

PIXELATED PROFILES: A VIDEO GAME
CHARACTER TRAIT ANALYSIS

by

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DEDICATION

I would like to dedicate this thesis to Tony Lee and Nancy Jones. They have supported me through two college degrees and provided endless love and care throughout both. Thank you for believing in me and my work.

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ABSTRACT

The video game industry is one of the fastest growing forms of entertainment in recent years. Women and non-White gamers make up a substantial number of gamers, but are misrepresented within the video games themselves. Female characters often have unrealistic body proportions or exhibit a secondary or “damsel in distress” stereotype. Ethnic minority characters are portrayed stereotypically, such as being criminals or violent. These representations can prime gamers to faster associate these stereotypes to real-world people. Therefore, it is critical to examine representation in video games and the prevalence of stereotypes in characters. The present research analyzed the content within popular video games for representations of gender and ethnicity, the occurrence of stereotypical characters and the role of female characters. Characters from the top 50 most popular video games from 2010 were analyzed for various character traits. Frequencies of gender and ethnicity were compared to United States census data. Results showed that female and Hispanic/Latino characters are under-represented in the sample while males and Black characters are over-represented. Female characters are less likely to be controlled by the player and less likely to engage in combat than male characters. However, they are more likely to be over-sexualized. Black characters are more likely to be portrayed stereotypically. Both male and female characters are likely to have at least one character stereotype. The implications of this study show that misrepresentation of female and non-White characters with stereotypical portrayals can continue to have consequences with recent video games.

I. INTRODUCTION

The video game industry persists as the fastest growing entertainment industry in the United States. Per the Entertainment Software Association's report on computer and video game industry ("Essential Facts," 2016), 65% of households own at least one gaming device. American gamers report spending more time playing video games, spending 37% less time watching television as well as 37% less time going to the movies. This applies not only to seasoned video game players, but casual players as well. The rise of eSports, or electronic sports, and virtual reality games are effects of the ever-increasing popularity of video games. Due to the continued importance and growth of video games in recent years, games can be used to measure multiple aspects of human behavior and culture.

The complexity of how video games are made and played allow for multiple aspects to be considered. Morris, Croker, Zimmerman, Gill and Romig (2013) argue for *gamification* in science, or using game elements that enhance the gaming experience for scientific thinking and experiences. Because video games are tools that explore current culture, they can be applied outside of the entertainment industry. By assessing user interaction with video games, researchers can justify using them to facilitate scientific thinking and application. While research concerning video games study adverse issues, such as violence (Anderson & Dill, 2000; Hartmann, Krakowiak & Tsay-Vogal, 2014) and sexism (Brehm, 2013; Stermer & Burkley, 2015; Yao, Mahood & Linz, 2010), there

has been growing coverage of the benefits of playing video games, cognitively and culturally.

Video games provide an opportunity for collaboration using multiplayer features. Several games have options where players can play with other people in their home, called couch cooperation (co-op). Other games provide access to online servers where players can connect from around the world. Using these multiplayer options, researchers can examine how gameplay and group interactions intersect. Players exhibit more group cohesion after playing a game involving teamwork escaping a predetermined situation (Bluemink, Hämäläinen, Manninen & Järvelä, 2010). Cooperative behaviors such as trust and sense of cohesion increased after playing a co-op game compared to participants who played by themselves (Greitemeyer & Cox, 2013). Specific personality traits can be enhanced using massive multiplayer online role-playing games (MMORPG). Worth and Book (2014) found that players who worked together against the gaming environment scored higher in extraversion and were more outgoing and friendly. People who played games involving competition against other players tended to have more undesirable traits, such as dishonesty and recklessness. Multiplayer games can provide a variety of behavioral and cognitive benefits.

Video games have been shown to improve cognitive functioning. Action games have been found to be one of the most cognitively stimulating genres. Two subgenres of action games, first-person shooters (FPS) and real-time strategy (RTS), have been studied by comparing participants who do and do not play games. RTS players are shown to have higher multiple object tracking accuracy while both RTS and FPS players have higher switching reaction times than non-players. Given the nature of these genres, experienced

players are more accustomed to switching their attention to other stimuli while simultaneously keeping track of all stimuli (Dobrowolski, Hanusz, Sobczyk, Skorko & Wiatrow, 2015). Other cognitive functions, such as impulsivity and risk-taking behaviors, have been found to increase with pathological FPS players, but decrease with strategy games (Bailey, West & Kuffel, 2013). The nature of the video game genre is seen to influence which cognitions are enhanced.

Boot and colleagues (Boot, Kramer, Simnos, Fabiani & Gratton, 2008) reported that experienced players' cognitive functioning was enhanced. Experts had higher maximum speed in multiple object tracking tasks, better visual short-term memory and were faster at task switching. Buelow, Okdie and Cooper (2014) examined executive functioning differences in participants who played a game in the experiment versus a control group. Compared to the control group, players were more advantaged in later trials of the Iowa Gambling Task (IGT). They also made fewer errors on the Wisconsin Card Sorting Task (WCST).

Video games have been shown to be a useful medium to study aspects of human behavior. When connected to social psychological theories, video games can be used to investigate not only the motivation to keep playing but how one applies the stereotypes learned by these games to the real world. These stereotypes can be harmful and often used against other players in discriminatory ways. Stereotypes most often affect people of non-white ethnicities, females and people who are not heterosexual. Using stereotypes can often lead to discrimination and misrepresentation of these groups in the video game industry and communities.

