ozer & Markey, 2002; Morry & Staska, 2001). Learning what society and culture depicts as being an attractive, successful women, which is consistently encapsulated in a thin yet voluptuous female body, could teach young girls and women that they in turn need such an appearance in order to feel fulfilled in their role in society. Such a connection is also found in digital games, in the form of Lara Croft, Buffy, or any of their hypersexualized sisters who are a main or supporting character in the game. Even when a woman is the hero in a game, and thus portrayed as a positive member of society, they are often encased in a physically unobtainable body. It is possible that consistent exposure to this type of portrayal may result in players learning that this portrayal is the standard by which women should seek to achieve through their own actions (Downs & Smith, 2005).

3.1.3 Schema theory. The final step in this theoretical framework can be conceived of as an end-result to the accumulation of consistent and positively reinforced portrayals; and yet, the creation of this end-result can in turn reinforce or otherwise impact subsequent interactions with the media content, which may serve to heighten the impact of cultivation and social learning. According to schema theory, experiences, learnings, and other sources of information are coalesced into cognitive structures that link concepts together by some requirement for relevance, which enables the faster recall of related information as well impacting how future information is perceived and encoded (Fiske & Taylor, 1991; Hoffman & Pasley, 2000; Markus, 1977). These scripts can be activated or modified given certain environmental stimuli, such as media portrayals (Altabe & Thompson, 1996). This cognitive network of societal, cultural and self scripts could then impact the attitudes and behavior of an individual in a given situation (Bem, 1981; Fiske & Taylor, 1991).

In particular to this study are schemas that refer to information used for identity purposes, such as the work done by Markus (1977) on self-schemata and by Bem (1981) on gender schema. These proposed schemas manage the information people use to identify who they are, what they like, what they think, how to act and engage with others. Given that the media is one socializing agent through while individuals can learn information, the portrayals in the media can become incorporated into any schema if there is no resistance to the content of the information. These schemata can then impact men and women differently if they are shown idealized or sexualized portrayals of women. Research has

indicated that men with a particularly masculine gender schema will react more sexually toward women after being shown sexualized portrayals (McKenzie-Mohr & Zanna, 1990). Women shown idealized body types indicated more dissatisfaction with their own body if they have internalized the norms portrayed (Morry & Staska, 2001; Sands & Wardle, 2003). As suggested by Altabe and Thompson (1996), these men and women have had certain schemas activated by certain media stimuli. Thus schema can not only be created by the media portrayals, but the presence of such portrayals may activate or modify preexisting schemata to the point of impacting how an individual thinks and behaves.

The theoretical framework used to inform this study is thereby a combination of cultivation theory, social learning theory and schema theory as a means of understanding possible gender socialization resulting from interaction with digital games. These particular theories were not directly tested in this study because the purpose of the study was not to demonstrate how digital games can affect a player's attitudes and behaviors towards women or even their own self. Instead, the study focused on how men and women perceive the game as a means of understanding if such perceptions can impact engagement, thereby accounting for some part of the gender discrepancy found in the gaming audience. If it can be found that the body shape of the avatar impacts willingness to engage with the game, then it is hoped this information can provide game designers with insight as to how to create games that may not have the negative impacts predicted by the various theories discussed above. Thus the theories and related research are discussed to indicate the need for

understanding what causes this gender discrepancy, as reducing this discrepancy may result in games that do not cause negative effects in regards to how boys and girls are socialized.

3.2 Attraction and hypersexualism

Gender socialization in the case of hypersexualism and digital games first concerns the possibility that the players, in particular boys and men who are playing these games, are being detrimentally socialized into seeing women as passive sexualized objects (Glaubke et al., 2001). In addition, as many of the violent games were analyzed as having violence towards women, there is a fear that this portrayal may make violence against women in the real world more acceptable by those who play these games (Cassell & Jenkins, 1998). The portrayal of women as passive or sexually explicit in games may be inadvertently teaching teenage boys, who are beginning their exploration of both women and sex, norms about women that are not common to reality.

There have been numerous studies regarding pornography done on the impact of such sexual portrayals of women on men, which indicate that such portrayals do arouse men and can lead to more gender stereotypical and sexual attitudes and behaviors towards women. Sexualized portrayals have been found to lead men to see women as possessions (Downs & Smith, 2005). Research has shown that exposure to pornography can reduce how attractive and appealing men rate their romantic partners, their endorsement of the rape myth, and their aggression toward women (Hargreaves & Tiggemann, 2003; Seto, Maric & Barbaree, 2001). Pornography is believed to impact these behaviors

and attitudes as women are routinely depicted in degrading, hypersexual manners in which their sexual interest can be met with violence, perpetrated by a man, which the women are shown to enjoy.

Conceptually, this portrayal could extend to digital games, such as male players interest in sending Lara Croft to her death, repeatedly, only to have her bounce back for more. More recently, in a story that received national media coverage, the makers of the *Grand Theft Auto* game admitted *mea culpa* when a patch could be downloaded into their game *Vice City* that allowed players to control their male avatar as he engaged in very explicit sex with a female character. While pornographic games exist at online sites for downloading, this was the first known instance of a mainstream video game containing pornographic material, where not only was the player watching the sex act but actually perpetuating it through interactions with the game.

But do men find these digitalized sexual portrayals as attractive as they do real-life women? Many in the industry rely on the portrayal of women to market their product, even if the game is not populated with hypersexual females, such as the online role-playing game *Everquest* (Griffths, 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). The industry and researchers alike believe these sexualized portrayals will not only attract the attention of male players, but have them coming back for more (Downs & Smith, 2005). However, as content analyses have shown, the portrayal of women is often as submissive, in danger, and rather sexual, which

again provides a conceptual link to pornography. Lara Croft, with codes allowing one to remove her clothing while playing her, provides an example of a hypersexual avatar that men not only can look at while playing her, they can also control her and the world around her, manipulating the game's camera angle to create the optimal gazing opportunity (Mikula, 2003).

Digital games differ from traditional media in that one cannot step into the shoes of the man in a pornographic film and dictate his actions. Also, in these traditional media, the men do not have the ability to control what the woman does. Yet in digital games, the very interactivity aspect of this medium allows a possibly aroused man to control how the female avatar acts and responds to his control. How this relationship between sexuality and interactivity might impact subsequent attitudes and behaviors towards real world women is unknown but worthy of study given the prevalence of such sexual portrayals in digital games. The goal of this study was to provide an initial investigation into whether or not men prefer these characters.

The second aspect of gender socialization is how teenage girls and young women, also beginning explorations regarding gender and sexual identity, are responding to these portrayals of women in digital games. As indicated by the content research on the portrayal of women in games, two consistent gender stereotypes appear: woman as helpless victim; woman as sexual object (Funk, 2001). It is the activation of the latter through the creation of a specific body type as the expected norm for women that is being investigated here. When portrayals are consistently negative stereotypes, perhaps girls would be less

likely to play as or with these female characters, which would preempt a future inclination to engage with digital games and possibly other computer technology (Funk, 2001). This widespread belief amongst academics is related to research on sexual portrayals in the other media.

Rouner, Slater and Domench-Rodriguez (2003) cited studies indicating that women were turned off and critical of commercials portraying women in a sexual manner while men were energized and positive towards such portrayals. Their own research on the content of television commercials found that many commercials were specifically targeting men with many images of women being sexual in nature, findings that repeat earlier studies (Signorielli, 1994). Similar to digital games, depictions of women in such commercials often objectifies women into body parts on display for the consumer; the focus on women was on their bodies and frequently in revealing clothes, while the focus on men was more on their faces (Hall & Crum, 1994). Reacting to these commercials, most women were more critical of them, discussing both the gender role stereotypes and the sexual nature of the images (Rouner et al, 2003). This result expands on previous research. Rossi and Rossi (1985) found women rating ads containing sexualized portrayals as more sexist and less appealing then men did. LaTour (1990) found that men were energized when a female was nude in advertising, but women had negative, tense and fatigued reactions to such depictions.

While there is then evidence that women are turned off by overt sexualized and objectified portrayals of women, at the same time, Lavine, Sweeney and Wagner (1999) found that viewing women depicted sexually

caused women to have lower body satisfaction, and which can lead to engaging in consumer behaviors like cosmetic surgery. Rejecting the images did not appear to be buffering the women from being affected by them. While women may not like these images, they do not stop buying the packages that contain them, such as *Victoria's Secret* or a number of women magazines like *Cosmopolitan*. According to the American Society of Plastic Surgeons, in 2004 among women the second most popular surgery was breast augmentation; focusing on 18 years and younger, the surgery was the third most popular, which was an 8% increase from 2000 (www.plasticsurgery.org). During the 1990s, the number of breast augmentations performed increased 548%, with women between 19 to 34 years old accounting for most implants (Goodman and Walsh-Childers, 2004).

If women are supposed to be turned off by such hypersexualized portrayals to the point that they would not play a game that contains them, they why do they not consume magazines or other consumer products that also contain these depictions? There is the possibility that exposure to hypersexual portrayals, and perception of this portrayal as the desired norm to attract men, may entice woman to augment their bodies (Glaubke et al., 2001; Goodman and Walsh-Childers, 2004). The difference could be that women's magazines are more socially acceptable for women to consume, while digital games continue to have the perception as being for men only. Then the presence of hypersexualized characters may further turn off women, such as seeing a sexualized portrayal in a beer commercial or other male-intended consumer

goods (such as those used in Rouner et al, 2003) may further restrict the possibility of a woman's willingness to engage with the featured product.

3.3 Identification and hypersexualism

Identification with media personae has been researched in both drama and communication studies as one means of understanding the involvement of the audience with the content and how this parasocial relationship can result in the drama impacting the audience (Cohen, 2001; Horton & Wohl, 1956). Numerous factors and related concepts have been discussed, such as empathy, attraction, liking, similarity, realism and inspiration (Cohen, 2001; Hoffner & Cantor, 1991; Reinhard, 2005), to be influencing, accompanying or following identification. An aspect of Bandura's social cognitive theory is that the behavior of a model will more likely be emulated if the perceiver finds the model to be attractive and then also identifies with the model (Bandura, 2002; Harrison, 2000). Engaging in identification in general is believed to increase enjoyment and obtained entertainment from those contexts that engender such a parasocial relationship with a media personae (Nabi & Krcmar, 2004; Vorderer, Klimmt & Ritterfeld, 2004).

While a general definition of identifying with another is to relate to and visualize oneself as this person, von Feilitzen and Linné (1975) defined two types. Similarity identification is when one sees oneself as being currently similar to another, a potential identifiee. Wishful identification is when one desires to be even more similar to this other person. Numerous studies since have also looked at what prompts either similarity or wishful identification (e.g., Hoffner,

1996; Reinhard, 2005; Stacey, 1999), typically with film and television characters as the object of identification.

For the purposes of this study, identification is seen as the process of recognizing in a potential identifiee some level of similarity, be it currently present, at some past time was present, or having the potential for being present at some future time (Reinhard, 2005). This perceived level of similarity could be based upon the identifiee and identifier sharing physical, behavioral psychological, and/or situational traits. Physical traits would include race, gender, fashion style, or any other observable quality of appearance. Behavioral traits could include mannerisms, actions, or any other overt activity that may or may not signify an internal state. Psychological traits include thoughts, feelings, attitudes, opinions, values or any other cognitive state that may be represented overtly through behavior, but it is instead the internal state that serves as the basis for similarity comparisons. Lastly, situational traits include the recognition of contextual and environmental elements the identifier sees the identifiee engaging in or being restricted by; that is, the situation the identifiee is in and how the identifiee responds to this situation.

If the identifier sees similarity with the identifiee because the identifier has been or is comparable to the identifiee on any of these traits, then the identifier is engaging in similarity identification. If the identifier sees similarity with the identifiee because the identifier desires to be more similar or sees the possibility of being more similar in the future, then the identifier is engaging in wishful identification. Thus, similarity comparisons are at the core of the identification

process. This process can be either conscious or unconscious, can have either negative or positive affect attached to it, and can result in a number of potential attitudinal or behavioral outcomes, such as reinforcement, imitation, and inspiration (Reinhard, 2005; Stacey, 1999).

In regards to video games, research has been conducted on how a player identifies with their avatar (McDonald & Kim, 2001), and how this identification influences how immersed within the game the player feels (Schneider, Lang, Shin & Bradley, 2004); that is to say, identification with one's avatar can impact how engaged one is with the game, to the point where it feels like the immersion film scholars say occurs from identification with a movie character (Green, Brock & Kaufman, 2004). Girls in a focus group reported by Funk (2001) indicated the importance of identifying with one's avatar when playing a game. Identifying with an avatar may be an important part in determining effects from such engagement, as predicted by Bandura's social learning theory (Hendricks, 2002).

Anderson and Murphy (2003) showed a weak effect in how identifying with a female violent avatar impacted the subsequent aggression of a female gamer. Their findings appear to confirm the earlier suspicion Bartholow and Anderson (2002) had as to why violent video games appeared to impact male more than female gamers; it might have been due to the women not having a female character with which to play and identity. If identification can have an impact on aggressive behavior, then it is plausible such an interaction could result in other behaviors, such as desiring to further engage with that character by playing the game. This influence on engagement would be similar to how identifying with a

television character or movie star could cause habitual and active consumption of the content in which that media persona appears (Appiah, 2001; Basil, 1996; Brown, Basil & Bocarnea, 2003).

The research and theories do indicate that identification with a fictional character can improve the audience's enjoyment of the fiction, and thus there is the possibility that identification with a female avatar would improve a women gamer's reaction to a digital game. However, due to the hypersexualism and other portrayal aspects of female characters in digital games, the concern is that women would have trouble identifying with these characters, thus creating a barrier to overcome in order for them to enjoy the game (Funk, 2001; Hartmann & Klimmt, 2005; Martinson, 2002). Mikula (2003) reported on a study that indicated "identification is more important for female gamers, who tend to be 'irritated' when they cannot identify with their female character." (p. 81). In a discussion with women regarding Lara Croft, Yates and Littleton (1999) heard how women would like to have a female character for play as long as she is "not too way out" in terms of physical appearance, indicating the desire for an avatar not hypersexualized but one with they could visualize as themselves.

