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Keeping Abreast of Hypersexuality: A Video Game Character Content Analysis

Edward Downs · Stacy L. Smith

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Abstract This study examined male and female sexuality in video game characters. The top 20, best selling console (Microsoft Xbox, Sony PlayStation2, and Nintendo GameCube) video games from the U.S. market for fiscal year 2003 were content analyzed. The 60 video games yielded a total of 489 separate characters with an identifiable sex for coding. Chi-square analyses indicated that female characters (n=70) were underrepresented in comparison to their male counterparts (n=419) as hypothesized. In comparison to male characters, females were significantly more likely to be shown partially nude, featured with an unrealistic body image, and depicted wearing sexually revealing clothing and inappropriate attire as also predicted. Implications for these findings are discussed using social cognitive theory as a theoretical anchor.

Keywords Video games · Sexuality · Content analysis · Social cognitive theory

Introduction

This content analysis set out to chronicle depictions of male and female characters' sexuality in popular console video games. Just as with traditional media such as television, movies, and print media, video game players may pick up cues from video game characters that create or strengthen cognitive scripts about gender roles and sexual objectification (for review, see American Psychological Association 2007). Because video games are an increasingly popular media pastime (Roberts et al. 1999; Kaiser Family Foundation 2002), it is important to know how male and female characters are portrayed. Social cognitive theory provides a theoretical grounding to understand how game players may learn sexual stereotypes through modeled behavior in video game play (Bandura 2002). In the present study, characters from 60 console video games were coded on a number of various overt sexuality variables, including; sexually revealing clothing, nudity, unrealistic body proportions, appropriateness of attire, breast size, and waist size. Frequencies were tallied and chi-square analyses were conducted to determine: (1) if male and female characters were equally represented in video games (2) if male and female characters were portrayed differently with respect to their sexuality (3) if the ESRB rating system adequately filtered out sexuality variables by rating and (4) whether or not sexual depictions of male and female characters were associated with any one particular brand of game console. The following literature review will elaborate on how gamers may learn through modeled behavior and discuss each of the overt sexuality variables in turn.

In the past decade video games have been put under the media microscope. Empirical studies focusing on violence dominate the research literature (Dill and Dill 1998; Vorderer and Bryant 2006; Weber et al. 2006). However, as violent characters became standard fare in many videogames (Provenzo 1991), sexual ones also have found a market in this medium (Smith 2006). Lara Croft from the *Tomb Raider* series and Helena from the *Dead or Alive* series are examples of unrealistically proportioned female

E. Downs (✉)
University of Minnesota, Duluth,
465 A.B. Anderson Hall, 1121 University Drive,
Duluth, MN 55812, USA
e-mail: epdowns@d.umn.edu

S. L. Smith
University of Southern California,
3502 Watt Way, ASC 222,
Los Angeles, CA 90089, USA
e-mail: stacy.smith@usc.edu

characters that fight and play in skin-tight, revealing outfits. Advocate group Children Now referred to these voluptuous, disproportionately sized characters as "hypersexualized" (Heintz-Knowles and Henderson 2001, p. 15). In the context of video game media, the term hypersexuality is conceptually different from, and should not be confused with the gender-neutral term that clinicians use for nymphomania or satyriasis. For the purpose of this manuscript, hypersexuality will be used as a synonym for depictions of overtly sexualized characters in video games.

Incidents such as the July 2005, *Grand Theft Auto: San Andreas*, "Hot Coffee" sex-scene scandal, have sparked various legislative actions across the U.S. looking to restrict the sale of video games containing sex and violence (Feldman 2005). Similar concerns stemming from the earliest generation of video games led to the development of the *Entertainment Software Review Board* (ESRB) in 1994. The ESRB rates video games for the appropriateness of different types of content for varying age groups. Sexual content is one feature that the ESRB regularly monitors, focusing on assessing mature humor, nudity, sexual themes, sexual violence, strong sexual content, and suggestive themes. Once rated by the ESRB, video games are distributed through retail outlets nation wide, regardless of the content therein. Video game jackets are labeled with ESRB ratings and descriptors to identify the types of content that gamers will experience during game play. However, it is up to the discretion of individual retailers to enforce whether or not underage consumers are purchasing age-appropriate content (Smith 2006).

The use of sexual content in video games may be a strategic attempt to lure the most avid game player, an adult male (Entertainment Software Association 2004). Yet video games are also popular with younger audiences who are just starting to develop ideas about sexuality. Results from a national study funded by the Kaiser Family Foundation (KFF) found that 16% of 4- to 6-year-olds play video games daily. Typically, children spend an hour per day playing, with girls devoting an average of 53 min and boys 68 min (KFF 2002). Another nationwide KFF survey (Roberts et al. 1999) found that 8- to 18-year-olds play video games 27 min a day, with boys spending considerably more time gaming than girls (41 min vs. 12 min, respectively). Thus, children may likely be exposed to many sexualized portrayals very early in their socio-emotional development.

If video game content were sexualized in nature, what type of impact would portrayals of sexuality in video games have on youth? The growing body of literature on the influence of television on sexual socialization and stereotyping can give us some idea. Studies have shown that children begin to develop attitudes toward body types between the ages of six and seven years and as children get older these attitudes become stronger (Spitzer et al. 1999). Differences between female body sizes in the media and actual body sizes have been linked to eating disorders (Field et al. 1999), low self-esteem (Polce-Lynch et al. 2001), body dissatisfaction (Harrison and Cantor 1997), feelings of objectification (Frederickson and Roberts 1997), and to the attitude that women's bodies are projects that need to be worked on (Brumberg 1997, c.f. Murnen et al. 2003). With effects such as these it should come as no surprise that one study noticed an inverse relationship between playing video/computer games and girls' self-esteem scores (Funk and Buchman 1996).

Females are not the only ones affected by unrealistic body images in the media. Portrayals of muscle-bound men may also set standards for male gamers. Such depictions may contribute to body dissatisfaction among some men, as well as such risky behaviors as steroid use (Labre 2002). Sexualized portrayals of women in the media have been linked to objectification, leading some males to view women and their bodies as possessions (Frederickson and Roberts 1997). Adolescent males' learning to objectify women from media may lead to negative social, legal, and relational damage.