Social Cognition Theory and Self-Perception

Albert Bandura (1991) recognized the importance of self-regulatory systems in human behavior. Social cognitive theory states that learning and motivation occur within social interactions of the person, environment and behaviors. Bandura discusses three principal sub-functions involved in self-regulation. These are self-monitoring, judgments about one's own behavior related to personal standards as well as environmental feedback, and emotional reactions to one's own behavior. People monitor their behaviors based on motivations. These motivations change based on their thoughts and beliefs about themselves. However, when one is engaged in an activity, motivation can be hindered by lack of information or specific goals. When no feedback is given on an activity, motivation can falter, and self-regulating behaviors can diminish. Self-motivation is influenced by intrinsic and extrinsic rewards. If the environment does not provide feedback based on performance, motivation will drop. Video games, by providing immediate feedback and allowing judgments related to personal game goals, may facilitate players' emotional reactions and regulation of their game-playing behaviors.

Bandura (2001) expanded his social cognitive theory to include modes of agency, or how we interact within social systems. Agency includes actions that are intentional and require forethought. Both require behavior that is regulated based on rewards or punishments. These are key to finding extrinsic and intrinsic motivation behind their behaviors. Self-efficacy, another concept developed by Bandura, as an important attribute to social cognition and motivation. Self-efficacy refers to someone's belief about their capabilities to execute a task within a context or environment. The more we believe that

we can complete a task within a set of guidelines, the more motivation we will have for completing a task.

Another aspect of human motivation is self-perception. Bem (1969) developed self-perception theory, which describes the ability to respond differentially to behaviors and other variables. Individuals develop attitudes based on the ability to observe their behaviors and the corresponding consequences. These attitudes could include beliefs or emotions that are developed after the behavior is finished. Corresponding attitudes we have following a behavior affects how likely we are to continue that behavior. If the behavior induces a positive emotion, our intrinsic motivation to continue that behavior will increase. Both self-perception and social cognitive theory can be used to explain motivation in video games and corresponding social behaviors.

The connections between video games and motivation come from social cognition theory and self-perception theory. Lee and LaRose (2007) developed a theoretical model of video game behaviors integrating self-regulation and aspects of immersion defined by Csikszentimihalyi (1975). As previously stated, self-regulation is vital to controlling and managing our behaviors. Flow, or immersion, is how engrossed a player is in their game. Using an online survey, Lee and LaRose asked players about their flow experiences, self-regulation of their video game habits and the challenge the game presents. The strongest predictors for continued motivation to play were awareness of action and enjoyment of the game followed by deficient self-regulation and the strength of their gaming habits. Because video games are an interactive media, players can monitor their own motivations with incentives that the game gives them. High motivation to continue playing video games comes with a decrease in self-regulation.

As an interactive medium, video games allow for multiple experiences for players. The motivation to engage in video games often connects with the cognitive benefits of playing. Sherry, Lucas, Greenberg and Lachlan (2006) found dominant dimensions of video game play among frequent gamers. Many reported liking the challenge and competition that comes with video games while others preferred the social interaction. Some played for the heightened arousal and excitement and others for relaxation, preferring a diversion away from reality. The motivation to play video games often comes from mechanics within the games themselves. Ryan, Rigby and Przybylski (2006) experimented on how autonomy and presence correlated with gamer's motivation for future video game play. Autonomy was measured as intrinsic motivation enhanced by feedback and non-controlling instructions. Presence was measured as the sense that one is inside the game world. Another term frequently used for presence is immersion, or how immersed or compelled the player is relative to the game. Players who reported having autonomy over their choices in a game had a strong motivation to continue playing and enjoying the game. High immersion was found when the game mechanics allowed for ease into gameplay. This means that games allowed for high autonomy and less game assisted instructions.

King, Delfabbro and Griffiths (2010) reported that motivation to play video games often comes from gaming mechanics. Participants were asked to report video game behaviors regarding frequency of play, addiction to playing, and structural characteristics of the games. The highest ranked mechanics associated with playing enjoyment and impact were graphics, sound and fast loading times. These are mechanics outside of the players' control that are positively associated with high player motivation.

Other game mechanics, such as levelling up, earning experience (XP) or obtaining different story outcomes are highly associated with rewards in the game. These features were highly regarded among casual and problematic players, those who played more frequently and reported negative consequences. Regardless of problematic behavior, video game players rated mechanics involved with rewards and punishments as some of the highest motivators to play.

De Grove, Cauberghe and Van Looy (2014) continued to study social cognition factors and video game play. Using in-depth interviews of video game players, De Grove and associates connected motivational gaming mechanics to parts of the social cognition theory. There were nine constructs that combined parts of game mechanics that players found important to enjoyment and enhanced their intrinsic motivation for continued game play. These constructs influence self-regulation through use of incentives. For example, the amount of agency a player has within a game can influence motivation to keep playing. Also, the more freedom players have to interact within the game, the more control and agency they have. Other constructs, such as sociability and status, are connected to how players communicate with others and implied recognition of performance. However, all nine constructs tie into the intrinsic motivation of the player. Their connections to inner motivation are related to social cognition theories of self-regulation, incentives and autonomy.