In regards to traditional media, Harrison (2000) found that girls liked, thought themselves similar to, and wanted to be like average body type female characters more than thin or fat body type television characters. Using Hoffner and Cantor's (1991) research, she termed these perceptions of the female characters as "interpersonal attraction," which appears made up of attraction to and both similarity and wishful identification with the character. Thus, Harrison

(2000) found that girls were more likely to identify with average weight women, as coded by research assistants without preset measurements, more than either thin or fat women. Thus, showing a woman a hypersexualized body type may be akin to the non-average types Harrison explored. This may be particularly true if they do not find the hypersexual avatar to be physically attractive, as 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 Williams, LaRose & Frost, 1981, for an earlier exploration of this relationship). If the hypersexual is not seen as physically attractive, similar to the non-average female body type, then she may engage in less identification with that avatar and thus feel less inclined to play the avatar's game.

Similar conceptualizations can be found again in body image research. While not directly measuring identification, Wilcox and Laird (2000) predicted that identification with a thin model would be a positive state as the identifier is making similarity comparisons based on present or future similarities. Whether or not they also perceived this potential future similarity to be obtainable was not mentioned, although it would most likely play a role in the affective response to these models. Milkie (1999) found that adolescent girls would engage in social comparison with a media persona as long as they found this media persona to be attractive and someone with which they could identify. Murnen, Smolak, Mills and Good (2003) reported among elementary children that awareness of the thin ideal predicted a desire to look like music stars Britney Spears, Jennifer Lopez

and Christina Aguilera, indicating a level of wishfulness that may or may not be true identification with these celebrities.

In particular to the concept of hypersexualism, Goodman and Walsh-Childers (2004) recorded women repeatedly stating their desire to be more similar to the curvaceous thin idealized model in the mass media. Perhaps then the tension discussed in regards to being both negative to sexualized portrayals yet having the potential for being affected by them stems from some level of wishful identification with these portrayals. Again, however, common perception amongst academics, and feminist scholars in particular, is that hypersexual portrayals in digital games would dissuade women from engaging with them.

3.4 Engagement with the digital game

For this study focusing on how men and women differ in their interaction with digital games, the main measure of this discrepancy is in how they engaged with a particular game. As has been well documented, women do not engage with digital games to the extent that men do; thus, women would not be expected to be influenced to the degree that men are. However, focusing the content specifically for a male audience has apparently resulted in negative gender stereotypes that could lead to deleterious results. This deleterious effect could be negated by changing the portrayal of women, and this change may be more likely to occur if it can be shown that such a change would increase the number of women who engage with that game. Thus, this study set out to understand if this particular negative portrayal of female avatars is part of the reason for lower engagement among women.

3.4.1 Engagement measures. Engagement with the digital game was measured in three ways: self report on willingness to engage; length of time playing the game; and self report on level of perceived presence within the game. Presence is a concept often applied to studies of virtual environments to understand the extent to which the user of the technology actually feels present within the computer-simulation and not within the person's actual physical environment (Kim & Biocca, 1997; Ijsselsteijn & Riva, 2003; Schloeb, 1995; Steuer, 1992). It is the experience of picking up virtual objects, riding a virtual roller coaster, or hearing the noises of this virtual environment over those of the immediate physical environment. There are various forms of presence, such as subjective presence and social presence (Heeter, 1992; Lee, 2004a), and various labels applied to these various forms. For the purposes of this study, the focus is on the subjective perception of being in a virtual environment, often referred to generally as telepresence, which in this case is the world of the game.

There are various factors that influence this feeling of being in a computer simulation. There are the technological abilities and qualities that are employed to construct this simulation, such as how interactive and vivid the environment are, which can impact how many of the user's senses are engaged in the game and subsequently impact how realistic the environment appears to be (Steuer, 1992). Perceptions of the environment's realness could destabilize the mind's ability to consciously doubt the authenticity of the computer simulation, thus allowing for a sense of being there in an environment that does not actually exist (Lee, 2004b). Then there are also the qualities of the individual as he or she

enters into this virtual environment (Schroeder, 2002). Engaging with an avatar that is located within the virtual environment may foster this feeling of presence, where increasing a perceived level of comfort with this avatar may actually increase the immersion into the virtual environment (Taylor, 2002). Hence, engaging with an avatar, which may include identifying, could increase the level of engagement with the game through the perception of being immersed within the game, to the exclusion of external awareness, including the passage of time.

Presence was being measured in this study in regards to how much a gamer enjoys the experience, as presence is conceptually similar to involvement with a drama, which studies have shown relates to how well audience members enjoy fictional work (Green et al., 2004; Klimmt & Vorderer, 2003; Vorderer, Kilmmt & Ritterfeld, 2004). This feeling of immersion is theorized to increase a player's enjoyment of the gaming experience, which would lead to subsequent positive affect and behaviors towards the game (Nichols, Haldane & Wilson, 2000; Schneider et al, 2004).

What might throw a wrench into this theoretical engine is the player's perception of the female avatar as a "real" person. Perceptions of the realness of a fictional character have been theorized to have different dimensions (Hall, 2003; Potter, 1988). Key among these dimensions are the extent to which the fictional portrayal represents something that actually exists within the real world (e.g., magic window, typicality, factuality), and the extent to which the portrayal represents something that could exist within the real world (plausibility). If a

player does not perceive the avatar as having some degree of realness, then the player may be less inclined to engage with that character.

In unpublished data, Reinhard (2004) found that individuals, even though they said they identified with fictional characters, would mention that they could not be inspired by or actually want to be this other person because the media persona was not real, such as saying "this person is just a television character, she's not real." While the occurrence of this theme was not terribly prevalent across the study, its presence amongst those identifying with fictional characters suggests the possibility that even if a female player identifies with a female avatar, if that player does not perceive the avatar as possessing some level of realness, then their interaction may not provide the conditions necessary to influence the women players' desire to play that game. This perception of realism may also impact men players, who may be less inclined to call an avatar attractive so that any amount of attraction may be negated of having any impact on engagement with the game. This potential caveat is thus a worthy and important consideration to begin exploring in this study.

3.5 Hypotheses

The depth and variety of research into digital games and related concepts in other mass media have thus lead to a series of hypotheses created to understand the gender differences in engagement with digital games as a function of the perception of hypersexualized female avatars. 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: Men will have more positive perceptions of the hypersexualized avatar than women will.

H2: Men will find the hypersexualized avatar the most attractive avatar vis-à-vis the non-hypersexualized avatar.

H3: As attraction to the avatar increases, the engagement with the digital game will increase.

H4: Men will enjoy the game most when they are playing as the hypersexualized avatar vis-à-vis the non-hypersexualized avatar.

Taking into account the research into identification with media persona, the following hypotheses were generated as a means of testing the assumptions involved in this issue of hypersexualism. No specific predictions regarding men identifying with a female avatar were proposed here as numerous studies have indicated a tendency for cross-gender identification to occur chiefly as woman-to-man and not man-to-woman (Hoffner, 1996; Harrison, 2000):

H5: Women will identify least with the hypersexualized avatar vis-à-vis the non-hypersexualized avatar.

H6: As identification with the avatar increases, the engagement with the digital game will increase.

H7: Women will enjoy the game least when they are playing as the hypersexualized avatar vis-à-vis the non-hypersexualized avatar.

Finally, taking into account the relationship between perceptions of realness and engagement with both virtual environments and fictional characters, a final hypothesis was generated to test this possible confound:

H8: As perceptions of the avatar's realism increases, the engagement with the digital game will increase.

CHAPTER 4

Method

4.1 Sample

The sampled consisted of 120 students, 60 men and 60 women, from a large Midwestern university who participated to receive extra credit in their summer communication classes. Among the men, self-reported ethnicity was 47 Caucasian, 7 African, 3 Asian, 1 Hispanic, and 2 Middle Eastern. The age range for men was 18-35, with a mean age of 23. Among the women, ethnicity was 35 Caucasian, 13 African, 8 Asian, 2 Hispanic, 1 Indian, and 1Jewish. The age range for women was 19-44, with a mean of 22. When asked if they played digital games, 52 men said yes while only 27 women said yes, which shows the gender split in experience with digital games. This item will be later used as a control to see if experience with digital games, labeled gamer status, impacts any relationship between the independent and dependent variables.

4.2 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. Whether or not they have had previous and/or continual exposure to digital games (i.e. their status as a gamer) was controlled for with

media use questions. The second independent variable consisted of manipulating the avatar's physical characteristics through body part exaggeration. The three body types, detailed below, consisted of the hypersexualized figure (per dimensions described by Downs & Smith, 2005), a voluptuous figure, and a thin figure. Only female avatars were used due to the interest in female hypersexualism. Manipulation along these two variables resulted in six conditions, a 2 (participant gender) x 3 (character type) between-subject structure.

4.3 Stimuli

4.3.1 The avatars. The avatar design was accomplished by using a computer program designed for digital character creation, Curious Labs' *Poser 6*©. One model was chosen and specific parts of its body parameters were manipulated to represent the three body types: Thin; Curvy; and Hypersexual. 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 thinnest, most curvy and most hypersexual, each figure's body part parameters were transferred unto the main model, creating the three separate avatars (Appendix A, Figure 2).

The Thin body image is similar to the "thin ideal," and it was included here not as a common representative of video game avatars; rather, it filled two roles. The first was to allow for a wider range of body types with which the participants interacted, thus allowing for greater variance in the results. Second, combining

aspects of the Thin and the Curvy resulted in the Hypersexual. A typical Thin model would be Calista Flockhart from the television series, *Ally McBeal*. The Curvy increased both the hip and bust size while increasing the breadth of the waist and limbs, creating a model such as Selma Hayek, known from the movies *Desperado, From Dusk Till Dawn*, and *Fool's Rush In*. 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 with an overly narrowed waist. A real world approximate would be the body type of Pamela Anderson from the televisions series, *Baywatch* and *Stacked*. The facial expression, hair and clothing of each avatar were kept the same, and the lighting of the 3D model was kept as similar as possible while still properly lighting the figure to display the body shape.

4.3.2 The game. The game chosen for this study was a computer-based first-person perspective game, in which the avatar is not present within the game world, subjectively representing experiencing the game world through the avatar's point of view. Schneider et al. (2004), in studying identification with digital game characters, employed first-person shooting games; these games do not show much of the player's avatar beyond a weapon and hands. For this study, the experimenter stressed that the participant is playing the game as the character just described, and the image of the avatar remained available via projection onto an overhead screen so that it was constantly within the range of the participant's peripheral view.

The game they played was a *Myst*-like computer game named *Schizm: Mysterious Journey* (see Appendix A, Figure 3, for screenshots from the game), where the purpose was to wander around a photorealistic yet fantasy world and solve mind puzzles, such as manipulating objects in order to uncover secret transportation. This type of game has shown to be rather gender neutral (Cassell & Jenkins, 1998) as both men and women like to play it, 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).

4.4 Procedure

The experiment consisted of two consecutive parts. The first part involved the participants' perceptions of the avatar, and the second part measured their perceptions of the game as dependent upon the avatar they ostensibly played. Each part was followed by a questionnaire measuring items for dependent variables specifically for that part. The entire time commitment for the experiment was between 30 and 60 minutes, although participants averaged roughly 45 minutes to complete the study. When a man or woman was confirmed for participating in the study, they were randomly assigned to either the thin avatar, curvy avatar or hypersexual avatar condition until there were 20 participants assigned to each condition.

For the first part, the participants were shown the image of the avatar projected onto a large screen on one wall of the lab. The participant was asked to write a description of how they perceive this character:

> "You'll see before you a type of video game character found video games. We would like to know what you think of this character. Please write a description for her as if you were telling someone unfamiliar with her. There is no right or wrong way in how you describe her. Please just tell us whatever you think we should know."

After writing this description, the participant was asked to rate how suitable this character would be for a number of common digital game roles.

To complete Part I, they completed close-ended items to measure perceptions of similarity, wishfulness or desire to be the character, identification, attraction, and realness of the avatar. Along with these cognitive and affective perceptions, to control for visual perception of the avatar's body shape, participants were asked to choose an image on a somatotype scale that most closely matches the avatar's body. For the most part, the participant did see the character as the intended body type, Hypersexual ($\underline{M}$=4.55, $\underline{SD}$=0.64), the Thin ($\underline{M}$=2.25, $\underline{SD}$=0.78) and Curvy ($\underline{M}$=3.85, $\underline{SD}$=0.48). There was slightly more variability regarding the Hypersexual character being seen not as the intended body shape, due mostly to the male participants perceptions (Table 4).

After Part I was completed, the image of the avatar was replaced with the same image which now included a text introduction of the game. Each avatar was paired with the same introduction (Appendix A, Figure 4), as follows:

> "Today was just going to be a normal day; classes, work, more classes, more work, then watch some TV and fall asleep - with or without doing your English paper, you hadn't decided yet. That was before. Before you stepped outside and realized...you had absolutely no idea where you were. To say it's an alien world is not saying enough. To say it's unlike anything you've ever seen, beyond anything you thought possible, well, that's a bit closer. To

> say you want to find a way home, and soon, now that's right on the nose."

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 Part I and Part II of the study, and the projection was maintained whilst the participant completed Part II.

The participant was shown to another computer where they played a segment of a first-person perspective game. The instructions for this part emphasized the link between the avatar and the game world:

> "The next thing we would like to understand is your reactions to the video game. The character you just described, whom you see here, will be who you are playing in this game although you won't see her in front of you. You will be experiencing the world through her eyes. You may explore this world for as long as you like, or until I say it's time for the next part."