Because hypersexualized video game characters may encourage or reinforce these negative effects, it is necessary to understand how this may occur. Social cognitive theory (Bandura 2002) provides a theoretical framework to understand how children and adolescents can learn attitudes and beliefs from exposure to video game characters. Bandura (2002) proposed that *attention, retention, production,* and *motivation* are processes that govern our ability to learn through observation.

Attentional processes are those that determine which information and observed actions are extracted from a modeled, learning environment. Attractiveness is one variable that affects attentional processing. If a game character is perceived as attractive, observers may be more likely to find them socially acceptable and influential (Bandura 2002). A recent quote from a game reviewer suggests: "There's no arguing that sex sells. And with the typical gamer a young adult male, you can't really blame the industry for catering to their target audience" (Morris 2002, n.p.). Overtly sexual, provocatively dressed, or partially naked male or female characters may be very attractive, attention-getting attributes of video game play.

Getting a gamer's attention is not enough to invoke learning. Without the ability to symbolically code and retain information, Bandura argues (2002, p. 127) observational learning would not be possible. Retention processes involve restructuring modeled events into rules for memory (Bandura 2002). In video games, a player has the ability to witness how characters present themselves and interact with other characters over and over again. Recalling that 8- to 18-year-old

males typically play video games for 41 min per day (Kaiser Family Foundation 2002), repeated exposure through extended play should make it very easy for a video game player to create, rehearse, and strengthen symbolic representations of events. Gender schema theory suggests (Calvert and Huston 1987) and subsequent research reveals that exposure to stereotyped, sexual interactions on television can provoke schema that categorize women as sexual, submissive, and less intelligent than their male counterparts (Thompson and Pleck 1986). As such, repeated exposure to attractive, scantly clad female characters may be problematic for young, male gamers' sexual and relational development.

Production processes "guide the construction and execution of behavior patterns" (Bandura 2002, p.129) which can then be compared to the symbolic representations stored in memory. In using a symbolic representation of a modeled act, a person can adapt it for use in a variety of different situations. Gamers could learn attitudes and beliefs about sex roles and gender stereotyping and apply them to real world situations they find themselves in each day. For example, if a game player notices that males in video games are active, problem-solving heroes and women are incapable and always needing help from men, sex-based stereotypes may manifest themselves in the home, school, or in other social circles.

Motivational processes (Bandura 2002, pp. 129–130) revolve around a person's ability to create, change, and modify his or her behavior within a social structure. If attitudes are shared by a peer group or reinforced the schemata are likely to be strengthened. Studies generally support this rationale in the violence domain. Children and adults who are exposed to models that are rewarded or not punished for violent actions are more likely to be aggressive immediately after viewing (Bandura 1965; Lando and Donnerstein 1978; Paik and Comstock 1994). Video games certainly contain reward mechanisms. Increases in scores, extra lives, or access to passwords or codes can serve as agents of reinforcement. In the game *BMX XXX*, players who successfully accomplish the missions are rewarded with codes to view real video clips of exotic dancers performing a strip-tease.

To summarize, video game players, through repeated exposure to attractive, overtly sexualized characters, may begin to develop scripts about gender stereotypes. When sex is used as a reward, players may assume that this type of activity is reinforced and sanctioned by society. Because of this, it is important to examine sexuality in video games.

Video Game Content

Several studies have examined stereotypical portrayals in video game content. In one of the earliest studies, Dietz (1998) examined gender stereotyping in 33 of the most popular Nintendo and Sega Genesis video games. The results revealed that almost half of the games (41%) were devoid of female characters. When human women were portrayed, 21% of the time they were depicted as "damsels in distress" or as "visions of beauty" (Dietz 1998, p. 434). For the games that contained human characters, 28% showed women as sex objects.

Three years later, Children Now (Heintz-Knowles and Henderson 2001) assessed 70 games for violence, gender, and racial diversity. The ten top-selling games across platforms and hand-held devices were unitized at both the game and character levels. The findings revealed that of the 874 characters coded, 73% were male and 12% were female. Video game players had more opportunities to select playing as a non-human character, such as a robot or anthropomorphized being (e.g. *Sonic the Hedgehog*) than a female character. This analysis also found that women were often hypersexualized. Nearly 20% of the female characters in the sample were shown with unrealistic body sizes. In terms of clothing, 21% of female characters bared their breasts, 13% brandished their buttocks, and 20% modeled their midriffs. Finally, female characters were twice as likely as males to be coded as wearing seductive attire (Heintz-Knowles and Henderson 2001).

Similar to Children Now's research, Beasley and Standley (2002) examined clothing as an indicator of gender stereotyping in games rated E (i.e., for everyone), T (i.e., for teen audiences, aged 13 years and older), and M (i.e., for mature audiences, 17 and older). Forty-seven Nintendo 64 and Sony PlayStation games were assessed. Consistent with previous findings, results revealed that out of almost 600 characters, less than 14% were women. They also demonstrated that female characters wore clothing that exposed more skin than did male characters. Out of all female portrayals, nearly 41% were coded as "voluptuous." Also noteworthy was of those 41% of voluptuous women, 31% were featured in video games with an ESRB rating of "E" for everyone (Beasley and Standley 2002).

More recently, Haninger and Thompson (2004) assessed 81 T-rated games for Nintendo 64, Sega Dreamcast, Sony PlayStation, and Sony PlayStation2 consoles. The results revealed that 27% of their 81-game sample depicted sexual themes and profanity. They also noted that their sample was significantly more likely to depict women as compared to men as partially nude and/or engaged in sexual behaviors.

To summarize, previous content analyses demonstrate that women are far less likely to appear in video games than are male characters. When women are present, they are more likely than men to be portrayed as sex objects, with unrealistic body proportions and considerable amounts of

exposed skin. Based on this literature, two hypotheses are advanced:

> H_1: Female video game characters will appear less frequently than will male characters.
> H_2: Female video game characters will appear more sexualized than will male characters.