Self-perception theory is tied to how players interact with video game characters. As video games are interactive, players often identify with the role offered to them by way of the character they control. Through actively participating in the game, players apply self-perception theory to their actions and corresponding beliefs. By identifying

with a character, associations between the player's concepts of self and attributes of the character are connected and are often changed. For example, if a player is engaged in momentary self-perception with a war themed first person shooter (FPS), their behaviors and corresponding emotions would be driven by ones found in the environment. The player could feel more stress and become more aggressive or dutiful. This change in self-perception can increase the motivation to play and be more engaged in video games (Klimmt, Hefner & Vorderer, 2009).

Social cognition theory and self-perception theory explain the cognitions related to why people play video games. By using regulated processes within our cognition and behaviors, players find their own motivations for playing. Players often become attached to an avatar, the character they are playing, by means of self-perceptions. This can be modified to look at more detailed attachments players can have with video games. The more a player can identify with their avatar, the more immersive the game will be. Through use of self-perception theory, players have a social character attachment and a possible merging of player and avatar relationships. Players who used personal pronouns to reference their avatar also use more relationship-minded language about their avatar and their surroundings, including *family* and *social* (Banks & Bowman, 2014). When given the option to create their own avatar, players who make their ideal character report more interactivity with the game versus those who make an exact replica. However, the avatar creation decisions can be influenced by stimuli before creation. When participants are primed on their body image perception and objective awareness between the ideal and actual self, their motivations and experiences can change (Jin, 2009). The importance of avatar connections go beyond self-perception and intrinsic motivation. Fong and Mar

(2014) examined how avatars convey traits about their users based on images. Female avatars were rated as more open and conscientious than male avatars. These ratings were found even if the players self-reported being not open or conscientious.

Avatars are a way for video game players to use social cognition and self-perception to better connect with video games. The traits of video game characters can be self-reflective in a player in multiple ways. Social theories explain how individuals can connect with characters. Specific human traits such as race, gender and sexuality are transferred to characters and can be studied for related behaviors. By studying the racial and gender biases surrounding video game players and characters, we can examine how social cognition can further learned stereotypes of certain groups that can influence how we perceive them. With the presence of stereotypes within video games, players' social cognitive and self-perception can be altered toward other people. A prevalent source of stereotypes in video game characters come from race or ethnicity.

Video Games and Race

A key part of identity is our race or ethnicity. Racial categories can be perceived about a person and used to infer attitudes or beliefs about them. Knowing someone's race can even prime bias and stereotypes about that person. Studies about priming biases and stereotypes mostly analyze these effects from White people about Black people. These priming biases can be found in media, especially in television, movies and video games. Stereotypes based on race can influence how video game players interact with people associated with those stereotypes.

Dovidio, Evans and Tyler (1984) conducted one of the earliest priming experiments to study racial stereotypes and social cognition. Two categories of pictures

were presented to the participants, *White* and *Black*. Participants were primed by asking them to sort positive and negative adjectives into one of the two racial categories. The positive adjectives were treated as White stereotypes with the negative adjectives being treated as Black stereotypes. There were faster reactions to sorting the positive adjectives than the negative ones. After being primed with the White category, participants reacted faster to associating positive adjectives with White faces. An interaction was found between the stereotypes and racial words. Participants reacted faster with positive White stereotypes than positive Black stereotypes. They also reacted faster with negative Black stereotypes than positive Black stereotypes. Results were similar for a Black prime to Black stereotypes.

These results were the basis of one of the most common measures of biases and stereotypes, the Implicit Association Test (IAT; Greenwald, McGhee & Schwartz, 1998). Like the Dovidio study, the test involves use two target concepts (e.g., pleasant or unpleasant words) where participants sort responses based on those targets (e.g., insects versus flowers). Performance is expected to be faster when the instructions say to match the target word with the associated category (e.g., flower category and pleasant words). If instructions say to match words with the opposite category (e.g., flower category and unpleasant words), performance will slow down. The IAT can be modified to study race and stereotypes using different primes and target words.

A pressing current issue regarding racial biases and stereotypes involves viewing Black people as shooting targets. Correll, Park, Judd and Wittenbrink (2002) developed a simple video game to study interactions of race and being armed. Participants were shown a White or Black person, holding a gun or a non-gun item. Participants were

instructed to decide as quickly as possible if the person was holding a gun or not. If they were, they were told to “shoot” the person. If they were not holding a gun, they were told “don’t shoot.” Participants fired at a participant more quickly if the target was Black and did not shoot an unarmed White target more quickly than an unarmed Black target.

Among the four experiments Correll and associates did, each one confirmed the effect of ethnicity on shooting decisions. This includes finding a correlation between participants holding cultural stereotypes and shooter bias for quicker shooting time related to Black people. Correll, Urland and Ito (2006) replicated their findings in a later experiment, adding event-related brain potentials (ERPs) as a measure of racial differentiation. The only stimulus group to have a different brain response was unarmed White targets. Armed and unarmed Black targets and armed White targets were responded to at the same rate and urgency at the same ERP.