Players were given only minimal rules for engaging with the world, such as how to turn around to see more of the environment, in the form of an instructions sheet they were asked to read before playing (Figure 5, Appendix B). Participants were then 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 participant's length of engaging with the game was recorded in seconds, such that the maximum number of seconds spent playing the game was 900. The

scales to measure the experience of presence along with engagement were completed, along with several additional identification questions to assess similarity and wishfulness ratings on the behavior and situation of the avatar.

After completing Part II, the participants completed the demographics, media use and gamer status questions. After turning in the questionnaire packets, the participants were asked what they believed the study's purpose to be. When asked, no participants directly relayed the purpose of the experiment as it relates to the impact of hypersexualized characters, although a few did mention it being related to how men and women perceive female characters and how this impacts their play. All participants were debriefed upon completion of their appointment.

4.5 Measures

The study contained a number of dependent and intermediary variables that were measured at different times through the course of the experiment. The dependent variables were divided into "perception of avatar" and "engagement with game". The intermediary variables were "perceived attractiveness", "perceived realness" and "identification". The intermediary variables are also considered as part of how the participant perceived the avatar, and as thus were discussed as criterion or predictor or moderating variables as called for by the particular analysis conducted.

4.5.1 Perception of avatar. The first dependent variable was an attempt to capture how positively or negatively the participant perceived the avatar. This was accomplished in two parts, first by using an open-ended section wherein the

participant was asked to write a description of the avatar they were shown. This description was then content analyzed for the participant's positive or negative perception of this character, which would be evidenced in their description of the character through the use of compliments (ex. "she seems very friendly) or insults (ex. "she looks very ruthless"). This basic level analysis was informed by McDonald and Kim's (2001) method for measuring a player's perception of digital game characters. Determination of positive or negative was coded and recoded via intrajudge coding, with a percentage agreement of 85%. Any discrepancies between coding were handled by recording the last code for analysis purposes.

Directly after writing this description, the participant was asked to rate how suitable they perceived the character to be for certain common roles in digital games. On a 1 to 7 scale, where 1 was least suitable and 7 most suitable, they were asked to rate the avatar as possibly being "the main hero", "the main male hero's sidekick", "the main male hero's love interest", "the main villain", "the main male villain's sidekick", "the main male villain's love interest", and "the damsel in distress." The variables pertaining to being a sidekick were recomposed into a final variable simply labeled "sidekick". The variables pertaining to being a male character's love interest were recomposed into a final variable simply labeled "love interest". These perceived roles were included in how the participant viewed the avatar.

4.5.2 Engagement with game. The dependent variable of engagement was broken into three sub-components. One measure of engagement with the game was the length of time the participant played the game. Although no game

play went past 15 minutes, the participants were given the option of stopping their play any time before those 15 minutes expire. It was assumed that length of game play would correspond to desire to play the game, and possibly serve as an objective measure of presence. 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=0.003) and how much they would like to continue playing the game (r=0.33, p<0.001). Time playing the game was also positively related to the reported feelings of presence in the game (r=0.24, p=0.009).

Presence was being measured in this study in regards to how much a gamer was involved with the game play experience. 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-reports scales (Kim & Biocca,1997; Slater, Usoh & Steed, 1994; Witmer & Singer, 1998), with the specific items selected from each to reflect the nature of the digital game played. This combined scale had a resulting internal reliability of 0.84 (Cronbach's α).

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": enjoyment of the game ("I found the game to be enjoyable."); like to continue playing ("I would like to continue playing this game."); recommend the game to a female friend ("If a female friend was looking for a video game to play, I would recommend this game."); recommend the game to a male friend ("If a male friend was looking for a video game to play, I would recommend this game."); and, desire for similar games ("I wish there were more games like this one for me to play."). 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 final five scale-items were explored separately due to their conceptual uniqueness in what they tell us about the participant's level and willingness to engage with the game. All scale items to measure engagement can be seen in Appendix B, Table 2.

4.5.3 Intermediary variables. Along with a valence measure of perception, other perception variables included assessments of how real the avatar was perceived, how well liked the avatar was and to what extent the participant identified with the avatar. How attractive the participant saw the character, theoretically related to how the character is appraised and the roles ascribed as suitable for that character, was measured by simply asking how attractive the character was seen and how much the participant liked the character. How real the character was perceived as measured on two concepts research has shown to be significant in understanding how viewers perceived the reality of media images: how plausible the character was; and how much the character represented something that occurred in everyday life. All four attractive and realism items were rated on a 10 point scale, where 1 was "not at all" and 10 was "very much so".

The scale measuring identification, with both similarity and wishfulness components, was based upon previous scales (Perosanz & Rovira, 1998; Reinhard, 2005). The items were designed to measure identifying (ex., "Do you identify with this character?), general similarity (ex., "Do you feel this character is similar to yourself?"), trait-specific similarity (ex., "Did you feel this character's

behavior was similar to your own?"), general wishfulness (ex., "Would you like to be more similar to this character?"), and trait-specific wishfulness (ex., "Do you wish you could look like this character some way?). 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". All items were standardized before comparing them or averaging to compute any composite scores. In this study, the identification scale had a Cronbach's α of 0.92 overall. This high reliability held when the scale was broken down for before playing the game and after playing the game measurements of identification (respectively, 0.92 and 0.91). For a listing of all the subcomponents for the identification scales, please see Appendix B, Table 1.

After the measures regarding the avatar and the video game were completed, the participant completed items to measure possible confounding variables, such as media use and demographics (Appendix B, Table 3). The main control variable from this section was the participant's status as a gamer, which was measured by asking whether or not the participant played computer and video games. The final question employed a modified somatotype scale, with different items for men and women (see Appendix B, Table 4, for an example of this scale). Women were asked to choose the figure they see as best representing themselves as they are now and as they wish they could be. Men were asked to choose the figure they prefer women to be. The perceived

somatotype scale chosen for this study was Thompson and Gray's (1995) Contour Drawing Rating Scale. However, as the stimuli used in this research are three-dimensional computer generated characters, the scale has been modified such that the base figures are also 3D CGI, created using the same computer software program used to generate the experimental stimuli (see Appendix B, Figure 5).

CHAPTER 5

Results

5.1 Overview[1]

5.1.1 Character appraisal variables

Overall, the characters were seen more positively then negatively, where 0 is negative, 1 neutral and 2 positive (M=1.48, SD=0.72). The characters were seen as most suitable to be a love interest to a male character (M=4.43, SD=1.52), followed by being the main hero of the game (M=4.31, SD=1.88), then as a sidekick to either a hero or a villain (M=3.99, SD=1.31). The characters were seen as least suitable for being a damsel-in-distress (M=2.72, SD=1.97), with main villain being slightly higher (M=3.05, SD=1.86).

A series of paired t-tests were conducted to verify that the perception of the character as being suitable for a love interest was significantly higher than being a main villain ($t(119)=6.727$, $p<0.001$), being a damsel-in-distress ($t(119)=9.414$, $p<0.001$) and being a sidekick ($t(119)=2.824$, $p=0.006$). The suitability of the character for being a main hero was significantly higher than the character's suitability for being a main villain ($t(119)=5.977$, $p<0.001$) and being a damsel-in-distress ($t(119)=5.597$, $p<0.001$). While love interest did receive a

[1] All independent and intermediary variables means can be found in Table 3, separated for overall, participant gender and character type.

higher rating, it was not significantly more likely than rating the character as suitable for being a main hero ($t(119)=0.511$, $p=0.611$). Overall, the characters were seen as more suitable for rather positive roles, albeit with a mixture of both primary and secondary roles ascribed to them.

For the purposes of analysis, each of the perceived roles was treated as a separate criterion or predictor variable, depending on the nature of the analysis. How negatively or positively the character was described was used as a predictor variable labeled "character appraisal".

5.1.2 Attractiveness of character variable

How attractive the participant found the character to be was measured by asking how attractive they saw the character to be and how much they liked the character. These two variables were strongly positively correlated with each other ($r=0.756$, $p<0.001$). Averaging the scores on both variables resulted in a composite variable called "attractive rating", which had a mean of 6.50 ($SD=2.03$).

5.1.3 Realness of character variable

How realistic the participant perceived the character to be was measured by asking the participant two questions created to reflect two theoretical components of perceived realism of media content. The plausibility item asked the participant if they believed the character could actually exist. The magic window or factuality item asked the participant if the character looked like someone that would be seen everyday. These two items were positively related ($r=0.402$, $p<0.001$). However, taking each realism item individually, plausibility

had a higher mean value (7.59, SD=2.32) than magic window (4.97, SD=2.79), which was significantly different in a paired t-test ($t(119)=10.187$, $p<0.001$). As this may just be the nature of the relationship between these two theoretical constructs, a composite variable was created by averaging the two items, labeled "realism rating", to be used as a predictor variable. This composite variable had a mean of 6.28 (SD=2.14).

5.1.4 Identification with character variables

The identification scale was initially constructed to test items of similarity, wishfulness and identification at two points during the experiment. The differences between these two sets were that before playing the participant was asked to rate perceived similarity on appearance whereas afterwards the rating was on behavior and cognition, with the appearance question dropped. Also, before playing they were asked to rate how much they would like to *look* like the character, whereas afterwards they were asked how much they would like to *do what* the character had just done.

After standardization to correct for the different numerical scales employed, these items were recoded to create overall presence of identification, similarity identification and wishful identification items. Similarity identification was coded for all those who indicated higher than a 1 (not at all) on the items used to measure identifying and similarity directly. Wishful identification was coded for all those who indicated higher than 1 (not at all) on all the items used to measure identifying and wishfulness directly. Where 0 is no and 1 is yes, the mean presence for identification was 0.89 (SD=0.31), for similarity identification

0.88 (SD=0.32), and for wishful identification 0.86 (SD=0.35). The presence of wishful identification was significantly less than either identification ($t(119)=2.026$, $p=0.045$) and similarity identification ($t(119)=1.747$, $p=0.083$), although the difference with similarity identification is not as strong. However, the high average for the presence of all three identification types does indicate men were identifying with the female avatars.

While there was a high internal reliability across these before and after game play items, a factor analysis showed that there was indeed a split between these sets (Appendix C, Table 3). Using a principal axis factoring with a varimax rotation, the rotation resulted in three factors. The first factor, with an Eigenvalue of 7.415, included all eight of the before game play items. The second factor, with an Eigenvalue of 2.636, included the new wishful item ("wishful situation"), as well as the other items replicated from the original set for after game play. The third factor, with an Eigenvalue of 1.011, contained the behavior and cognitive similarity items. As both subsets of the identification scale showed similar high internal reliability to the overall scale (09.2 for before, 0.91 for after, and 0.92 for overall), the before and after sets were broken apart and treated as separate composite variables for further analysis, created by averaging the standardized values for relevant items, called "before game play identification" (BGPI) and "after game play identification" (AGPI).

5.1.5 Presence rating variable

As a measure of the participant's engagement with the digital game, the scale items used to measure the participant's perceived level of immersion in the

game were averaged together, after those items needing reversal were recoded. The final variable, labeled "presence rating", had an internal consistency of 0.84, which is acceptable as the scale was a composite of several other used presence scales. This composite variable, created by averaging the scores on all relevant items, had a mean of 3.88 (SD=1.10), which places the average subjective experience of immersion in the middle of the possible values. This middle-range mean may be due to the history of these scale items being used not to measure presence as experienced while playing a digital game. Further investigation into creating a digital game presence scale would be necessary, and may improve the internal reliability of the scale.

5.1.6 Length of time played variable

As the objective measure of the participant's engagement with the game, the amount of time the participant spent playing the game was recorded. The average time was rather long at 11 minutes and 30 seconds (in seconds, M=687.29, SD=231.38), out of the total possible of 15 minutes allotted to playing the game.

5.1.7 Engagement scale-Items

The final measure of the participant's engagement with the game also relied on subjective scale-items, each asking for a rating on different types of possible ways of engaging with the game. While these items had a high internal reliability (0.94), for analysis purposes they were treated as separate criterion items due to the specificity and uniqueness of each type of engagement to which they relate. Again on the 7-point scale, each item was rated between low and

middle range: enjoyed playing game, M=3.51 (SD=1.91); like continue playing, M=2.94 (SD=1.98); recommend to female friend, M=2.56 (SD=1.78); recommend to male friend, M=2.45 (SD=1.65); desire for similar games, M=2.53 (SD=1.79).

5.2 Perceptions of Avatars[2]

5.2.1 Character appraisals

It was expected that men would have a more positive perceptions of the Hypersexual character than women would. This was tested using a two-way ANOVA, with participant gender and character type to predict differences in character appraisal and each of the perceived roles. There were no gender ($F(1, 118)=0.143$, $p=0.706$) or character ($F(2, 117)=1.353$, $p=0.262$) differences in how positively or negatively the avatars were described. There was also no interaction between these two factors to show any differences in how men and women described the characters ($F(2, 114)=1.351$, $p=0.263$).

There were some main effect differences in how the roles were ascribed for the avatars, but none detected for a gender and character interaction (Appendix C, Table 4). Men were more likely than women to see all the avatars as damsels in distress ($F(1, 118)=14.533$, $p<0.001$) and love interests ($F(1, 118)=7.715$, $p=0.006$). Both men and women were more likely to rate the hypersexual portrayal highest in regards to being the main villain ($F(2, 117)=4.532$, $p=0.013$), the sidekick ($F(2, 117)=3.127$, $p=0.48$) and the love interest ($F(2, 117)=3.187$, $p=0.045$) of the digital game.

[2] All participant gender by character type interaction means for independent and intermediary can be found in Table 4.

While men were more likely to ascribe a secondary role to the characters, both men and women were more likely to see the Hypersexual as a secondary or enemy character, and there was no difference in how negatively or positively these characters were described. While the participants may differ in how positively or negatively they view the roles, overall the hypothesis was not supported. There was no significant difference in how positively men viewed the hypersexualized avatar in comparison to how women viewed the same character.