We are also interested in determining how good the ERSB rating system is when it comes to filtering out sexualized portrayals of video game characters. According to the ESRB rating system, E-rated games (rated for game players of all ages) should not contain any of the variables associated with overt sexuality including; partial or full nudity, references to sex, mature humor, or other sexual content. T games (i.e., for teens) should contain only suggestive themes, and M games (i.e., for mature players) may contain any or all of the variables associated with sexuality (excluding graphic depictions of sex). Yet, previous research suggests that ESRB does not always rate objectionable content consistently (Haninger and Thompson 2004). Thompson and Haninger (2001) found that 14 E-rated games in their sample did not receive a content label for violence from the ESRB even though it was warranted. To assess the dependability of the ESRB's rating system with regards to overtly sexual portrayals, the first research question in this study asks:

> RQ_1: Does the ESRB rating system consistently filter out variables related to depictions of overt sexuality (i.e. sexually revealing clothing and nudity) and objectification (i.e. unrealistic body proportions, waist site, breast size, and appropriateness of attire for the task at hand)?

In addition to ESRB rating, another variable that may be related to depictions of sexuality is the brand of console upon which video games are played. Web site reviews about game consoles do not identify any one console as providing more racy content than another, although all three manufacturers in this study (Nintendo, Sony, and Microsoft) provide game titles with sexual content (Loftus 2004; Parents Television Council 2004). However, if there is a console manufacturer that tends to have a significantly higher incidence of sexualized characters, this is information that parents would want to know. Given this lack of information in the empirical literature and in the popular press, the second research question asks:

> RQ_2: Is there a particular brand of video game console that displays sexualized characters more frequently than the others?

Method

Sample

A total of 60 top-rated games for the Nintendo GameCube (n=20), Sony PlayStation2 (n=20), and Microsoft Xbox (n=20) were analyzed. Within each platform, the sample included the top-selling games based on available sales figures from the NPD Group (formerly known as the National Purchase Diary) for 2003. This purposive sample was selected as sales are a good indicator for what some of the most frequently witnessed character images are. Theoretically, these are the images that the greatest number of gamers would be paying attention to and learning from. The sample of games included 22 E-rated games, 23 T-rated games, and 15 M-rated games. Three undergraduates with considerable gaming experience were randomly assigned to play the video games from the beginning of each game for 20 min in single player mode. Each game was played only once by one of the three game players so that 60 game titles provided 60 taped game segments. Game play was captured on VHS tapes via a videocassette recorder. Before taping, video game players were given 20 min to read through the instruction manual to learn about character moves and objectives for game play. Game players were then allowed to practice moves and get a feel for the game for another 20 min. Finally, after the practice round, gamers recorded a 20 min segment of game play. In the summer of 2004, three coders (two of the three coders were different from those who originally played the games) were randomly assigned to code the tapes containing the 20-min segments for various character attributes.

Units of Analysis

There were two units of analysis that were attended to in this study: (1) game segment and (2) video game character. Game segment consists of the 20-min pre-recorded sample of each video game. The variables coded at the game level were ESRB rating (E, T, and M) and brand of console (Microsoft Xbox, Nintendo GameCube, and Sony PlayStation2).

At the character level, only attributes of primary and secondary characters were assessed. This addressed Beasley and Standley's (2002) concern that "in future studies, characters should be coded as to their importance in the video game" (p. 290). The three categories of characters for the variable *character type* were primary, secondary, and tertiary. Primary characters were those that a video game player could actively manipulate and control onscreen. In almost all cases, the primary character was the protagonist or the person around which the plot and successful completion or failure of the game's objective centered.

Secondary characters were those characters that were immediately tied to game play or related to the primary character (i.e., they aided or deterred the primary character from fulfilling his or her quest). Tertiary characters represented the last tier of characters in character taxonomy. Tertiary characters were those that helped to make up the background of the game, but were not involved in the action of the game. Often, they took the form of random pedestrians or people in a crowd. This study chose to focus on primary and secondary characters only as these characters are more likely to be focused on because of their importance to game play and game completion.

Based on the review of literature and social cognitive theory, two types of character measures were analyzed: demographic measures and hypersexual qualities. The following variable definitions were constructed by the authors (unless otherwise referenced), taught to coders, and tested for reliability.

Demographic Variables

The first demographic variable coded was s*pecies*. Species were comprised of related organisms or populations potentially capable of interbreeding. Species were coded as human, animal, robot, supernatural creature (a creature that does not exist in the world or exhibits excessive size in regards to current biological limitations, e.g. fire-breathing dragons, Clifford the Big Red Dog), anthropomorphized animal (those animals and creatures that possess and exemplify human-like characteristics such as talking, bipedal locomotion, using tools, wearing clothes are all human characteristics, e.g. "Brian" the Griffin's dog in the *The Family Guy*), and anthropomorphized supernatural creature (differs from an anthropomorphized animal in that it bears a human-like form as opposed to an animal form). To fit in this category, characters must fit the criteria for a supernatural creature and have a decidedly human form (e.g. elves, Count Dracula, or the Incredible Hulk).

The second demographic quality was *biological sex*. It was coded as male, female, no sex, or cannot tell.

The third demographic variable was *apparent race*. Apparent race was based on heuristic cues such as skin color and facial features, and coded as Caucasian, African, Hispanic, Asian/Pacific Islander, Native American, other, not applicable, or cannot tell.

The fourth variable was *resolution*. Resolution referred to the image quality (i.e., sharpness, clarity) of the onscreen graphics and was coded low (i.e., pixilated graphics with irregular boundaries, choppy motion sequencing, little or no shadowing), medium (i.e., fairly seamless motion sequencing, some shadowing), and high (i.e., 3-D animation, character shadowing, fluid motion).

Overt Sexuality and Objectification Variables

Overt sexuality was defined as excessive concern with, or indulgence in, a sexualized appearance or activity. Initially, ten different variables assessed aspects of overt sexuality and objectification. The variables *physical attractiveness* and *role* were originally coded, however, they were dropped from the study as they did not meet the predetermined minimum level of .80 for intercoder reliability. Of the remaining eight variables, the first was *sexually revealing clothing*. This referred to any garment that was worn in order to enhance, exaggerate, call attention to, or accentuate the curves or angles of any part of the body (from the neck to above the knee) and which, by design, would arouse interest of physical intimacy from others. The presence of sexually revealing clothing was coded as yes, no, not applicable, or cannot tell.

The second variable assessed was *nudity*. Nudity referred to the amount of exposed skin a character displayed. The levels were none (i.e., body was covered in such a way that there was no visible skin from the knees to the neckline about the shoulders as by an unaltered crew-neck, t-shirt, or tank top), partial (i.e., exposed midriffs and/or cleavage for women, shirtless males, exposed thighs, and/or buttocks for men and women), full (i.e., human character's body did not appear to be covered by any clothing, save shoes or a hat, or if a covering of any sort as by a towel or such was transparent in nature*)*, not applicable, or cannot tell.