Amodio and Devine (2006) associated the participants’ use of stereotypes in an IAT to rate a Black student’s writings and interact with a Black partner in person. Higher stereotyped ratings on the IAT were associated with more stereotypic ratings of the student’s writings. Participants then rated their partner based on academic trivia or pop culture trivia. Participants with higher stereotyping IAT scores predicted more stereotype-consistent ratings for their partner’s performance. Participants higher in stereotyping scores reported their partner underperforming in academic trivia and excelling in pop culture trivia. As illustrated by this experiment, the IAT can be a predictor for future biased behavior.

Senholzi, Depue, Correll, Banich and Ito (2015) replicated previous research while measuring blood oxygen levels using functional magnetic resonance imaging

(fMRI). Participants played the same simple video game with White and Black people either armed or unarmed. After the game, participants completed a version of the IAT to assess implicit Black-danger associations. Participants made quick associations about Black and White faces using words associated with safety and danger. During testing, fMRI scans were taken to measure blood oxygen levels. Again, participants were faster to shoot armed Black targets than White armed targets. When looking at White targets, there was greater activity in the anterior cingulate cortex (ACC). When looking at Black targets, the parietal and visual cortical regions were activated. Because both areas work with direct attention to visual processing, the researchers suggest that participants paid more attention to the Black men, particularly when they were armed. This research supports the existence of an implicit bias toward Black people that can easily be primed with biased and stereotypical statements and words. Such stereotypes held against Black people have been prevalent in media settings.

Media representation of African Americans often includes harmful stereotypes. Hughey (2009) noted the term “magical negro” (MN) is used to describe a seemingly positive but overall racist character trope for Black characters in film. The MN is a Black character who is lower class who possesses magical powers. Their sole purpose is to help a poor, lost or broken White man find his way to salvation. The MN role is in stark contrast to the original stereotypes of Black characters like “mammies”, “coons”, “jezebels” or “pandering slaves.” Hughey stated that while this new MN role is more positive regarding the depth of the character, it has triggered what he calls *cinethetic racism*. This is when the Black character does not have their own character outside of helping a White character. The “positive” character portrayed by the MN is not positive

to everyone. Stereotypes of any kind can be harmful and can intrude in real world behaviors.

Givens and Monahan (2005) measured participants' implicit and explicit prejudice after viewing a Black media stereotyped figure. Participants who viewed a "jezebel" image on video were more likely to use more negative adjectives and significantly fewer positive terms when describing a Black female interviewee, compared to a neutral image. When asked to associate positive and negative adjectives to either White or Black interviewees, the fastest responses were negative terms to the Black person. The media fueled image of a "jezebel" has immediate implicit and explicit racial effects in participants. Lee, Bichard, Irey, Walt and Carlson (2009) examined how television viewing habits can influence stereotyped perceptions of minorities. As television remains a significant form of media, heavy consumption can influence real world behaviors. Participants who were heavy viewers of television reported more positive stereotypes toward Caucasians. However, heavy viewers attributed both positive and negative stereotypes toward African Americans. Through media, Black stereotypes are portrayed more often, are more harmful and are more likely to be negative. This effect remains the same when looking at video games.

Harmful stereotypical content is also found in video games. David Leonard (2003) examined *Grand Theft Auto III (GTA III)*, a video game known for racial images and identities. Leonard argued that part of the significance of video games as a growing media form is how they contribute to race matters. In analyzing *GTA III*, he remarked on the lack of discussion regarding how stereotypes are used and its potential harm related to racial portrayals. As the video game centers on gang life in a fictional town called Liberty

City, the most prevalent Black stereotypes equate to “gangster”, “violent” or “immoral.” Leonard (2006) continued his discussion of race and video games as the predominant use of stereotypes for ethnic characters has increased. The sequel to *GTA III*, *Grand Theft Auto: San Andreas* (*San Andreas*) continued the harmful portrayal of Black characters as “violent” and “gangsters.” With video games having these Black stereotypes as the dominant character tropes, Leonard argued that this legitimizes racist-fueled discourse and behaviors. However, when compared to other violent video games, *San Andreas* stands out as having a Black protagonist. This leads to a different type of outrage than having a violent white protagonist. Leonard (2009) concluded his analysis of the *Grand Theft Auto* series emphasizing the importance of race portrayals in video games. He cites the case of Devin Moore, a 16-year-old Black male arrested for killing two police officers and evading arrest. His defense attorneys cited *Grand Theft Auto: Vice City* as an addictive and violent bad influence on his behavior. This led to a multitude of lawsuits and controversies surrounding the *GTA* series and its corrupting influence. *San Andreas* received similar controversy for continuing to be both a violent video game and of perpetuating Black stereotypes. Leonard’s final argument states that when studying interactive media, such as video games, effects of racial stereotypes must be considered, including examining characteristics of Black avatars in games and real world results.

Video games, regardless of genre, can influence racial beliefs and stereotyping. Dill and Burgess (2012) compared stereotypical versus professional images of Black people to test racial attitudes in young White males. For the first part, researchers used two exemplars of Black masculinity, a young Black male who had gangster and stereotypical features and a Black political figure. There were two exemplars for the

White conditions with one being a video game character and another being a politician. Each exemplar was its own condition. Participants rated the images on positive adjectives such as *good*, *competent* or *warm*. The lowest ratings were given to Black video game characters, followed by White gaming characters, Black leaders then White leaders. The second part of the research considered whether video game exposure to stereotypical Black or White characters could prime negative attitudes toward political candidates. An effect was found for both races where stereotypical images affected beliefs about leaders, but the Black candidate was rated much more negatively than the White one. Constant exposure to stereotypical Black males found in video games can negatively prime anti-Black real world beliefs.