5.2.2 Attractiveness

It was predicted that men would find the hypersexualized avatar the most attractive of the three character types. This prediction was not completely supported by the data. A one-way ANOVA on the male participant subsample was conducted to test this hypothesis. There proved to be no significant difference in how men rated the attractiveness of the characters ($F(2, 57)=0.892$, $p=0.416$). Men did not show any particular preference for the hypersexualized avatar when it came to ascribing attractiveness.

For exploratory purposes, a two-way ANOVA, with participant gender and character type, only found a trend for the interaction effect ($F(2, 114)=2.317$, $p=0.103$). Men rated the Hypersexual higher ($M=7.25$, $SD=1.23$) than women did ($M=5.45$, $SD=2.26$); however, this interaction was not strong enough to become significant, even at $p=0.01$. Were the relationship significant, it would have been in the predicted direction. There was a main effect for gender; men were more likely to be attracted to all the avatars than women ($F(1, 118)=8.143$, $p=0.005$).

Thus, while the hypothesis was not completely supported by the data, there is evidence of a trend of men finding the hypersexualized portrayal more attractive than how women find such a sexualized portrayal. However, overall, men were more likely to find the avatars to be attractive than the women were.

5.2.3 Identification

It was hypothesized that women would identify least with the hypersexualized avatar. A one-way ANOVA on the female participant subsample was conducted to test this assumption. There were no significant differences in how the women identified with the avatars for both the before game play ($F(2, 57)=0.473$, $p=0.626$) and after game play ($F(2, 57)=0.176$, ($=0.839$) scores. Women did not show any preference of character type in determining the level of identification they engaged in, and this became even clearer after playing the game as the character. This result may be due to the personal nature of identification, as the different women may have been able to find different aspects from each avatar to support their identification with the avatar. It could also be due to the fact that all avatars were female, providing a gender similarity to foster any identification.

To explore this possibility, a two-way ANOVA of participant gender by character type was conducted to test for gender differences in identification. Women were more likely than men to identify with their avatar before playing the game ($F(1, 114)=10.173$, $p=0.002$). There was no interaction effect or effect of character type for BGPI. There also was no differences found for AGPI, which includes no gender difference ($F(1, 114)=0.001$, $p=0.977$). While there was a

gender difference in how likely a participant was to identify with the character based only on seeing an image of the character, possibly because the character was female, this difference disappeared after the participants played the game as the character.

5.3 Engagement with Digital Game[2]

5.3.1 Participant gender by character type

Based on the ideas that researchers and the digital games industry have regarding hypersexual avatars, it was predicted that men would enjoy the game most when playing as the Hypersexual, and women would enjoy the game least when playing as the Hypersexual. This assumption was first tested by a two-way ANOVA for each of the engagement variables. Also, as it is possible that how the participant perceived the character, in regards to any of the above-discussed perception variables, a series of two-way ANCOVAs were also conducted to understand how perception of and identification with the avatar may impact engagement with the game. Added to these controls was the level of experience the participant had playing games, measured in the demographics section as gamer status. All of the significant interaction effects, at both $p=0.05$ and $p=0.10$ levels, were collected in Table 5 (Appendix C).

5.3.1.1 Without controls. Only two engagement variables showed a significant interaction effect when the two-way ANOVAs were conducted. The graphs for the significant interactions can be found in Figure 5 (Appendix C). Men and women differed in how immersed they were with the game by which

character they were playing (F(2, 114)=4.27, p=0.016), but not in the directions predicted. Men were more immersed playing as the Curvy (M=4.45, SD=1.03) than playing as the Hypersexual (M=3.64, SD=0.84). Women were more immersed playing as the Hypersexual (M=4.02, SD=1.20) than playing as the Curvy (M=3.43, SD=0.99). Conducting a one-way ANOVA on only the male subsample did indicate that the difference between the Curvy and Hypersexual characters on this variable were significantly different (F(2, 57)=3.23, p=0.047). This significance was not found within the female subsample.

This same pattern was found in regards to how likely the participant rated themselves as to recommend the game to a male friend (F(2, 114)=3.466, p=0.035). Men were more likely to recommend the game playing as the Curvy (M=3.05, SD=2.09) than playing as the Hypersexual (M=2.15, SD=1.27). Women were more likely to recommend the game playing as the Hypersexual (M=2.85, SD=1.79) than playing as the Curvy (M=1.85, SD=1.31). Neither one-way ANOVAs conducted on the subsamples showed any significant differences. However, without controlling for how the participant perceived the avatar, the pattern of engagement is opposite what was predicted. Men indicated less engagement when playing as the hypersexualized avatar, while women indicated more.

5.3.1.2 With controls. Although not explicitly stated in any hypothesis, as a large part of this study concerned how men and women differed in their perception of the avatars, exploratory ANCOVAs were conducted to see if controlling for these perceptions, along with levels of identification and

experience playing games, would impact the level of engagement the participant had with the game. The perception variables included character appraisal, perceived role, attractive rating and realism rating. The significant interactions are listed in Table 5, while the graphs for these interactions are displayed in Figure 6 (Appendix C). As before, there were no significant main effects for either participant gender or character type.

When the perception, identification and experience variables were held constant, the presence rating and recommendation to a male friend variables continued to show the same interaction pattern. Men again had higher responses on presence ($F(2, 103)=8.705$, $p<0.001$) and recommending to a male friend ($F(2, 103)=4.75$, $p=0.011$) when playing as the Curvy figure, whereas women were higher at the Hypersexual figure. In fact, both of these interactions were strengthened. In addition to these two variables, three other engagement variables became significant in the ANCOVAs, and all interactions were in the same recorded direction.

Men were more likely to like to continue playing when they played as the Curvy avatar ($F(2, 103)=3.023$, $p=0.053$) while women were more likely when playing as the Hypersexual. Men said they would recommend the game to a female friend more often when they played as the Curvy character, while women again indicated higher recommendation when playing as the Hypersexual ($F(9, 103)=3.104$, $p=0.049$). Lastly, women indicated a greater desire for similar games when they played as the Hypersexual avatar, while men indicate more desire playing as the Curvy avatar ($F(2, 103)=2.909$, $p=0.059$). While none of

these interactions reach the same level of strength that the presence and recommending to a male friend do, the fact alone that all interactions are in the direction opposite of what was predicted is a significant finding.

5.3.2 Impact of attraction

It was predicted that as attraction to the avatar increased, the engagement with the game in which she was the player's avatar would also increase. As seen in Table 6 (Appendix C), the overall attractive rating was positively correlated with all the engagement variables except for the length of time the participant played the game. Thus the hypothesis is mostly supported. Increases in how attractive the avatar was regarded also showed increases in how much the participant engaged with the game. Because correlations cannot show causality, a series of regressions were conducted to determine the extent to which the attractiveness rating could predict each engagement variable.

In a regression model that included only participant gender, character type, and the interaction of these two predictors, the attractive rating was a positive predictor for all engagement variables except the length of time the game was played (Table 7). In fact, only the attractive rating was predictive for how much the participant would like to continue playing ($\beta = 0.346$, $t=3.82$, $p<0.001$), how likely they were to recommend the game to a female friend ($\beta = 0.234$, $t=2.809$, $p=0.006$), and their desire for having similar games to play ($\beta = 0.316$, $t=3.852$, $p<0.001$).

However, when the other character perception, identification, and experience variables were added into the model, how attractive the character

was perceived dropped out of being a significant predictor for the engagement variables, save for how much the participant would like to continue playing the game. At this point (as seen in Table 10), the predictive power of overall attractive rating was reduced ($\beta = 0.175$, $t=1.895$, $p=0.061$). Thus, while how attractive the avatar was rated may be important, there were other variables that had more predictive power in their relationship with the engagement variables.

5.3.3 Impact of realism

It was predicted that as the avatar's perceived realness increased, the engagement with the game in which she was the player's avatar would also increase. As seen in Table 6 (Appendix C), the overall realism rating was positively correlated with all the engagement variables. Thus the hypothesis is supported. Increases in how realistic the avatar was regarded also showed increases in how much the participant engaged with the game. Because correlations cannot show causality, a series of regressions were conducted to determine the extent to which the realism rating could predict each engagement variable.

In regression models that included only participant gender, character type, the interaction of these two predictors, and the realism rating, this realism factor was a positive predictor for all engagement variables (Table 8). In fact, only the realism rating was predictive for how much the participant would like to continue playing ($\beta = 0.284$, $t=3.373$, $p=0.005$), how likely they were to recommend the game to a female friend ($\beta = 0.221$, $t=2.889$, $p=0.005$), their desire for having

similar games to play (β = 0.213, t=2.749, p=0.007), and the length of time the participant spent playing the game (β = 20.766, t=2.068, p=0.041).

However, when the other character perception, identification, and experience variables were added into the model, how realistic the character was perceived was a significant predictor for only two of the engagement variables (as seen in Table 10). The realness of the avatar remained important when predicting the level of immersion experienced (β = 0.089, t=2.080, p=0.04), and the length of time spent playing the game (β = 20.415, t=1.790, p=0.076), with this last relationship weak at best. Thus, while how realistic the avatar was rated may be important, there were other variables that had more consistent predictive power in their relationship with the engagement variables.

5.3.4 Impact of identification

The final hypothesis in the study concerned the impact of identification on engagement with the game, with the idea that increases in identification would be met with increases in the engagement level with the game. Both the BGPI and AGPI did show a significant positive relationship with the engagement items (as seen in Table 6). Of interest is how these two different identification variables differed in their relationship with the engagement variables. Before game play showed no relationship with the amount of time the game was played, although after game play identification did (r=0.21, p=0.02).

Across the other engagement items, the Pearson correlation scores nearly doubled when they were correlated with AGPI in comparison to BGPI. Overall, there is good evidence to support the hypothesis that increases in identification,

especially in identification after playing the game, were met with increases in how the participant engaged with the game. However, again because correlations cannot show causality, a series of regressions were conducted to determine the extent to which identifying with the avatar could predict each engagement variable.

As seen in Table 9, when BGPI was included in a regression model that only included participant gender, character type and the interaction of these two factors, then this identification was a significant predictor for all but the length of time played variable. However, this particular type of identification was not a solitary predictor and was always paired at least with the participant gender, which may reflect the gender difference found in BGPI as described above.

On the other side of the gaming experience, identifying with the avatar after game play was a solitary predictor for several engagement variables in the same type of regression model. AGPI was a positive predictor for the length of time the participant played the game ($\beta = 64.662$, $t=2.475$, $p=0.015$), how much the participant would like to continue playing ($\beta = 1.532$, $t=8.413$, $p<0.001$), how likely the participant was to recommend the game to a female friend ($\beta = 1.163$, $t=6.571$, $p<0.001$), and how much they desire having similar games ($\beta = 1.336$, $t=7.906$, $p<0.001$).

Another interesting difference between these two types of identification occurs when the other control variables are added into the regression model. At that point, BGPI dropped out of being a significant predictor for any of the engagement items, while AGPI was a significant predictor for all the engagement

items (Table 10). In fact, it was the only predictor for the likelihood of recommending the game to a female friend (β = 1.108, t=5.196, p<0.001) and the player's desire for similar games (β = 1.158, t=5.757, p<0.001).

As this final series of regression models contain how the character was appraised, its perception of being attractive and realistic, and the participant's experience as a gamer, the fact that how much the participant identified with the character after playing the game was the only consistent variable to show any power at predicting all of the engagement variables. This includes the participant's gender and the specific character type with which they engaged. Overall, there is good evidence that identifying with one's avatar and engaging with a digital game are positively related. In particular, it appears that identifying with the avatar during the course of playing the game is very important in influencing to what extent the player engages with the game.

CHAPTER 6

Discussion

The common approach in the digital game industry is to create female characters for their main demographic, men, which results in hypersexualism and other feminine stereotypes in portrayal (behavior and personality) and in design of graphics (body shape and clothing). Contrary to industry beliefs and theoretical suggestions, this initial exploration into the impact of the hypersexualized portrayal suggests men do not inherently prefer a this portrayal, whereas women may be more interested in such a portrayal due to common, hegemonic perceptions of the character's abilities and their beliefs about men's preferences. Also, it appears that when it comes to playing as an avatar in a digital game, the ability of the avatar takes precedence over the appearance of the avatar, especially when the avatar is not present on the screen.

The first part of this study focused on how the hypersexualized avatar, manipulated to represent the body dimensions of this portrayal, would be perceived by men and women. These hypotheses, for the most part, were not supported. Men did not differ from women in perceiving the hypersexual as the most attractive; instead, they were more likely to view all three avatars as more attractive then the women saw them. And while the hypersexualized avatar was

more often ascribed secondary and antagonist roles as being the most suitable for her part in the game, women were not more likely to see the hypersexualized avatar in this stereotypical or villainous way than men.

It was also predicted, in particular regards to women, that they would not be able to identify with the hypersexualized avatar due to the unrealistic body proportions she portrayed. Again, this was not the case, as there was no significant difference for women in whether or not they would identify with the three avatars. Men and women did differ in their identifying, seeing as similar and wanting to be similar, to the avatars when only the image was portrayed. However, this difference disappeared during game play, as the character relating items measured after game play indicated. While men may have been less willing to identify with the character when all they saw was her, they were more likely to identify with her when they could step into her perspective and move about the game world. This also runs contradictory to research that indicates men are less likely to engage in cross-gender identification than women are.

The second part focused on the notion that hypersexualism can increase a man's desire to play a game while in turn decreasing a woman's willingness. As for actual engagement with the digital game, there is evidence that designing hypersexual characters for men may not be the way to increase their level of playing the games. Men indicated more preference for the voluptuous avatar, whereas women indicated the exact opposite, showing preference for the character they were not supposed to by common perception. The interaction was strongest for how immersed they felt in the game and how much they would

recommend the game to a male friend, but it did show the same pattern across other engagement variables once individual differences in how the characters were perceived were held steady.