The third variable was character *body proportion*. Character body proportion was defined as the harmonious relation of parts to each other or to the whole as it applies to a human body. This variable was gauged by the propensity of characters to resemble an average male or female human. The variable character body proportion examined all aspects of the body including feet, legs, waist, hips, breasts, head size, and so forth. Breast size and waist size are not mutually exclusive of this variable but do contribute to overall body proportioning. The decision was made to examine breast size and waist size individually as previous studies (Beasley and Standley 2002; Harrison 2003) have validated the import of looking at them in isolation. Coders were trained to consider whether they thought the average person could look like the character without the aid of augmentation, plastic surgery, or chemical injections. Specifically, they were instructed to look for comic book or "Barbie-like" proportions in women (which would be coded as unrealistic, e.g. Laura Croft) and over-bulging musculature on men (which would be considered unrealistic, e.g. The Incredible Hulk). By definition, any woman or man with an overly exaggerated chest-size, extremely long legs, or a disproportionately small waist would be coded as having an unrealistic image. The codes for this variable were realistic, unrealistic, not applicable, or cannot tell.

The fourth variable assessed was *sex talk*. Consistent with previous research (Kunkel and Cope 1999), sex talk referred to any verbal reference or dialogue regarding sex or sexual issues. Sex talk was coded as present or absent.

The fifth variable, *sexual behavior*, was coded independently from sex talk. Sexual behavior was defined as a character's actions that imply a sense of likely sexual intimacy (Kunkel et al. 2003). Presence of sexual behavior was coded as yes or no.

The sixth variable coded was *appropriateness of attire*. Appropriateness of attire was defined as the degree to which garments worn by a character were suitable and functional with respect to the task at hand. For example, if a woman beside a pool wore a swimsuit, this was considered appropriate. However, if the same woman wore a swimsuit while competing in a dirt bike race, then the swimsuit was considered inappropriate. This variable was coded as appropriate, inappropriate, not applicable, or cannot tell.

The seventh variable was *breast size*. For female characters only, breast size was coded as flat, average, voluptuous (Beasley and Standley 2002), or cannot tell.

Finally, the eighth variable was *waist size*. This code examined the waistline of characters in proportion to the rest of the body. The codes for this variable were disproportionately small, average, disproportionately large, or cannot tell.

Coder Training and Reliability

A total of three undergraduate coders from a large west-coast university coded all of the 20-min, pre-recorded video game segments. The coders received weeks of extensive classroom and lab training prior to coding the sampled games. Scott's Pi (π) with the Potter and Levine-Donnerstein correction formula (1999) was used to calculate intercoder reliability. Coders did not begin assessing game segments until they reached a reliability of .80 or better for every code during training. The following are the Scott's Pi reliability estimates for each of the above mentioned variables: character type (1.0), species (1.0), biological sex (.99), apparent race (.88), resolution (1.0), sexually revealing clothing (.87), nudity (.90), body proportion (.82), sex talk (.99), sexual behavior (1.0), appropriateness of attire (.90), breast size (.98), waist size (.88), verbal sex as a reward for character (1.0), and nonverbal sex as a reward for the character (1.0).

Characters

Of the top 20 games played on each platform (Microsoft Xbox, Nintendo GameCube, and Sony PlayStation2) coders distinguished 576 different primary and secondary characters for analysis. Because many video games contain multiples of certain characters that are indistinguishable from one another, only single images were coded and frequency or replicate characters was noted. For example, in *The Hulk* video game, many Army characters were observed that were indistinguishable from one another. When this occurred, the coder completed the codes for the individual character and then tallied the frequency for which that character occurred in the video game. The tallies of replicates were not used in any of the statistical analyses. Therefore, if 100 identical looking Army soldiers appeared, it only counted toward one of the 576 total characters included in this sample. For descriptive purposes only, a total of 11%, or 56 of the characters in the sample featured replicates. Of those characters that featured replicates, a total of 38% featured one–five replicates, 30% featured six–15 replicates, 23% featured 16–42 replicates and 7% featured 74–361 replicates.

Because we were interested in portrayals of sexuality, only those characters that could be identified as male or female remained in the sample. A total of 87 characters were excluded from analysis. Of the remaining 489 characters, 196, or 40%, of the characters appeared in E-rated games; 165, or 34%, appeared in M-rated games; and 128, or 26%, appeared in T-rated games. A majority of the characters, 371, or 76%, were classified as secondary, and just under a quarter, 118, or 24%, were classified as primary. Almost all characters, 486, or 99%, were viewed in high resolution.

Most characters in the sample were human 430, or 88%, followed by anthropomorphized characters, 49, or 10%, supernatural creatures, eight, or 1.6%, robots, one, or .2%, and animals, one, or .2%. In terms of apparent race, 246, or 50%, of the 489 characters were Caucasian, followed by 101, or 21%, African, 36, or 7% Asian/ Pacific Islander, and 14, or 3%, Hispanic. A total of 92, or 19%, of the characters had an unidentifiable race or were coded as not applicable.

Looking at apparent race by biological sex, 465 characters had available codes for both variables. These characters break down into the following groups: Out of 246 Caucasian characters, 32, or 13%, were female. Out of the 101 African characters, nine, or 9%, were female. For the 14 Hispanic characters, two, or 14%, were female. For the 36 Asian/Pacific Islanders, nine, or 25%, were female. The other three categories, other, cannot tell and mixed, combined for 68 instances with 15, or 22%, being female.

Results

Chi-square analyses were executed on each overt sexuality variable blocking by gender, rating, or console. Outside of meeting the normal assumptions for conducting chi-square

analyses, two criteria were used to determine the significance of any finding (unless otherwise noted). First, only chi-squares that were statistically significant at the $p<.05$ level were reported. Second, only those percentages that differed by 10% or more were delineated. In this way, the findings would reflect both statistical and practical differences in the patterns of overtly sexual portrayals in video games. The sample size for some analyses varied, as items coded "cannot tell" or "not applicable" were excluded.