A related harmful Black male stereotype is their propensity toward violence. Video games that feature only violent Black characters can prime gamers to believe that Black people are violent. Yang, Gibson, Lueke, Huesmann and Bushman (2014) tested the effects of playing as a Black avatar in a violent game versus a White avatar. First, participants either played as a Black or White avatar in a violent or non-violent game. They were measured on their explicit and implicit negative attitudes toward Black people after game play. Participants in the violent Black avatar condition had higher explicit negative attitudes toward Black people compared to the other conditions, and participants in the violent Black avatar condition were more likely to associate Black faces with negative words on the IAT. Second, using the same four conditions, researchers measured White people's attitudes about Blacks being violent after gameplay. Participants in violent Black avatar condition were more likely to associate Black faces with weapons on the IAT which significantly influenced aggressive behavior.

Cicchirillo (2015) replicated the previous experiment using both White and Black participants. Among the four conditions, Black or White participant and Black or White avatar, White participants responded to negative IAT images significantly faster than to Black participants. Black participants who played with a White character had the slowest IAT reaction times to associating weapons with Black primes. However, Black participants reacted significantly slower than White participants when they played as a stereotypical Black character. White video game players are shown as having the quickest response to stereotypical Black images, words and adjective associations. The effects of video game stereotypes on other ethnicities has not been as thoroughly studied.

One of the fastest growing minority groups in the United States are Hispanic/Latinos. Just like with Black people, negative stereotypes against Hispanics are prevalent in video games. Leonard (2006, 2009), in his essays about *San Andreas*, identifies Latinos as part of the violent gangsters in the game. Like Black “violent men” stereotypes, Latinos can face xenophobia based on the violent stereotype *San Andreas* supports. Latino stereotypes reach beyond video games, as Mastro (2003) examined perceptions of Latinos using television influence. One common stereotype among Latino television characters is criminality, whether being a police officer or a criminal. This can be related to real-world behaviors by heavy television viewers. Lee and colleagues (2009) found that heavy viewers of television associated Hispanics/Latinos with both positive and negative stereotypes. The dominant stereotypes held toward Latinos were *dark skinned* and *lower class*. Males are *hard workers* but *antagonistic* while females are *attractive* but often seen as only housewives or *dominated by males*.

Media stereotypes regarding Native American and Asian Americans are seldom studied related to video games. But previous research has shown that television programs portray them stereotypically, with Native Americans being *lazy* and *uneducated* and Asian Americans being *highly educated* and *hard workers* (Lee, et al., 2009). Little research has been done on the presence of Native American and Asian stereotypes in video games and real-world effects. Leonard (2003) found that the basic stereotypes for Asians in video games involved having poor English and being martial artists.

Another seldom-studied group pertaining to video games and stereotypes are women of color. The intersection of being an ethnic minority and a woman in the video game community comes with its own set of stereotypes and real-world harassment. Gray (2012b) interviewed Latina women and Black women of various sexualities based on their experience of playing video games online using Xbox Live. The Black women interviewed experienced discrimination based on their voice. As soon as they spoke to a male in the game, many were bombarded with sexist and racist language. These women created their own communities to avoid encountering these men. Latina women also formed their own communities and faced unique experiences from Black women. Many reported hearing language regarding immigration, or being an “illegal.” Another group of women played outside of their communities despite the harmful language, but believed it was the responsibility of the female players to alleviate the discrimination. These women’s experiences were fostered from racial and gender stereotypes. Racial stereotypes, specifically toward Black and Latina women, created a unique influence on gamers, as these characters were seldom seen in video games. Within the realm of online play, biased players expressed their stereotypic views. Another group of video game

players that experiences harmful stereotypes and discrimination is women. There are fundamental differences between males and females in how they play video games and how they are treated within the video game community.

Video Games and Gender

Another key part of ourselves is our gender identity. The constructs surrounding gender generally revolve around being either male or female. The social roles associated with both genders can influence how we perceive other people. Stereotypes are created from these social constructs and roles and can permeate video games. Between males and females, there are differences in the age of the players and which games they prefer to play. There are also differences in how video games portray each gender. Sexualization of female characters can affect discrimination against female gamers.

Gender differences in game play have been measured in different ways. The gaming habits of preadolescents are different for males and females. Homer, Hayward, Frye and Plass (2012) compared gaming habits and personality types of preadolescents from ages 10 to 15. The gaming habits measured included player activity and attitudes toward game play. Game play frequency was measured in hours per week. Participants were also asked to choose three of their favorite video game genres. These variables were correlated with a personality scale. As the males got older, they spent more time playing games. For females, weekly play fluctuated with no clear trends. Male participants were more likely to favor FPS, fighting, sports and MMORPG, games that are usually high in action and quick thinking. Female participants were more likely to favor virtual, puzzle, RPG and party games. These games are more about critical thinking, are community based or involve inhabiting a fantasy role. However, the more a female participant had

positive -feelings about herself, the higher her liking of FPS. Similar findings were found between sensation seeking and fighting games related to female participants. There were no correlations found between male preferences and personality variables.