Additionally, while perception of the character did play some role in predicting the extent to which the participant would engage with the game, the most influential predictor appears to be the extent to which the player identifies with the character based upon actual game play experience. The level of stepping into the avatar's perspective, finding similarity with the avatar based on the situation being experienced by avatar, and desiring to be doing what the avatar is doing appear to be key factors in understanding the extent to which a player engages with or wants to engage with a digital game. Such identification appears more fundamental than the extent to which the player can identify with the physical features of the character, as before game identification showed differences in relation to the after game identification.

6.1 Women and hypersexualized portrayals

Past research has found a level of ambivalence among women as they deal with the media's depictions of female beauty, whether it be in regard to the thin ideal or society's fascination with large breasts (Goodman and Walsh-Childers, 2004; Latteier, 1998). Women have indicated a dislike for commercials or other media that depict women as sexual objects (LaTour, 1990; Rossi & Rossi, 1985; Rouner et al, 2003), yet if they totally disavowed these materials Victoria's Secret would not sell anything through its catalogues and many women's magazines would have folded. Research into body image implies a

parallel state of affairs when they discuss how hegemony is being engaged and struggled with by these women, who often discuss desiring to be both thinner and have larger breasts (Goodman & Walsh-Childers, 2004; Millsted & Frith, 2003). And while it was predicted that women would not like a digital character whose breasts were overly exaggerated, the results of this study indicate the opposite also occurs. While they might have had some negative perceptions of the character, this did not prevent them engaging with the game more when playing as that character. The results here add to the observation that a tension exists among women in their perception and reaction towards sexualized portrayals. The tenets of cultivation and social learning theories can aid in understanding this tension.

Women at some level may want to be more like the "curvaceous thin" as they believe that is what men like and what will make them more successful in society, due to the images portrayed in the media (Goodman and Walsh-Childers, 2004). Cultivation theory predicts that heavy exposure to consistent messages in the media can cause perceptions of social norms to reflect the media's reality. Taking from social learning theory the idea that coupling these messages with positive portrayals, one can understand how seeing portrayals of hypersexualized women being showcased as not only the social norm but the ideal state can affect a woman's judgment about the legitimacy of a hypersexualized body. A woman may see such a body type as desirable due to the positioning it has in society as the form required to achieve success, particularly in regards to heterosexual romantic relationships. If women perceive

this is what men want, and there is an importance ascribed to being attractive to men, then they may be more likely to accept at some level the hypersexual portrayal as the goal.

Hartmann and Klimmt (2005) 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 character, which was defined as exhibiting the sexual object stereotype; however, their overall preference showed the opposite pattern. The researchers' visualization of the sexual object stereotype was achieved by having the character dressed in leather. However, in our pop culture, it is often the woman in leather who is strong, active, independent, and a competent fighter alongside her male counterparts. She is Trinity from *The Matrix*, Catwoman from *Batman Returns*, Angelina Jolie as Lara Croft in the *Tomb Raider* movies, and the women from *X-Men*. The media portrayals tell us that strong women must also be seen as sexual objects; hence, the ambivalence found in regards to the curvaceous thin is applicable to hypersexualized video game characters. As the female participants were informed that the image shown was that of a digital 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. Women at some level may be repelled by the consistency of the sexualized portrayal, but as it is a positively perceived norm with ramifications for success in society and romantic relations, they may also be embracing the portrayal as a means of learning how they too can be so successful.

In essence then is the idea that women may be engaging in wishful identification with the hypersexualized character because she is imbued with socially positive traits. In fact, although it did not reach significance levels, there was indication in the data that women were engaging in more wishful identification with the hypersexualized character than they were with the curvy character that men preferred. This portrayal then may be serving as a model for how women should behave and think in order to be successful in society. Women may want to be more similar, in terms of appearance, to this character in order to achieve a similar level of successful, which may be psychological or situational traits. While women may show a positive reaction to a figure they consider to be ideal and with which they engage in wish identification, the prospect that this ideal figure may be unattainable can cause a negative reaction as well (Hendricks, 2002; Herbst, Gaertner & Insko, 2003). These two opposing forces, occurring simultaneously with a wishful identification state, may be responsible for the tension in how women approach hypersexualized characters, including the results to this study.

Now, it may also be that the consistent result of women recommending the game to a man when the game featured a hypersexualized portrayal may come from the sense many women have that this type of body, thin and buxomly, is what men want, while men often indicate more interest in a heavier body type (Cohn & Adler, 1992; Goodman and Walsh-Childers, 2004). Also, while men do prefer a larger breast than that indicated as the ideal by women, women often predict men will like a far larger breast than what men themselves prefer

(Tantleff-Dunn, 2001). This study found the same pattern, where men were indicated more interest in the curvy figure, which is consistent with findings by Furnham, Dias and McClelland (1998), where an hour-glass figure, low waist-to-hip ratio, be it either slender or heavy, was favored more when breasts were large. In this case, while men recommended the curvy figure more, women again went for the further exaggeration when saying they would recommend the hypersexual character, underlying their belief that men would be attracted to this type of portrayal.

Of course, this assumption women have about men's preferences may again reflect the way in which media portrayals can influence the sociocultural norms women use when making judgments about themselves and others. If this study's pattern of results can hold up across replications, then the theoretical framework employed here to understand gender socialization can be further supported to show how identify can recapitulate hegemony.

6.2 Men and the game industry

Contrary to what the industry may have heard, and to research into how men respond to sexual content in other media content (LaTour, 1990; Rossi & Rossi, 1985; Rouner et al, 2003), men appear more interested in a curvy woman than a hypersexual woman. Not only did they indicate more engagement playing as the curvy character, but they also indicated more real-life preference for this type of character regardless of what condition they were in. On the scale that asked them to choose the body type they most preferred, the highest frequency was for the figures that ranged from thin to curvy; the hypersexualized figure was

chosen least frequently. This result though may not be surprising to those who research body image perceptions from an evolutionary 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 thus more evolutionarily adaptive as a successful mate (Furnham et al, 1998; Markey et al, 2002). As discussed above, men are also more likely to choose a body shape that is heavier than the one women choose for them, indicating again an attraction to a more voluptuous body (Fallon & Rozin, 1985).

However, attraction did not play a significant role in determining game play; identification apparently resulting from game play did. What is interesting is that such identification did occur cross-genders in a direction not often predicted: male players were identifying with a female character (Harrison, 2000; Hoffner, 1996). However, special attention needs to be paid to how this identification was occurring. Were they identifying with the avatar because, knowing she is a game character, they can then imbue the avatar with traits they might either see in themselves already or wish to see in order to fit a positive masculine role? Or are they identifying with the character's abilities/actions rather than who she is, regardless of body shape, because she is doing counter-stereotypical actions for a female (i.e. off on her own exploring a strange and potentially dangerous world)?

Surprisingly, although less then women, men were also indicating some level of identification with the avatar based solely on her image after he was

asked to describe her. To understand this relationship, it will be necessary look to at how the male participants described the character. Any identification here is probably not based on what the man sees of the image, but instead what he sees into the character. When men describe the character as "athletic", "strong", or "confident", they were making assumptions of her based on her appearance, and it is these assumptions that may be fueling their identifying with this character rather than just the appearance. As Calvert, Kondla, Ertel and Meisel (2001) pointed out, personality characteristics can be more important than gender when people make similarity decisions, and perceptions of similarity are a cornerstone in the process of identifying with another. The importance of psychological similarity was found in other research on identifying with media personae (Reinhard, 2005). Men may be more able to identify with a character if they can find similarity in psychological traits, and in situationally activated traits as evidence by the after game play identification stores.

These psychological traits could be seen as indications of schema activation, as schema theory predicts that in the absence of external information, gaps will be filled in by the internal information stored in schemas, creating expectations for the character (Hoffman & Pasley, 2000). In the case of this study, the participant knew the image was of a digital game character. Thus, irrespective of the body shape of the character, the identity as a game character alone may be triggering digital game related schemas, or if not digital game than media in general, such as those associate with action heroes. Any media

stereotypic information may be used to fill the gap that was needed in order for the participant to describe this woman based solely on her appearance.

While the gender difference did exist for identification based solely on image, this difference was negated when the participant was asked to rate how much they identified with the character after playing the game. During game play, the participant was exposed to how the character interacted with a novel and unfamiliar situation. In this cross-gender identification state, the men might have been identifying with her because of the situationally activated traits that became apparent during the course of the game. These traits, which began in the introduction to the game, included a sense of unfamiliarity with the world and the challenge of solving puzzles in order to defeat the game. The results then strongly indicate the possibility that men can identify with women. Strip away preconceived notions based on gender, men can identify with women as people given certain circumstances or conditions, such as those present in digital games. Oftentimes society and thus the media offer male models and there is no reason to identify with a female model.

This perspective on cross-gender identification could help explain Lara Croft. Although the epitome of the hypersexualized female, she is an adventurer akin to male role model Indiana Jones, who engages in masculine behaviors like gunplay, as with the other action heroines of the mass media (Kennedy, 2002). If a female model is presented in such a way that she is not saddled with society's negatively perceived feminine stereotypes, and is instead portrayed with either neutral or balanced stereotypes, then such a cross-gender identification may be

feasible. This may be especially true when given game play conditions that allow the man to slip into the woman's perspective, as this provides the male with 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 the avatar as being of the opposite sex. By keeping away from having female avatars being portrayed or acting only as sexual objects, or with the stereotype or patriarchal notion of seduction and vixenry, then the industry can create other avatars with which both males and females could identify.

6.3 Identification and the digital game

Is identification with digital game avatars different than such relating with other media personae? Scott McCloud described identification with abstract media personae, such as cartoon characters, as occurring due to the lack of trait-specific details, which allows viewers to project more unto blank canvases (Consalvo, 2003). Game theorists have argued that avatars exist in a similar fashion, given only the barest of physical and personality features, to encourage the player to "step in" and become the character as the player interacts with the game. Lacking features in this way makes digital game characters different from other media personae that often tend to exist with higher levels of details either ascribed to them, especially in the case of fictional characters meeting the demands of being a "fully-realized character", or added to them, such as with celebrities who may prefer privacy but find themselves the subject of tabloids.

Being able to step into an avatar is particularly important in digital games where the player is expected to seamlessly intertwine with the avatar in order to

perform the activities necessary to complete the task and overcome the obstacles created in the game (Polsky, 2001). Increasing identification could increase the player's ability to anchor in the subjectivity of the avatar, to increase the ability to experience the game world as it unfolds around the avatar; in other words, to increase the player's sense of presence within the game (Green et al, 2004; Steuer, 1992; Vorderer, et al, 2004), which could smooth the flow of game play and allow for easier interactions with the game (Kennedy, 2002; Sherry, 2004). In fact, it is the possible connection between a player and avatar during game play that might make identification with a digital game character stronger than with other media personae (Dill & Dill, 1998), as the player steps into the role of the character, experiences the adventure through the character, and even has the possibility in some games to manipulate the identity of the character to suit the player's desires.

Heightened identification with the character's abilities rather than appearance would help in this process. Identification measured after play game is an indicator of identification based on the situated behavior of the avatar and the situation the avatar is in, which is heightened by the fact that the play did not see the avatar and had only a few clues regarding the nature of the avatar. Identification before play game is based on the visual clues and the projected or expected traits ascribed to the avatar by the player. The impact of identification after game play on engagement means that the player was able to identify with the avatar's state-of-being while in the game, be it perceived similarity through projection as both are conceived as being strangers in a strange land and/or

because the player had a level of wishfulness to be in the game world doing what the avatar was doing. If the player did not have this sense of connection to the avatar during game play, then there was an apparent drop in engagement with the game.

The identification theory as described earlier can account for such similarity and wishfulness based on psychological, behavioral and situational traits. In particular to the age group of the sample used, these traits have been found to be more important than physical traits when people described their identification with media personae (Reinhard, 2005). If games can be created with this in mind, then the gender discrepancy may be diminished as it did in the rating of after game play identification. What remains to be seen is if men and women differ in the traits to which they would rate as being similar or wishing to be more similar.

6.4 Cognitive complexities of the game

While there were gender differences in perception of the characters, and gender at a basic level was predictive of the various engagement items, this predictive ability of gender was nullified when the after game play identification was added to the model. So why were there no major gender discrepancies in engagement, irrespective of the effect of character type which did not occur in the predicted direction anyway? A likely answer lies within the selected game itself. The game was initially chosen because it represents a gender neutral terrain, where both men and women were shown as liking to play such puzzle-solving, exploring games (Cassell & Jenkins, 1998). Changing the genre of the

game, such as making it a first-person shooter or a related high-violence game, may indeed show the gender discrepancy in line with past research.

Irrespective of content, the cognitive requirements placed on the player to be able to engage with the game may play a role in determining enjoyment. The impact of cognitive requirements may have played to an extent greater than that measured by the identification after game play items, as the avatar was not present within the game world during game play. Perhaps the gender discrepancy in playing digital games in the population can be brought down to this level as well, as suggested by Sherry (2004). Different styles of games do require different levels and types of engagement from the player. This game required patience, curiosity (as numerous solutions where hidden behind other objects), and systematic experimentation (in order to solve the puzzles).

However, these are not cognitive skills discussed by Sherry (2004) in his examination of gender differences. In fact, these skills may be simple individual differences, indicating why there were no major gender differences on self-directed engagement. As indicated by Sherry, gamers desire certain gratifications from digital games. Kim and Choi (2005) reasoned that there were extrinsic and intrinsic factors associated with games that influenced game play. These intrinsic factors include the vividness, interactivity level, complexity and immediate feedback of the game. Referring back to Sherry's (2004) discussion of flow, these factors would need to be at an optimal level in comparison to the player's capabilities and wants in order to predict the level of engagement the player has with the game.