It was expected in hypothesis one that female characters would appear less frequently than would male characters. A substantially higher proportion of male characters (86%, $n=419$) than female characters (14%, $n=70$) were featured in the video games. A one-way chi-square yielded a significant effect for biological sex across all types of characters (primary and secondary), χ^2 (1, $n=489$) = 249.08, $p<.01$ (see Table 1 for summary). A similar pattern held when examining biological sex of primary characters only, χ^2 (1, $n=118$) = 68.60, $p<.01$. Substantially more males (88%) were primary characters than were females (12%). A one-way chi-square also revealed a significant effect for secondary characters, χ^2 (1, $n=371$) = 180.80, $p<.01$. Secondary characters were more likely to be males (85%) than females (15%). Thus, data are highly consistent with Hypothesis 1.

Hypothesis two predicted that female characters would appear more sexualized in nature than would male characters. To test this hypothesis, each overt sexuality variable (sexually revealing clothing, nudity, body proportion, sex talk, sexual behavior, appropriateness of attire, breast size, and waist size) was assessed by biological sex. All primary and secondary characters coded as male or female were included in the analyses. In terms of sexually revealing clothing, a significant chi-square was observed by biological sex, χ^2 (1, $n=469$) = 39.70, $p<.001$, $\Phi=.29$. A higher proportion of female characters (41%) than male characters (11%) were portrayed in sexually revealing clothing (see Tables 2 and 3 for summary).

Table 1 Frequency of characters by ESRB rating, console platform, and sex.

ESRB by sex	Console platform			
	Microsoft X-Box	Sony PlayStation2	Nintendo GameCube	Total
Everyone				
Men	$n=44$	$n=72$	$n=69$	185
Women	$n=1$	$n=2$	$n=8$	11
Teen				
Men	$n=29$	$n=35$	$n=37$	101
Women	$n=10$	$n=11$	$n=6$	27
Mature				
Men	$n=72$	$n=51$	$n=10$	133
Women	$n=12$	$n=19$	$n=1$	32
Totals	168	190	131	489

The impact of biological sex on nudity also was explored. Prior to executing the analysis, the nudity variable was collapsed into two levels: no nudity (none) versus some nudity (partial or full; this variable was collapsed as only four instances of full nudity occurred). A chi-square analysis revealed a statistically significant effect, χ^2 (1, $n=468$) = 99.88, $p<.001$, $\Phi=.46$. When compared to male characters (4%), a higher proportion of female characters (43%) were depicted nude (partial or full).

Next, body proportion was examined. This variable was reduced to two categories (characters coded not applicable or cannot tell were disregarded) in order to examine differences between realistic versus unrealistic body proportions for men and women. A chi-square revealed a significant difference in body proportion by biological sex, χ^2 (1, $n=464$) = 67.15, $p<.001$, $\Phi=.38$. Female characters were more likely to be shown with unrealistic body proportions (25%) than were male characters (2%).

The overt sexuality variables sex talk and sexual behavior occurred infrequently in the data set. Across the entire sample of characters, only one instance of sex talk and five instances of sexual behavior were observed. Due to this low observed n, chi-square analyses could not be executed.

The appropriateness of the character's attire also was examined. A significant chi-square was observed for this variable by biological sex, χ^2 (1, $n=472$) = 36.94, $p<.001$, $\Phi=.28$. A larger proportion of female characters (16%) than male characters (2%) were shown wearing clothing that would not be appropriate for completing the task at hand.

The waist size of characters also was examined as an unusually small waist size can contribute to the "curvaceously thin" ideal (Harrison 2003, p. 256) and accentuate breast size. This variable was collapsed into two categories: small waist versus not small waist. A chi-square analysis revealed a significant difference by sex, χ^2(1, $n=461$) = 140.88, $p<.001$, $\Phi=.55$. When compared to males (1%), female characters were more likely to be displayed with small waists (40%). Overall, statistically significant and practically important differences were observed across five of the seven variables applicable to both sexes measuring attributes of overt sexuality. This pattern of results was consistent with hypothesis two.

Research question one asked if the ESRB rating system consistently filtered out variables related to depictions of overt sexuality and objectification. Across the overt sexuality variables (sexually revealing clothing and nudity) and objectification variables (inappropriate attire, body proportion, and waist size) only one analysis including

Table 2 Frequency and percentage of characters showing hypersexuality indicators by ESRB rating.

Percentages have been rounded to the nearest whole percent in all tables

[a] Indicates significance at $p<.001$

Hypersexuality indicators	Everyone	Teen	Mature	Total
Sexually revealing clothing	$n=35$ (19%)	$n=14$ (11%)	$n=24$ (15%)	$n=73$ (16%)
Partially or totally nude[a]	$n=4$ (2%)	$n=19$ (15%)	$n=22$ (14%)	$n=45$ (10%)
Unrealistic body proportion	$n=5$ (3%)	$n=8$ (7%)	$n=11$ (7%)	$n=24$ (5%)
Small waist	$n=5$ (3%)	$n=13$ (11%)	$n=13$ (8%)	$n=31$ (7%)
Breast size (voluptuous)	$n=1$ (11%)	$n=3$ (12%)	$n=13$ (43%)	$n=17$ (26%)
Inappropriateness of attire	$n=1$ (.5%)	$n=11$ (9%)	$n=5$ (3%)	$n=17$ (4%)

both males and females in the sample met the criteria for statistical ($p<.05$) and practical significance (10% difference). A significant chi-square was observed for nudity by ESRB rating, χ^2 (2, $n=468$) = 19.52, $p<.001$, $V^*=.20$. Both male and female characters were significantly more likely to appear partially or fully nude in games rated T (15%), or rated M (14%), than were male and female characters in games rated E (2%). (See Table 2 for summary.) *Post hoc* analyses using Holm's sequential Bonferroni method indicated that games rated E differed from games rated T, χ^2 (1, $n=336$) = 20.02, $p<.001$, $\Phi=.24$, and games rated M, χ^2 (1, $n=376$) = 16.27, $p<.001$, $\Phi=.21$, but games rated T or M did not differ from each other, χ^2 (1, $n=310$) = .33, *ns*. One additional variable, waist size, achieved statistical significance, χ^2 (2, $n=461$) = .8.18, $p<.05$, $V^*=.13$, but not the 10% difference criteria for practical significance. Males and females were depicted with small waists in T and M rated games 3% of the time, or ($n=13$), for both categories, as compared to E rated games where males and females were depicted with small waists 1% of the time, or ($n=5$).