A follow-up to the Homer et al., (2012) study examined just adolescent girls and their gaming habits. Van Reijmersdal, Jansz, Peters and van Noort (2013) surveyed girls between 10 and 17 years old about “pink games.” “Pink Games” were defined as video games that are aimed toward an adolescent female audience. These are usually simulation games involving gender role stereotypes, such as being a housewife, mother or having a fashion oriented career. Researchers chose a popular “pink game” called *goSupermodel*, a game where girls can interact online with a supermodel avatar they create themselves. The highest predictors of motivation to play *goSupermodel* were the girls’ interest in the modeling business and the social interaction of talking to other “models.” Identifying with their avatar and the interest in the game declined with age. However, despite the lack of challenge in gameplay, older girls were still motivated by the social interaction in the game. The purpose of “pink games,” such as *goSupermodel*, is to bring young girls together based on stereotypical interests, to foster their motivations for playing video games. However, as seen in the research, girls start to age out of “pink games” for games that are more challenging and interesting. Despite gender differences in genre preference and motivations, playing video games is normal for preadolescents. The differences in amount of play can influence how both genders interact with video games into adulthood.

The motivations behind why women play video games are different than men. Hartmann and Klimmt (2006) examined German adult females’ motivation to play video games. In the initial part of the research, they predicted that if a game featured strong

violence, a stereotypical female character or involved very little social interaction, women's motivation to play will be low. Participants were presented with the back of a computer game package in eight conditions. Between them there was either a highly violent or neutral background image, asexualized or non-sexualized female character and low or high social interaction. Out of the three variables, social interaction was the most important feature that determined game preferences. The highest preferred game cover featured high violence, non-sexualization and high social interaction. In the second part of the research, Hartmann and Klimmt looked at genre preferences across both genders. Like gender differences during preadolescence, males preferred more action oriented games like shooters, RTS games, sports and simulations. Females preferred world-building games, RPG's and adventures with social interactions. Between the box cover experiment and genre preferences, females' motivation to play video games comes from their desire for social interaction or inhabiting other gamer roles.

Reinecke, Trepte and Behr (2007) followed up on the previous study and examined specific motivators of game play for German females. Female players gave more importance to intellectual challenges and social interaction than competition. Participants were divided over violent content. While many hated the violent nature of shooters, many liked the team building aspect. The appearance of their avatar also divided motivation between players. While some rated it as important, many remarked on their stereotypical sexualized appearance. Royse, Lee, Undrahbuyan, Hopson and Consalvo (2007) and Williams, Consalvo, Caplan and Yee (2009) found similar results with American female gamers. Their motivations were the same with preferring games with social interaction and role playing, with a few preferring the violent shooters.

Females are less motivated by competition and achievements than by social interactions. However, a common social interaction found with females and video games is the presence of sexism.

The presence of sexism in the video game community is fostered by the lack of realistic representation of women in video games. Because many female video game avatars are hypersexualized, this can prime players to have sexist beliefs toward females. Fox, Bailenson and Tricase (2012) studied the Proteus effect (Yee and Bailenson, 2007) on avatar features and female gamers. The Proteus effect suggests that identifying with their avatars' features and behaviors can lead to shifts in self-perception. The player would embody the avatar's personality and behaviors and adopt them as their own. Using this theory, participants who used a sexualized avatar would have more body-related thoughts and express more acceptance of rape myths. Researchers found that players with sexualized avatars had more body-related thoughts after game play. If females were more engaged in video game play, they identified with the avatar more strongly than if they were disinterested. However, women who were immersed in the gameplay through a sexualized avatar also had the highest rates of rape myth acceptance. However, those who were not immersed with a sexualized avatar had the lowest rates of myth acceptance. This is a high predictor of the influence female hypersexualization can have on female gamers. Fox and Tang (2013) confirmed the presence of sexist attitudes in video game communities. High scores on the Video Game Sexism Scale predicted high masculinity norms of dominance over women, heterosexual self-presentation and social dominance. The presence of sexualized video game avatars facilitated male players asserting their masculinity and reflecting it in real world behaviors toward females.

Fox, Ralston, Cooper and Jones (2015) continued studying rape myth acceptance but in relation to objectification theory. Objectification theory states that when females are exposed to sexualized media, they are more likely to self-objectify themselves, creating real-world beliefs. Self-objectification is when women evaluate themselves based on appearance. When sexual stimuli trigger self-objectification, women are more likely to see themselves in a more sexualized manner. Women exposed to a sexualized avatar experienced significantly more self-objectification. Participants who controlled a sexualized avatar, versus watching another control the avatar, experienced more identification with them. The interaction between controlling an avatar and self-objectification was confirmed. Researchers then confirmed the interaction between sexualized avatars, self-objectification and rape myth acceptance.