The game used in this study did not have a high level of interactivity, as only a mouse was used as the interface, and only certain parts of the game world could be interacted with while a vast majority of what the player saw on the screen was static background. The vividness or realism of the game was not optimal due to the computer it ran on. Also, the game may have been too complex given the lack of immediate feedback, as a number of players indicated not knowing what they were supposed to be doing or if they had gone far enough to have made something happen. All of these disappointments in regard to game play, were they systematically measured, may have been predictive of engagement.

Future studies should investigate these cognitive requirements, both as described by Sherry (2004) and Kim and Choi (2005), but also strictly from the point of view of the player. How does the player inductively solve the puzzles and challenges of a game? How does a player handle the learning curve, or the stretch of game play that occurs when first becoming familiar with the dynamics of interacting with the game? Are there truly gender differences in cognitive requirements, and are these actually to blame for the gender disparity in playing games, irregardless of how much blood appears on the screen?

6.5 Limitations and future directions

Several of the limitations have already been mentioned in regard to the cognitive requirements of the game, each with the ability to foster future research studies to expand upon what was learned in this project. There were also limitations in regard to the manipulation of the character portrayal that should be

addressed in future research. Before discussing this limitation, the first limitation may be in the ability to generalize the findings of this study to other populations. The sample used in this study were young adults and adults. Although according to the Entertainment Software Association, the average age of gamers is 29 (www.theesa.com), these individual's reactions to the hypersexualized character may be different than the reaction teenagers and younger children may have. Primarily this may due to the possible level of experience older individuals have with women. This experience difference may be more potent in regards to the male participants, as teenage males may indeed show more of a preference to the hypersexual, which would be exactly what the industry marketers expect in creating these characters.

By the nature of the experiment and what could be done with the digital game used, there were restrictions placed upon the study 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. This possible pattern of results would then be similar to how the sexualized positioning of women in ads can engender negative critiques of those ads by women while men find them alluring (LaTour, 1990; Rossi & Rossi, 1985; Rouner et al, 2003). Also, a related negative portrayal would be exaggerations of hyperfeminism, where the portrayal is more about feminine stereotypes with an emphasis on helplessness (i.e. damsel-in-distress). Manipulating the avatar

along any of these dimensions may also impact the results, as this study has already indicated the importance of perceptions of behavior, via identification, on how much the player would like to engage with the game.

Along with this behavior manipulation, which would have been more apparent in the actual content of game play, there is the ubiquitous 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 by her if this portrayal was consistently in the game.

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. A future study to investigate this argument should be undertaken to insure its validity. 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 doesn't 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.

A final limitation comes from the perceived realism variable. It is interesting as to how highly the participants rated the characters on this dimension, given that the character was computer-generated, which several participants mentioned, and that the character was described as a game character. However, in particular regards to plausibility, it may be that the participants rated the avatar on how plausible she was to be a digital game character, and not on how plausible she was to be a real person. This would be due chiefly to how the item was worded: do you think this character could actually exist. By using the word character instead of person, the participants may have been extrapolating the likelihood of this character being in games. Future studies should consider more closely the items used to measure the perceived realness of digital game characters to nullify this possible confusion.

6.6 What of the gender gap discrepancy?

As for the role of the hypersexual in fostering the gender gap, this study indicates that this portrayal of a woman's body is not the determinant or deterrent those in the industry and academy believe it is. Naturally, more work needs to be done to verify this conclusion, especially as only one aspect of the hypersexual portrayal was studied in this experiment. Further study on this manipulation would also serve to clarify the identification with digital characters as being based on appearance versus abilities. Additionally, there needs to be more focus on the cognitive requirements of the game and the level of cognitive ability of the

player as means to understand interaction and intent to maintain such interaction. Finally, there should be a systematic appraisal as to how the societal conditions and norms regarding women playing digital games impacts predilection to interact with said games.

Perhaps it is a combination of perception, cognitive ability and societal conditions that ultimately determines the effects of interacting with digital games. In the end, societal conditions will most likely change as acceptance of these games grows, and most cognitive abilities can be influenced through practice. Perception, in terms of identification, may be influenced by both of these processes, but may be so wholly unique to the individual that it should be understood, as Scott McCloud addresses, to best occur under conditions of positively-portrayed abstraction. The design of characters that portrayal this abstraction, while still being active and skilled in their ability to interact with the game world, may be a sound means for shrinking the gender discrepancy.

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APPENDIX A

STUDY STIMULI

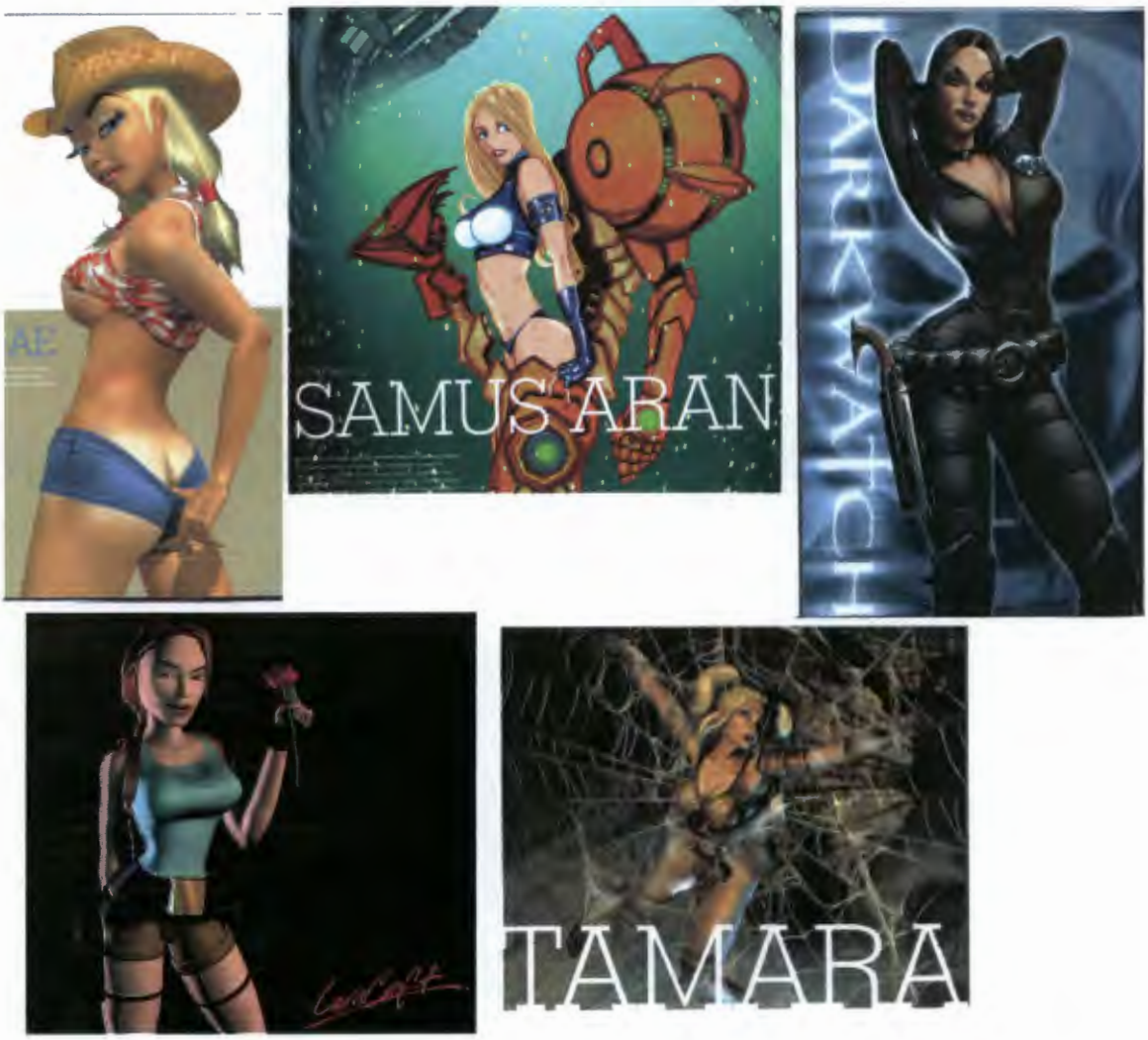


Figure 1. Examples of female digital game characters
From upper left to lower right: *Leisure Suit Larry: Magna Cum Laude; Metroid; Darkwatch; Lara Croft Tomb Raider; Champions Return to Arms* (Play Magazine, December 2004).

Figure 2. The avatar stimuli
From left to right: Thin Avatar, Curvy Avatar, Hypersexual Avatar

Figure 3. The game stimulus, *Schizm*

Today was just going to be a normal day; classes, work, more classes, more work, then watch some TV and fall asleep - with or without doing your English paper, you hadn't decided yet.

That was before.

Before you stepped outside and realized...

You had absolutely no idea where you were.

To say it's an alien world is not saying enough.

To say it's unlike anything you've ever seen, beyond anything you thought possible, well, that's a bit closer.

To say you want to find a way home, and soon, now that's right on the nose.

Figure 4. The introduction stimulus

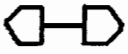
APPENDIX B

QUESTIONNAIRE ITEMS

GAME INSTRUCTIONS:

All movement onscreen is accomplished by moving the mouse and then clicking with the left button to perform an activity as indicated by the following mouse icons:

This is the basic mouse icon and allows you to know which direction you are looking. No action is necessary to take when you see this icon.



This icon appears when you hold down the left button on the mouse. When you see this icon, you are able to look around in 360 degrees to get a better feel for your environment. HINT: You will use this button the most.

This icon alerts you as to when you are able to move forward into the environment. When you see it, click the left mouse button and you will move in the direction you are facing.

This icon will pop up when you have the chance to get closer to an object to observe it. Click the left mouse button when you want to do it.

After you are done observing something, move your mouse away from the object and this icon will appear. Click the left button and you'll pull away.

Sometimes you can manipulate objects in the environment. When that happens, this icon will appear over the object. Click the left button and see what happens.

At other times, you can pick up objects, and then this icon will appear over the object. Simply click the left button and it's yours.

Figure 5. Illustration of instructions for the digital game, *Schizm*

Before Game Play items, rated 1-10, where 1 was not at all and 10 was very much so.	
Plausibility	Do you think this character could actually exist?
Magic Window	Does this character look like someone you see everyday?
Attractiveness	How attractive is this character to you? Do you like this character?
Identification Before	Do you identify with this character? Can you see yourself as this character?
Similarity Before	Do you feel this character is similar to yourself? Do you feel this character's appearance is similar to your own? Does this character remind you of yourself in any way?
Wishfulness Before	Would you like to be more similar to this character? Does this character represent something you wish you were? Do you wish you could look like this character some way?
After game play items, rated 1-7, where 1 was not at all and 10 was very much so (scale later standardized to match component items from before game play).	
Identification After	Did you identify with this character? Could you see yourself in this character?
Similarity After	Did you feel this character's behavior was similar to your own? Did you feel this character's way of thinking was similar to your own? Did this character remind you of yourself in any way?
Wishfulness After	How much would you have liked to have been doing what the character was doing? Did this character represent something you wish you were?

Table 1. Listing of character perception scale-items

Engagement items, rated 1-7, where 1 was not at all and 10 was very much so.	
Enjoyed Playing Game	I found playing the game to be enjoyable.
Like Continue Playing Game	I would like to continue playing this game.
Recommend to Female Friend	If a female friend was looking for a video game to play, I would recommend this game.
Recommend to Male Friend	If a male friend was looking for a video game to play, I would recommend this game.
Desire for Similar Games	I wish there were more games like this one for me to play.
Presence items, rated 1-7, where 1 was not at all and 10 was very much so.	
I had a sense of walking around in the game's world. There were times during the game that the game's world was the reality for me. While playing, I had a stronger sense of sitting in this chair than walking in the game. While playing, my body was in the room, but my mind was in the game. When the game ended, I felt I came back to the "real world" after visiting the game's world. While playing the game, I was able to control the events in the game's world. My interactions with the game's world seemed natural. My senses were engaged by the game's world. I was aware of events occurring in the world around me while playing the game. I quickly adjusted to moving around in the game world. I lost track of time while playing the game.	