Looking at the distribution of objectification variables by ESRB rating within biological sex, a slightly different picture emerged. Because analyses had many cells with five or fewer observations, chi-squares were not executed. However, the pattern of results is worth noting. For women, games rated E featured the highest proportion of unrealistic body proportions (44% of coded female characters with an E rating) and females with small waists (56% of coded female characters with an E rating). (See Table 3 for summary.)

Research question two asked if there was a particular brand of video game console that displayed sexualized characters more frequently than the others. The chi-square analysis of the overt sexuality variables (i.e. sexually revealing clothing and nudity) and objectification variables (i.e. unrealistic body proportions, waist site, breast size, and appropriateness of attire for the task at hand) by game console only revealed one difference that was statistically and practically significant. A chi-square analysis revealed a significant difference in sexually revealing clothing by console, $\chi^2(2, n=469) = 28.35$, $p<.001$, $V^*=.25$. More characters wore sexually revealing clothing in Nintendo GameCube games (31%) than in Microsoft Xbox (12%) or Sony PlayStation2 games (10%).

The distribution of overt sexuality variables by console within sex presents a different set of results. Because a majority of the cells contained fewer than five observations, the pattern of results is described. For women, the Microsoft Xbox had the highest frequencies of sexually revealing

Table 3 Frequency and percentage of characters showing hypersexuality indicators by ESRB rating and sex.

Hypersexuality indicators	Everyone	Teen	Mature	Total
Women				
Sexually revealing clothing	33%, $n=3$	30%, $n=8$	53%, $n=17$	41%, $n=28$
Partially or totally nude	22%, $n=2$	41%, $n=11$	50%, $n=16$	43%, $n=29$
Unrealistic body proportion	44%, $n=4$	8%, $n=2$	34%, $n=11$	25%, $n=17$
Small waist	56%, $n=5$	39%, $n=10$	38%, $n=12$	40%, $n=27$
Breast size (voluptuous)	11%, $n=1$	12%, $n=3$	43%, $n=13$	26%, $n=17$
Inappropriateness of attire	9%, $n=1$	19%, $n=5$	17%, $n=5$	16%, $n=11$
Men				
Sexually revealing clothing	18%, $n=32$	6%, $n=6$	6%, $n=7$	11%, $n=45$
Partially or totally nude	1%, $n=2$	8%, $n=8$	5%, $n=6$	4%, $n=16$
Unrealistic body proportion	1%, $n=1$	6%, $n=6$	0%, $n=0$	2%, $n=7$
Small waist	0%, $n=0$	3%, $n=3$	1%, $n=1$	1%, $n=4$
Breast size (voluptuous)	n/a, n/a	n/a, n/a	n/a, n/a	n/a, n/a
Inappropriateness of attire	0%, $n=0$	6%, $n=6$	0%, $n=0$	2%, $n=6$

clothing, nudity, unrealistic body proportions, and voluptuous breasts. Only one variable was significant for men. The Nintendo GameCube was most likely to show men wearing sexually revealing clothing (see Table 4 for summary).

Discussion

The purpose of this study was to assess the prevalence of overt sexuality in video game characters. Overall, the results show marked differences in the way males and females are presented in video games. Differences occurred in terms of frequency of appearance for biological sex in games, as well as the way in which their sexuality was represented. Females appeared far less frequently in video games than males and were more likely to be shown in a more sexualized light than male characters.

Hypothesis one received empirical support for the prediction that female characters would appear less frequently than would male characters (14%, $n=70$, 86%, $n=419$, respectively). The proportion of females to males observed here is similar to Beasley and Standley's (2002) findings. Of the characters in their sample, 14% were female and 72% were male. The results are also congruent with the Children Now (2001) study, which found that 73% of video game characters are male and 12% are female. While these numbers are not too terribly different from gender representation on television (Gerbner 1997), they pale in comparison to the U.S. Census Bureau's 2001 report that women make up 50.9% of the U.S. population.

Not only are women underrepresented, but when they are shown it is often in an overtly sexualized context, which supports hypothesis two. Significant findings were found for five of the seven sexuality and objectification variables that were applicable to both males and females, including sexually revealing clothing, nudity, body proportion, appropriateness of attire, and waist size. One quarter of the women in this study (25%) were shown with an unrealistic body image. This is a slight increase from Children Now's findings which revealed that nearly 20% of female characters are shown with an unrealistic body image. Nudity had the greatest disparity between female and male characters. Women (43%) were ten times more likely to be shown nude (partial or full) than males (4%).

Research question one asked if the ESRB rating system consistently filtered out variables related to depictions of overt sexuality. Across sex, the findings demonstrated that there is a significant difference among games rated E, T, or M on nudity. At first glance, it appears that the ESRB ratings do a fair job of filtering out sexual content. However, sexual content is comprised of more than just simple depictions of nudity. The additional overt sexuality variables as defined by this study (sexually revealing clothing, body proportion, appropriateness of attire, and waist size) do not differ between E-, T-, and M-rated video games instead of just T or M as may be expected. If parents choose to screen video games by ESRB rating it is important that they understand that even though nudity appears to be filtered out by rating, the portrayals of video game characters wearing sexually revealing clothing with small waist sizes and unrealistic body proportions can still have an impact on young gamers. Repeated exposure to video game characters with unrealistic proportions in combination with similar "thin ideal" reinforcement from other media may help to explain why as many as ten in 100 young women in the US suffer from eating disorders (American Academy of Child & Adolescent Psychiatry (AACAP) 2004).

Table 4 Frequency and percentage of characters showing hypersexuality indicators by platform and sex.