Connections between aggression, sexism and video game consumption were found by Yang, Huesmann, and Bushman (2014). Playing as a male avatar primed more aggressive behavior than playing as a female avatar. The more participants played video games, the higher their aggression. Aggression was directly related to hostile sexism and rape myth acceptance. A link between general video game consumption and harmful beliefs toward women have been confirmed through Fox and his colleagues. Fox and Potocki (2016) added more variables to study in conjunction with video game consumption and rape myth acceptance. They predicted that the more participants play video games, the higher the correlation with interpersonal aggression, ambivalent sexism (Glick & Fiske, 1996) and rape accusations.

A common stereotype toward women in the video game industry is their incompetence in playing video games. This stereotype could create a hostile environment

for females who want to play with a community or cooperatively. Vermeulen, Castellar, Janssen, Calvi and Van Looy (2016) studied the effects of reinforcing this stereotype versus countering it. Using only female participants, researchers had them play *Super Puzzle Platformer HD*, a puzzle-platformer game that recorded high scores on a leaderboard. These leaderboards were manipulated per three conditions of the experiment. One was a stereotype neutral condition with no gender information on the scores. Second was a stereotype boost condition where 90% of the high scores belonged to females and third was a stereotype threat condition where males had 90% of the high scores. The participant was asked to exceed the leaderboard scores. Participants in the stereotype threat condition were expected to play worse than participants in the other conditions. Their expectations were worse if they self-identified as gamers. Their scores were also significantly lower than in the other conditions. However, there were no differences in performance or affective outcomes for females in the neutral and boost conditions. While the presence of a harmful stereotype is detrimental to confidence, performance and anxiety, the lack of a stereotype and a positive stereotype were not significantly different.

Kaye and Pennington (2016) took female gaming stereotypes and applied it to social identities. Female online gamers were recruited and primed with one of three conditions. The first condition was a negative social identity of female gamers. Second was a mixed social identity, stating the community as negative but the participant as a positive player. The third condition applied to male and female participants and was a general overview of the experiment with no specific priming. After measuring their social identity, participants took an IAT created to match evaluative attributes of positive and

negative traits to female online gamers or male online gamers. Then they played a platformer game called *Supertux* and were rated based on their score. Males outperformed females in the control/no priming condition. However, there was no difference between the stereotype threat and mixed threat conditions for female players. The greatest score difference was between non-primed males and stereotype threat females. Females in all three conditions implicitly endorsed that females were competent gamers more than males. The presence of negative female stereotypes specifically toward women lowered their overall scores, but did not affect their implicit association of other female gamers. These stereotypes are shown to be harmful to female gamers' self-confidence and performance. The presence of gender stereotypes in video games can be harmful to female gamers. There are similar issues for gamers of different sexualities.

Video Games and Sexual Orientation

Little research has been done investigating the effects of portrayals of the lesbian, gay, bisexual and transgender and queer (LGBTQ) community in video games. Shaw (2009) addressed the lack of LGBTQ representation in video game research. Their presence in research is rare, as Shaw remarks that most representation research is done with gender or race. For her research, Shaw wrote to game developers, journalists and gamers to inquiry on the LGBTQ presence inside and outside video games. A concerning remark made about representation is the use of stereotypes for characterization. LGBTQ character who only inhabits stereotypes may be harmful to the overall community. However, a roadblock Shaw encountered with her interviews was the lack of LGBTQ video game designers and programmers. While many interviewees cited the development workplace as accepting to non-heterosexual individuals, the pressure and presence to

“come out” for some LGBTQ members could be daunting. As for the games themselves, few developers commented on the inclusion of homosexuals. Their comments centered around having diversity among their characters or having the option to have a homosexual relationship between the player avatar and another character. Another point of contention is the argument against a “gay game.” Developers argue that if a video game catered toward an LGBTQ audience, the hardships of reaching that audience plus dealing with conservative censorship are barriers to LGBTQ games. Homosexual representation in video games could allow for a wider audience to engage and identify with video games.

Diverse gamers who play MMORPG’s often come together in one single game. Pulos (2013) investigated *World of Warcraft (WoW)*, a vastly popular fantasy MMORPG and their LGBTQ community via discussion boards. By using an online community, many LGBTQ players gravitate toward each other and form specific communities called guilds. However, discrimination and discourse is still a reported problem for LGBTQ *WoW* players. Related to a thread of discussion posts found on the *WoW* boards, the top response after searching “LGBTQ” was one for players to discuss their grievances with LGBTQ players and for LGBTQ players to share their experiences. The top post states that sexuality has no place in *WoW*, as video games need to be an escape from reality and not a representation of it. Many posts afterward encouraged use of derogatory terms such as “faggot” or dismissing the gaming environment as bigoted, to highlight the futility of having an LGBTQ safe guild. However, LGBTQ *WoW* players confronted the heteronormativity of their guild and attempted to fortify their community. In the large online presence that *WoW* provides, LGBTQ players are fighting for representation and

against discrimination. Given the range and freedom that *WoW* provides to its players however, one MMORPG cannot represent the entire gaming industry in terms of LGBTQ representation.

As Condis (2015) finds in her analysis of BioWare's games *Star Wars: The Old Republic* and *Dragon Age II*, LGBTQ discussion is expanding into other popular selling videogames. BioWare, a video game developer, had banned usage of the words "gay" and "lesbian" on their *Star Wars* message boards as censorship of inappropriate words. Condis interviewed gamers who support that sexuality is a "real-world" issue that does not belong in video games, in turn supporting the censorship decision. Real world issues like discussing sexuality as identity politics, which some gamers argue have no place in video games. BioWare responded in turn with adding gay relationships for males in their following game, *Dragon Age II*, simultaneously angering opponents of identity politics and delighting LGBTQ players.