Table 2. Listing of engagement and presence scale-items

Using the following range of body types, please indicate the body type you feel this character represents by checking the corresponding box:

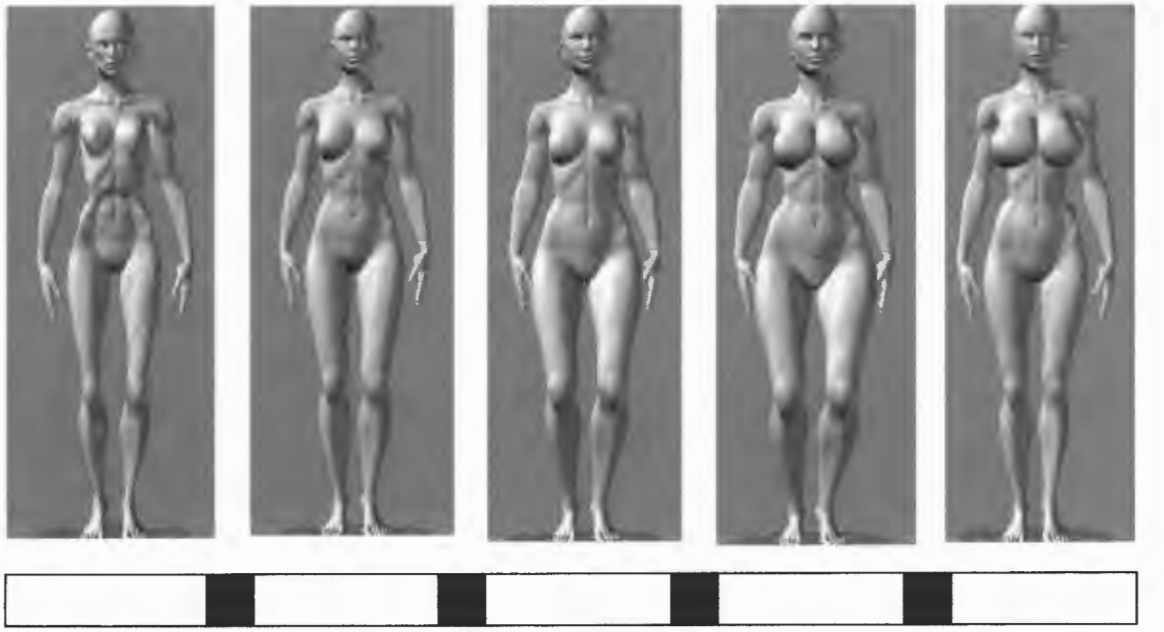


Figure 6. 3-D model somatotype scale, thin to hypersexual (left to right)

APPENDIX C

RESULTS

		Participant Gender		Character Type		
Variable Name	Overall	Female	Male	Thin	Curvy	Hypersexual
Character Appraisal	1.48 (0.72)	1.50 (0.73)	1.45 (0.72)	1.63 (0.59)	1.43 (0.78)	1.38 (0.77)
Perceived Role - Main Hero	4.31 (1.88)	4.32 (1.89)	4.30 (1.89)	4.50 (1.68)	4.28 (2.05)	4.15 (1.93)
Perceived Role - Main Villain	3.05 (1.86)	3.00 (1.81)	3.10 (1.92)	2.65 (1.61)	2.75 (2.00)	3.75 (1.79)
Perceived Role - Damsel-in-Distress	2.72 (1.97)	2.07 (1.65)	3.37 (2.07)	2.70 (2.03)	2.43 (1.68)	3.03 (2.18)
Perceived Role - Sidekick	3.99 (1.31)	3.88 (1.35)	4.09 (1.26)	3.75 (1.29	3.81 (1.25)	4.40 (1.31)
Perceived Role - Love Interest	4.43 (1.52)	4.06 (1.58)	4.81 (1.37)	3.99 (1.63)	4.49 (1.47)	4.83 (1.38)
Attractiveness Rating	6.50 (2.03)	5.98 (2.22)	7.01 (1.68)	6.61 (1.88)	6.25 (2.21)	6.35 (2.02)
Realism Rating	6.28 (2.15)	6.22 (2.23)	6.34 (2.07)	6.55 (1.97)	6.5 (2.18)	5.79 (2.24)
Before Game Play Identification	3.43 (2.04)	4.02 (2.03)	2.84 (1.90)	3.41 (1.91)	3.31 (2.13)	3.58 (2.13)
After Game Play Identification	2.87 (1.34)	2.86 (1.34)	2.88 (1.36)	2.94 (1.31)	2.75 (1.30)	2.91 (1.44)
Overall Presence of Identification	0.89 (0.31)	0.95 (0.22)	0.83 (0.38)	0.88 (0.34)	0.90 (0.30)	0.90 (0.30)
Presence Rating	3.88 (1.10)	3.75 (1.15)	4.02 (1.04)	3.88 (1.17)	3.94 (1.12)	3.83 (1.04)
Enjoyed Playing	3.51 (1.91)	3.33 (1.95)	3.68 (1.86)	3.48 (2.14)	3.78 (1.95)	3.28 (1.60)
Like Continue Playing	2.94 (1.98)	2.80 (2.03)	3.08 (1.93)	2.78 (2.03)	3.30 (2.14)	2.75 (1.75)
Recommend to Female Friend	2.56 (1.78)	2.55 (1.75)	2.57 (1.82)	2.48 (1.84)	2.68 (1.90)	2.53 (1.62)
Recommend to Male Friend	2.45 (1.65)	2.28 (1.57)	2.62 (1.73)	2.40 (1.60)	2.45 (1.83)	2.50 (1.57)
Desire for Similar Games	2.53 (1.79)	2.42 (1.80)	2.63 (1.79)	2.45 (1.92)	2.73 (1.94)	2.40 (1.52)
Length of Time Playing	687.29 (231.38)	652.37 (214.40)	722.22 (243.99)	689.65 (232.69)	719.63 (228.34)	652.60 (233.99)
Women's Actual Body Type	xxx	3.23 (0.81)	xxx	xxx	xxx	xxx
Women's Ideal Body Type	xxx	2.65 (0.78)	xxx	xxx	xxx	xxx
Men's Preferred Body Type	xxx	xxx	3.20 (0.95)	xxx	xxx	xxx
Character's Perceived Body Type	xxx	xxx	xxx	2.25 (0.78)	3.85 (0.48)	2.91 (1.44)

Table 3. Means for variables by participant gender and character type, M (SD)

	Female Participant			Male Participant		
Variable Name	Thin	Curvy	Hypersexual	Thin	Curvy	Hypersexual
Character Appraisal	1.80 (0.41)	1.35 (0.81)	1.35 (0.81)	1.45 (0.69)	1.50 (0.76)	1.40 (0.75)
Perceived Role - Main Hero	4.70 (1.78)	4.10 (2.08)	4.15 (1.84)	4.30 (1.59)	4.45 (2.06)	4.15 (2.06)
Perceived Role - Main Villain	2.50 (1.54)	2.80 (2.12)	3.70 (1.59)	2.80 (1.70)	2.70 (1.92)	3.80 (2.02)
Perceived Role - Damsel-in-Distress	1.90 (1.59)	2.20 (1.51)	2.10 (1.89)	3.50 (2.14)	2.65 (1.84)	3.95 (2.09)
Perceived Role - Sidekick	3.75 (1.41)	3.65 (1.38)	4.25 (1.24)	3.75 (1.19)	3.98 (1.13)	4.55 (1.39)
Perceived Role - Love Interest	3.68 (1.89)	4.20 (1.52)	4.30 (1.29)	4.30 (1.28)	4.78 (1.39)	5.35 (1.28)
Attractiveness Rating	6.63 (1.65)	5.88 (2.58)	5.45 (2.26)	6.00 (2.12)	7.18 (1.58)	7.25 (1.23)
Realism Rating	6.78 (1.96)	6.65 (2.24)	5.23 (2.24)	6.33 (2.01)	6.35 (2.15)	6.35 (2.15)
Before Game Play Identification	4.39 (1.88)	3.90 (2.27)	3.78 (1.97)	2.43 (1.39)	2.71 (1.83)	3.38 (2.32)
After Game Play Identification	2.84 (1.45)	2.74 (1.08)	2.99 (1.50)	3.05 (1.18)	2.76 (1.52)	2.82 (1.40)
Overall Presence of Identification	0.95 (0.22)	0.95 (0.22)	0.95 (0.22)	0.80 (0.41)	0.85 (0.67)	0.85 (0.67)
Presence Rating	3.79 (1.22)	3.42 (0.99)	4.02 (1.20)	3.97 (1.13)	4.45 (1.03)	3.64 (0.84)
Enjoyed Playing	3.10 (2.36)	3.35 (1.73)	3.55 (1.76)	3.85 (1.87)	4.20 (2.12)	3.00 (1.41)
Like Continue Playing	2.75 (2.36)	2.65 (1.84)	3.00 (1.95)	2.80 (1.70)	3.95 (2.26)	2.50 (1.54)
Recommend to Female Friend	2.45 (1.96)	2.25 (1.48)	2.95 (1.79)	2.50 (1.76)	3.10 (2.20)	2.10 (1.33)
Recommend to Male Friend	2.15 (1.50)	1.85 (1.31)	2.85 (1.79)	2.65 (1.69)	3.05 (2.09)	2.15 (1.27)
Desire for Similar Games	2.45 (2.16)	2.15 (1.31)	2.65 (1.87)	2.45 (1.70)	3.30 (2.30)	2.15 (1.04)
Length of Time Playing	677.70 (201.01)	666.55 (240.19)	612.85 (205.22)	701.60 (265.40)	772.70 (208.34)	692.35 (258.73)
Character's Perceived Body Type	2.15 (0.59)	3.90 (0.31)	4.70 (0.47)	2.35 (0.93)	3.80 (0.62)	4.40 (0.75)
Women's Actual Body Type	3.30 (0.73)	3.15 (0.75)	3.25 (0.97)	xxx	xxx	xxx
Women's Ideal Body Type	2.75 (0.97)	2.60 (0.68)	2.60 (0.68)	xxx	xxx	xxx
Men's Preferred Body Type	xxx	xxx	xxx	3.05 (0.89)	3.25 (0.97)	3.30 (1.03)

Table 4. Means for variables by the interaction of participant gender and character type, M (SD)

	Eigenvalues		
	Factor 1 7.415	Factor 2 2.636	Factor 3 1.011
Feel Similar to Self	.613		
Appearance Similar to Self	.732		
Like to Be More Similar	.834		
Identify With Character - Before Play	.738		
Remind of Self - Before Play	.808		
Represent Something Wish to Be - Before Play	.734		
See Self in Character - Before Play	.754		
Wishful Appearance	.751		
Behavior Similar to Self			.829
Way of Thinking Similar to Self			.747
Wishful Situation		.572	
Identify With Character - After Play		.785	
Remind of Self - After Play		.799	
Represent Something Wish to Be - After Play		.823	
See Self In Character - After Play		.737	

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 5 iterations.

Table 5. Factor analysis on identification scale-items

	Gender - Main Effects			
	Means - Male	Means - Female	F-score	p value
Main Hero	4.30, SD=1.89	4.32, SD = 1.89	none	none
Main Villain	3.10, SD=1.92	3.00, SD=1.81	none	none
Damsel in Distress	3.37, SD=2.07	2.07, SD=1.65	14.696	0.013
Sidekick	4.09, SD=1.26	3.88, SD=1.35	none	none
Love Interest	4.81, SD=1.37	4.06, SD=1.58	7.932	0.006

	Character Type - Main Effects					
	Means - Thin	Means - Curvy	Means - Hypersexual	F-score	p value	Post-Hoc
Main Hero	4.50, SD=1.68	4.28, SD=2.05	4.15, SD=1.93	none	none	
Main Villain	2.65, SD=1.61	2.75, SD=2.00	3.75, SD=1.79	4.428	0.014	T:H p=0.025 C:H p=0.048
Damsel in Distress	2.70, SD=2.03	2.43, SD=1.68	3.03, SD=2.18	none	none	
Sidekick	3.75, SD=1.29	3.81, SD=1.25	4.40 SD=1.31	3.078	0.05	T:H p=0.026 C:H p=0.044
Love Interest	3.99, SD=1.63	4.49, SD=1.47	4.83. SD=1.38	3.338	0.039	T:H p=0.035

Scale ranges from 1 (least suitable) to 7 (most suitable)
All Gender d.f. = 1, 114 All Character Type d.f. = 2, 114

Table 6. Means and main effects for perceived roles

	Interaction Effects - Without Controls			
	F-score	p value	Male x Character Type	Female x Character Type
Recommend to Male Friend	3.466	0.035	C: 3.05, SD=2.09 HS: 2.15, SD=1.27	C: 1.85, SD=1.31 HS: 2.85, SD=1.79
Overall Presence Rating	4.270	0.016	C: 4.45, SD=1.03 HS: 3.64, SD=0.84	C: 3.43, SD=0.99 HS: 4.02, SD=0.84

All Without Controls d.f. = 2, 114

	Interaction Effects - With Controls			
	F-score	p value	Male x Character Type	Female x Character Type
Like to Continue Playing	3.023	0.053	C: 3.80, SE=0.36 HS: 2.48, SE=0.38	C: 2.83, SE=0.38 HS: 3.19, SE=0.37
Recommend to Female Friend	3.104	0.049	C: 3.08, SE=0.35 HS: 2.08, SE=0.38	C: 2.29, SE=0.37 HS: 3.00, SE=0.36
Recommend to Male Friend	4.750	0.011	C: 3.04, SE=0.32 HS: 2.12, SE=0.34	C: 1.93, SE=0.33 HS: 2.87, SE=0.33
Desire for Similar Games	2.909	0.059	C: 3.28, SE=0.33 HS: 2.15, SE=0.35	C: 2.25, SE=0.35 HS: 2.63, SE=0.34
Overall Presence Rating	8.705	<0.001	C: 4.40, SE=0.19 HS: 3.42, SE=0.20	C: 3.69, SE=0.20 HS: 4.23, SE=0.19

T=Thin, C=Curvy, HS=Hypersexual
Scale ranges from 1 (not at all) to 7 (very much so)
All With Controls d.f. = 2, 103