Hypersexuality indicators	Microsoft X-Box	Sony PlayStation2	Nintendo GameCube	Total
Women				
Sexually revealing clothing	61%, $n=14$	34%, $n=11$	23%, $n=3$	41%, $n=28$
Partially or totally nude	70%, $n=16$	28%, $n=9$	31%, $n=4$	43%, $n=29$
Unrealistic body proportion	55%, $n=12$	13%, $n=4$	8%, $n=1$	25%, $n=17$
Small waist	59%, $n=13$	31%, $n=10$	31%, $n=4$	40%, $n=27$
Breast size (voluptuous)	59%, $n=13$	10%, $n=3$	8%, $n=1$	26%, $n=17$
Inappropriateness of attire	30%, $n=6$	6%, $n=2$	20%, $n=3$	16%, $n=11$
Men				
Sexually revealing clothing	4%, $n=5$	5%, $n=7$	32%, $n=33$	11%, $n=45$
Partially or totally nude	4%, $n=6$	5%, $n=7$	3%, $n=3$	4%, $n=16$
Unrealistic body proportion	1%, $n=2$	1%, $n=2$	3%, $n=3$	2%, $n=7$
Small waist	2%, $n=3$	1%, $n=1$	0%, $n=0$	1%, $n=4$
Breast size (voluptuous)	n/a, n/a	n/a, n/a	n/a, n/a	n/a, n/a
Inappropriateness of attire	2%, $n=3$	1%, $n=1$	2%, $n=2$	2%, $n=6$

When ESRB was broken down by sex, women were represented the least in E-rated games (n=11). It is also important to note that women had the highest percentages of unrealistic body proportions and small waists in E-rated games when compared to T-rated games and M-rated games. Thus, if video games were screened for young gamers by ESRB rating, women would be virtually nonexistent. When women were shown, impressionable video game players would be exposed to women with Barbie-doll figures even more in E-rated games than they would in T- or M-rated games. These findings suggest that the ESRB's rating system for sexuality indicators (nudity and sexually revealing clothing) may be considered fair. However, visual inspection of the data indicates that the objectification variables (unrealistic body proportion and small waist size) still exist in the greatest proportion for observable female characters in E-rated games. Although this observation should be interpreted with caution, it is recommended that the ESRB reexamine their criteria for sexuality and include such variables that may contribute to female objectification.

Research question two asked if a particular brand of video game console displayed sexualized characters more frequently than the others. The findings indicate that there was a significant difference for sexually revealing clothing, but not for nudity, appropriateness of attire, unrealistic body image, or small waist size by console brand. Characters wearing sexually revealing clothing were more prevalent in sampled games for the Nintendo GameCube. However, this finding needs to be interpreted with caution. This was the only variable which achieved significance. Based on the rest of the variables examined in this study, it is apparent that screening for depictions of overt sexuality cannot be done simply by selecting a particular brand of game console. In addition, because a purposive sample of the most popular video games was used, it begs the question of whether there is another explanatory mechanism for this finding. It could be the case that the Nintendo GameCube hosts a larger share of the male market than the X-Box or PlayStation2, which in turn means that the most popular titles contain more sexual depictions. More research needs to be conducted with different sampling procedures to isolate additional explanatory mechanisms such as demographic information and its relationship to sexual content in video games.

When overt sexuality variables were examined across sex by console, differences appeared. Three out of the seven variables applicable to both sexes (i.e., unrealistic proportions, sexually revealing clothing, and nudity) appeared proportionately greater for women versus men on the Microsoft Xbox console. Although it would seem that parents would want to avoid the Microsoft Xbox, in favor of the Sony Playstation 2 or Nintendo GameCube, this finding needs to be interpreted with caution. People should avoid being rash in drawing conclusions about the Microsoft Xbox console, as it does allow parents to screen games with age-appropriate content with a parental control.

The results from this study have demonstrated that women, by and large, are still portrayed as overtly sexualized in today's popular video games. The implications of these depictions are concerning because video games require active engagement by a player to manipulate and elude game stimuli. Previous research has documented the superiority of performance-based treatments over their more passive symbolic counterparts (see Bandura 1977 for review). The active engagement that video games provide allows gamers to control, watch, and perform behaviors that previous technologies (e.g., television) only allowed for watching. Consistent with this research, video games should magnify the potential to learn and enact behaviors witnessed/produced in video game environments because they are interactive in nature.

Further, the engagement that comes from active participation and interactivity in video games should intensify the four processes that govern learning in social cognitive theory. Game players should pay more attention to the overtly sexualized portrayals of the women and men contained therein than if just watching as on television. The fact that video games require repeated attempts to master hand-eye coordination and memory to avoid potentially game-ending scenarios supports retention of the material through repeated exposure. With the scripts stored in memory, a gamer may bring the actions and the speech of the video game characters into the real world, thereby producing the actively performed, rehearsed behavior in a new context. When these behaviors are rewarded, as by increased scores, extra lives, or with codes to unlock sexy outfits for characters, and reinforced by peers, it is likely that the modeled behaviors will be repeated.

The repetition of seeing women as oversexualized beings through both repeated game play and by seeing similar depictions across a wide variety of games can reinforce the belief that women are to be regarded as sex objects. The disproportionately small waists and voluptuous breasts for female characters may contribute to body dissatisfaction for female gamers and unrealistic expectations of women for impressionable male gamers. This has two major implications. First, this medium may be reinforcing to some that women are supposed to have unrealistic body proportions. When these proportions are unattainable, it can lead to low self-esteem and body dissatisfaction for female gamers. Taking that a step further, low self-esteem and body dissatisfaction may prompt some to adopt unhealthy eating habits trying to attain an idealized image. Second, it also sends a message to male gamers of what women should look like. Because very few women can achieve

video game character proportions naturally, males may have unrealistic expectations of the feminine body. If males are disappointed that women cannot achieve these proportions, this may hinder relational development. Because previous studies have demonstrated a link between media images and eating disorders (Field et al. 1999), media images and self-esteem (Polce-Lynch et al. 2001), media images and body dissatisfaction (Harrison and Cantor 1997), and media images and feelings of objectification (Frederickson and Roberts 1997), future research is needed to assess the impact of repeated exposure to video game portrayals on male and female gamers and how this media outlet shapes perceptions of both sexes in the real world.

Overall, this content analysis was designed to examine depictions of overt sexuality in video game characters. Since overt sexuality as a variable has received considerably less attention than violence in terms of its effects, this study serves as a platform from which to further examine sexual portrayals in video games. Follow-up studies are recommended to test the validity of the variables used to determine overt sexuality in video game characters with new console (Xbox 360, PS3, and Nintendo Wii) game offerings.

One limitation of this study is its focus exclusively on game play. The recorded video games segments that were coded did not include the introduction section. Nor did they include the grand finales where sexual behaviors or sex talk may occur. Future studies should be conducted to see if game introductions or game finales contain overt sexuality codes such as sexual talk or sexual behavior. Because the finales are a form of reward for the player, it is important to know if sex talk or sexual behaviors are depicted. It is also important to keep in mind that a single, taped representation of one player's actions was used for analysis. As both male and female gamers may play games with a variety of strategies, goals, and motivations in mind, it is important for future studies to examine the range of sexualized portrayals, acts and behaviors within a game that individual gamers might be subject to. Future research would benefit from examining differences in character portrayals based on potentially different strategies employed by male or female gamers.

A second limitation is that the nature of content analysis privileges theory more than effect. Although theoretically through social cognitive theory we can make a strong argument for how gamers may learn less-than-desired cognitive scripts, including sexual stereotypes and objectification of women in video games, we cannot predict behaviors or make causal inferences based simply on the presence of oversexualized content. We can however, use theory and other empirical methods to design future studies to answer some of the questions that this analysis raises. For instance, at the individual level, we can test social cognitive theory's attention process to determine if males really do notice sexualized portrayals of women in video games. Further, tests need to be conducted to determine which conditions make sexualized portrayals easier to learn for the game player. Variables such as motivation, peer reinforcement, and other media reinforcement may facilitate the recall of gender-biased information learned in video games.

In terms of market success, does the inclusion of sexualized characters and the so-called "bounce-factor" in video games correlate with profit for game developers? What about the combination of sex and violence on market success? At least one study has demonstrated a positive correlation between movie trailers containing violence and the amount of money spent on promoting them (Oliver and Kalyanaraman 2002). In this case, more violence equates to more marketing dollars which, ostensibly, equates to increased profit at the box office. Because the industry recognizes the 30-year-old male as one of its primary consumers, can we assume that the video game industry as a whole follows this same pattern of using sex and violence to promote new video games? Does sexual and violent content equate to more marketing dollars in the video game industry? Recent studies suggest that there are pronounced differences in sexuality between male and female characters both in pictures used in video game magazines (Miller and Summers 2007) and photos and screenshots used in online video game reviews (Ivory 2006). Does this relate to more profit?

It is also important to take into account what the newest generation of game consoles will bring with them; specifically, better graphic engines for a heightened sense of realism, as well as interactivity, and customizability. Most consoles such as the Xbox 360, Nintendo, Wii, and the Sony PS3 allow gamers to customize the music soundtracks for the games they play. It becomes even more important then, to understand how the combination of different forms of media, such as music, television, movies, and so forth change or reinforce existing opinions of women and minorities in video games. Further, these consoles are priced very differently. While the Nintendo Wii retails for around $250 in the U.S., the Microsoft Xbox 360 and Sony PS3 retail for anywhere between $350–450 depending on versions and console options. These price points suggest that the Xbox 360 and PS3 are catering toward an older audience who can afford a more powerful game console. If this is the case, it would not be surprising if more sexual content were included in games for these consoles or if more companies produced genres of games for these consoles that included more sexualized game characters.

Form as well as content may also contribute to the retention of overtly sexualized and stereotyped behaviors. With the popularity of Nintendo and Sony's handheld devices, it is apparent that game play is not confined to the

home environment where content may be monitored or screened. Will video game players remember more details when they play games on a 2×2 in. screen, or will memory of sexualized and stereotyped behaviors be greater when played on a television or other immersive environment?

The findings here show that there are pronounced differences in the number of males and females in video games as well as the way in which they are depicted. In video games, females are more likely than males to be presented in a sexual fashion. Such portrayals, from a social cognitive approach, may have negative effects on young gamers' socio-emotional development. Future studies are recommended in light of the advances and new capabilities of the next generation of game consoles.

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Appendix

Games and ESRB ratings by Console

Nintendo GameCube
1. Godzilla: Destroy All Monsters Melee (T)
2. Animal Crossing (E)
3. Super Mario Sunshine (E)
4. Luigi's Mansion (E)
5. Sonic DX Adventure (E)
6. NBA Street Vol 2 (E)
7. Enter the Matrix (T)
8. Def Jam Vendetta (T)
9. Super Smash Bros Melee (T)
10. Sonic Mega Collection (E)
11. Sonic Adventure 2 (E)
12. James Bond, 007: Nightfire (T)
13. Star Fox Adventures (T)
14. Lord of the Rings: Two Towers (T)
15. Mario Party 4 (E)
16. Metroid Prime (T)
17. Resident Evil: Zero (M)
18. Legend of Zelda: Wind Waker (E)
19. Wario World (E)
20. The Sims (T)

Sony PlayStation 2
1. Grand Theft Auto III (M)
2. Midnight Club II (T)
3. Hack: Infection (T)
4. Grand Theft Auto: Vice City (M)
5. Dragon Ball Z: Budokai (T)
6. Def Jam Vendetta (T)
7. Enter the Matrix (T)
8. NBA Street Vol. 2 (E)
9. NBA Live 2003 (E)
10. Tiger Woods PGA Tour 2003 (E)
11. Tom Clancy's Splinter Cell (T)
12. Xenosaga Episode 2 (T)
13. Tenchu: Wrath of Heaven (M)
14. ATV Offroad Fury 2 (E)
15. MVP Baseball 2003 (E)
16. SOCOM: US Navy SEALS (M)
17. Dynasty Warriors 4 (T)
18. Tom Clancy's Ghost Recon (M)
19. Yu Gi Oh! (E)
20. The Getaway (M)

Microsoft Xbox
1. World Series Baseball 2 K3 (E)
2. MVP Baseball 2 K3 (E)
3. Midnight Club II (T)
4. Project Gotham Racing (E)
5. Tom Clancy's Ghost Recon (M)
6. NBA Street Vol. 2 (E)
7. The Sims (T)
8. Wolfenstein: Tides of War (M)
9. Dead or Alive Extreme Beach Volleyball (M)
10. Enter the Matrix (T)
11. Tiger Woods PGA Tour 2003 (E)
12. Tao Feng: Fist of the Lotus (M)
13. Max Payne (M)
14. Halo (M)
15. Unreal Championship (M)
16. Brute Force (M)
17. Tom Clancy's Splinter Cell (T)
18. X-Men: Wolverine's Revenge (T)
19. ATV 2: Quad Power Racing (E)
20. The Hulk (T)

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