Table 7. Interaction effects for engagement variables

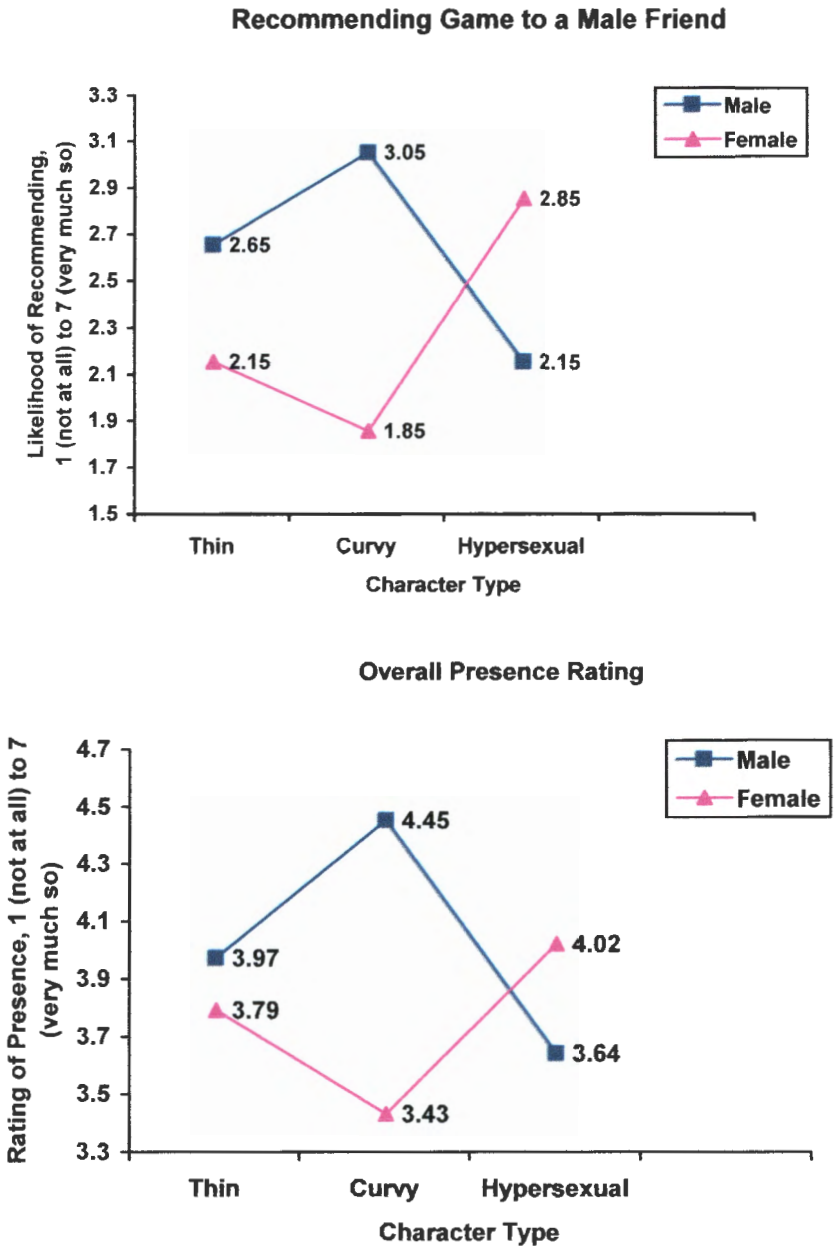
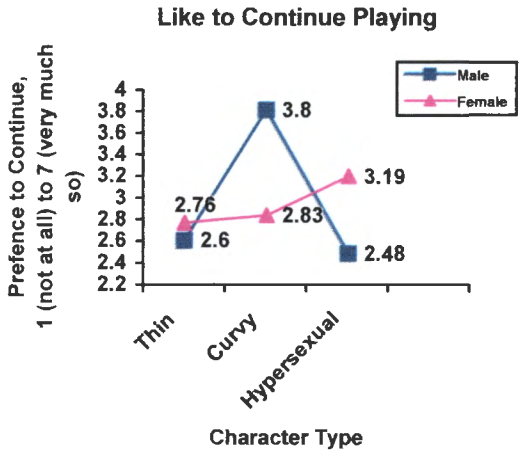
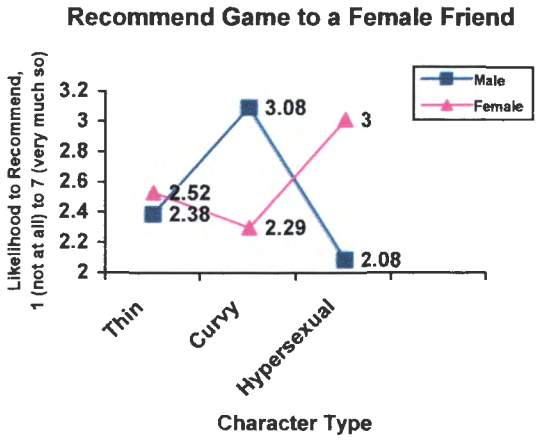
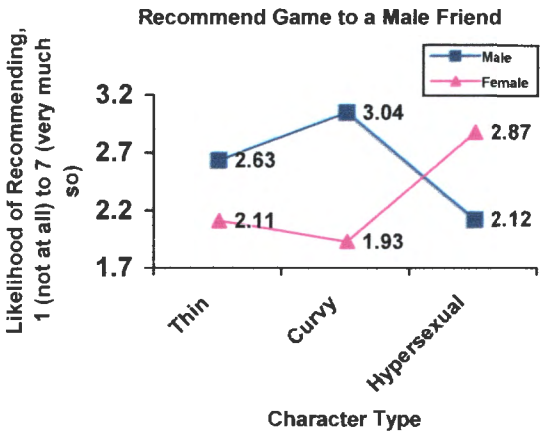
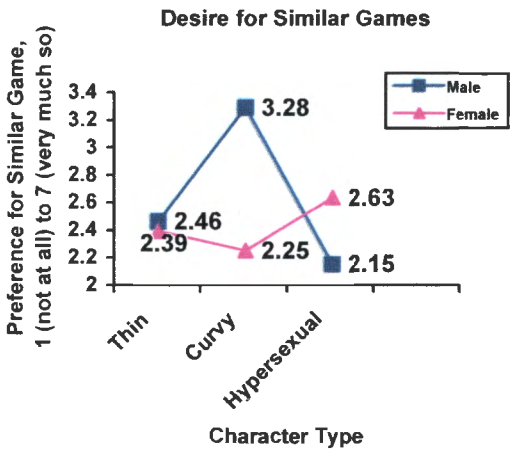


Figure 7. Significant ANOVAs, participant gender and character type on engagement variables









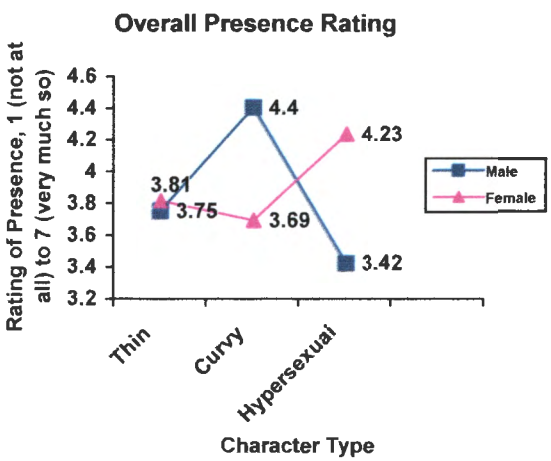


Figure 8. Significant ANCOVAs, participant gender and character type on engagement variables

	Attractive Rating	Realism Rating	Identification Before Game Play	Identification After Game Play	Character Appraisal
Enjoyed Playing Game	0.30 p<0.01	0.23 p=0.01	0.27 p<0.01	0.63 p<0.01	xxx
Like Continue Playing	0.33 p<0.01	0.29 p<0.01	0.28 p<0.01	0.62 p<0.01	xxx
Recommend to Female Friend	0.22 p=0.01	0.29 p<0.01	0.26 p<0.01	0.53 p<0.01	xxx
Recommend to Male Friend	0.25 p<0.01	0.28 p<0.01	0.28 p<0.01	0.53 p<0.01	0.27 p<0.01
Desire Similar Games	0.33 p<0.01	0.24 p<0.01	0.36 p<0.01	0.59 p<0.01	0.23 p=0.01
Length Time Played Game	xxx	0.20 p=0.03	xxx	0.21 p=0.02	xxx
Presence Rating	0.31 p<0.01	0.33 p<0.01	0.30 p<0.01	0.61 p<0.01	0.22 p=0.02

Gender: 1=Female, 0=Male; Character Type: 1=Thin, 2= Curvy, 3=Hypersexual

Table 8. Correlation relationships between attractiveness, realism, identification, and digital game engagement

Predictor Variable	β value	t-score	p-value	partial correlation	squared semipartial correlation
	Enjoyed Playing Game				
Participant Gender	-1.953	-2.216	0.029	0.203	0.037
Character Type	-1.431	-2.197	0.03	0.202	0.036
Interaction Gender x Character Type	0.911	2.195	0.03	0.201	0.036
Attractive Rating	0.312	3.602	<0.001	0.320	0.099
	Like to Continue Playing				
Attractive Rating	0.346	3.820	<0.001	0.337	0.112
	Recommend to Female Friend				
Attractive Rating	0.234	2.809	0.006	0.254	0.065
	Recommend to Male Friend				
Participant Gender	-1.737	-2.238	0.027	0.205	0.039
Character Type	-1.127	-1.961	0.052	0.181	0.030
Interaction Gender x Character Type	0.804	2.195	0.03	0.201	0.038
Attractive Rating	0.232	3.037	0.003	0.274	0.072
	Desire for Similar Games				
Attractive Rating	0.316	3.852	<0.001	0.339	.114
	Overall Presence Rating				
Participant Gender	-0.946	-1.853	0.066	0.171	0.026
Character Type	-0.704	-1.865	0.065	0.172	0.027
Interaction Gender x Character Type	0.473	1.967	0.052	0.181	0.030
Attractive Rating	0.185	3.676	<0.001	0.326	0.103

Table 9. Regression model of attractiveness to predict engagement, without controls

Predictor Variable	β value	t-score	p-value	partial correlation	squared semipartial correlation
	Enjoyed Playing Game				
Participant Gender	-1.202	-2.23	0.028	0.209	0.039
Character Type	-1.222	-1.85	0.067	0.171	0.027
Interaction Gender x Character Type	0.800	1.897	0.006	0.175	0.029
Realism Rating	0.220	2.707	0.008	0.246	0.058
	Like to Continue Playing				
Realism Rating	0.284	3.373	0.001	0.301	0.089
	Recommend to Female Friend				
Realism Rating	0.221	2.889	0.005	0.261	0.067
	Recommend to Male Friend				
Participant Gender	-1.893	-2.453	0.016	0.224	0.046
Character Type	-1.040	-2.847	0.067	0.170	0.026
Interaction Gender x Character Type	0.787	2.191	0.03	0.201	0.037
Realism Rating	0.242	3.493	0.001	0.311	0.094
	Desire for Similar Games				
Realism Rating	0.213	2.749	0.007	0.249	0.062
	Length of Time Played				
Realism Rating	20.766	2.068	0.041	0.190	0.035
	Overall Presence Rating				
Participant Gender	-1.065	-2.107	0.037	0.194	0.033
Character Type	-0.631	-1.713	0.089	0.158	0.022
Interaction Gender x Character Type	0.457	1.943	0.055	0.179	0.028
Realism Rating	0.189	4.162	<0.001	0.363	0.128

Table 10. Regression model of realism to predict engagement, without controls

Predictor Variable	β value	t-score	p-value	partial correlation	squared semipartial correlation
	Enjoyed Playing Game				
Participant Gender	-2.581	-2.863	0.005	0.239	0.062
Character Type	-1.456	-2.247	0.027	0.206	0.038
Interaction Gender x Character Type	0.882	2.149	0.034	0.197	0.035
Before Game Play Identification	0.825	3.822	<0.001	0.337	0.110
	Like to Continue Playing				
Participant Gender	-1.757	-1.842	0.068	0.170	0.026
Before Game Play Identification	0.828	3.625	<0.001	0.321	0.102
	Recommend to Female Friend				
Participant Gender	-1.668	-1.933	0.056	0.178	0.030
Before Game Play Identification	0.682	3.298	0.001	0.295	0.086
	Recommend to Male Friend				
Participant Gender	-2.342	-3.006	0.003	0.271	0.067
Character Type	-1.214	-2.168	0.032	0.199	0.035
Interaction Gender x Character Type	0.825	2.327	0.022	0.213	0.040
Before Game Play Identification	0.746	4.001	<0.001	0.351	0.119
	Desire for Similar Games				
Participant Gender	-1.733	-2.078	0.04	0.191	0.031
Before Game Play Identification	0.953	4.772	<0.001	0.408	0.165
	Overall Presence Rating				
Participant Gender	-1.379	-2.689	0.008	0.244	0.052
Character Type	-0.749	-2.033	0.044	0.178	0.030
Interaction Gender x Character Type	0.475	2.035	0.044	0.187	0.030
Before Game Play Identification	0.547	4.457	<0.001	0.385	0.144

Table 11. Regression model of before game play identification to predict engagement, without controls

Predictor Variable	β value	t-score	p-value	partial correlation	squared semipartial correlation
	Enjoyed Playing Game				
Participant Gender	-1.294	-1.700	0.092	0.160	0.015
Character Type	-0.951	-1.755	0.082	0.165	0.016
Interaction Gender x Character Type	0.608	1-760	0.081	0.166	0.016
After Game Play Identification	1.469	7.194	<0.001	0.566	0.261
	Like to Continue Playing				
Attractive Rating	0.175	1.895	0.061	0.178	0.019
After Game Play Identification	1.501	6.976	<0.001	0.554	0.253
	Recommend to Female Friend				
After Game Play Identification	1.108	5.196	<0.001	0.444	0.171
	Recommend to Male Friend				
Participant Gender	-1.610	-2.263	0.026	0.211	0.030
Character Type	-0.867	-1.711	0.09	0.161	0.017
Interaction Gender x Character Type	0.684	2.119	0.036	0.198	0.014
After Game Play Identification	0.937	4.913	<0.001	0.424	0.141
	Desire for Similar Games				
After Game Play Identification	1.158	5.757	<0.001	0.481	0.184
	Length of Time Played				
Realism Rating	20.415	1.790	0.076	0.168	0.026
After Game Play Identification	64.854	2.083	0.04	0.195	0.035
	Overall Presence Rating				
Participant Gender	-0.741	-1.692	0.093	0.159	0.014
Interaction Gender x Character Type	0.355	1.789	0.076	0.168	0.016
Plays Digital Games	0.408	2.202	0.030	0.205	0.024
Realism Rating	0.089	2.080	0.040	0.195	0.022
After Game Play Identification	0.770	6.565	<0.001	0.531	0.214

Table 12. Regression model of after game play identification to predict engagement, with controls