Representation of the LGBTQ community is scarce in video games based around the hostility it can bring. Many gamers argue for its exclusion out of the necessity of keeping video games outside of reality. However, as seen with gender and race, representation outside of stereotypes can create new video game players. An LGBTQ gamer could more easily identify with a video game avatar and have a sense of community or competition that video games can bring.

Real-World Effects

Stereotypical beliefs are activated by an automatic cognitive response. Devine (1989) found that when a racial stereotype is primed in participants, that stereotype is automatically activated and affects interpretation of behaviors. These include participants

who have a lot of stereotypical beliefs (high) and those with fewer stereotypical beliefs (low). However, when participants can consciously monitor stereotype activation, responses to both high and low stereotypical subjects are appropriate. High and low stereotypical belief participants were then asked to write about their thoughts concerning Black people. High belief participants wrote more negative traits about Black people while low belief wrote more positive beliefs. Despite writing more positive comments, low belief participants showed hostility from being primed. Stereotypes can be pervasive primes for people that view or experience them. Even for those who do not believe harmful stereotypes are true, exposure to them can affect and change real-world behaviors and temporarily alter beliefs. The video game industry is no stranger to stereotypes. Stereotypes about gamers are usually seen as negative, with the same gamers being aware and cognizant of these beliefs (Kowert, Griffiths & Oldmeadow, 2012). However, the stereotypical content within video games can prime gamers to hold these beliefs in the real world. These beliefs can have a negative effect on behaviors toward women and ethnic minorities.

Within video game communities, stereotypes and lack of representation can be harmful to non-White gamers. Lee and Park (2011) examined how White and non-White participants interacted in *Second Life (SL)*, a popular virtual life video game. A key aspect of the game is the ability to create avatars and customize their appearance, including race. First, participants were shown an avatar with a random race, then instructed to create their own. They then rated how well they would belong within the *SL* community and if they would play *SL* outside of the experiment. Non-White participants who were shown a White avatar reported lower belonging in *SL* than when shown a

racially diverse avatar. Exposure to the White avatar also resulted in lower intention to play *SL* in non-White participants. They also interpreted the skin customization to be more limited. When non-White participants were shown a racially diverse avatar, however, they were the most likely to intend to play *SL* outside of the experiment. For non-White participants, exposure to White-dominance cues in the *SL* gaming community made them feel more excluded and less likely to engage in the community.

According to Behm-Moratiwz and Ta (2014), playing video games with no control over avatar race has an impact on real-world behaviors. Researchers used cultivation theory, the assumption that exposure to repetitive messages in a medium can foster a world view, to study how video game habits affect attitudes toward ethnic minorities. The more White students played video games, the less favorable their beliefs about Black people. This result was not found toward Asian people, another common ethnicity seen in video games. This interaction was found among White gamers across video game genres. While the previous studies did not examine interactions with real video game players, Gray (2012a) examined the experiences of non-White gamers in an online live community.

Minority gamers are often labeled and discriminated against in online gaming communities. This can lead to a decreased sense of belonging and lack of desire to engage in gameplay. Gray (2012a), using observations of gameplay interactions and interviews with players, examined how minority gamers were being labeled and which labels were being used. The games used were FPS that included online multiplayer mechanics. Within these games, players can work together or against each other toward goals set by the game. The discriminatory process, as Gray found, always starts with the

opposing White player realizing that the interviewee is Black. Following that, players start using racialized hate speech. The conversation then ends once the Black players either leave the group chat line or stop playing with the White person. Another interviewee remarked on how he never heard this hate speech outside of video games but has countless times in gaming communities. Following a specific encounter involving a White player, Gray entered a private chat room to ask why he used those terms. While initially not cooperative, once he figured out she was black, he reverted to using racist speech. As established earlier, under stereotype threat, non-White gamers can feel neglected or left out of gaming communities due to the application of racist and stereotypical beliefs.

Outside of the video game community, Black people also feel the effects of stereotyping. Najdowski, Bottoms and Goff (2015) investigated how Black stereotypes affect their interactions with police officers. First, Black and White participants were asked to describe how they feel interacting with police officers. Only Black males reported any concern for their safety due to the harmful criminal stereotype. Next participants were asked to imagine experiencing some specific police encounter and to report perceived stereotypical threat. Given a scenario where they run into a police officer in a public area at night, participants then reported how they would feel, what the officer might do and how they would rate their level of anxiety. Black participants expected to be accused of a crime based on stereotypes more than White participants. They also reported more anxiety, being more concerned about their self-regulatory behaviors and how suspicious they were being perceived. With several studies seeing how implicit stereotypical beliefs can lead to discriminatory actions (Amodio & Devine, 2006; Correll,

et al., 2002; Correll, et al, 2006; Dovidio, et al., 1986), there can be several real-world consequences for holding stereotypical beliefs.

A common stereotype affecting women is the over-sexualization of the female body. Objectification theory explains the impact this can have. This involves the objectification of women's bodies in a sexual manner as an object, removing personhood. Objectification can reach into many areas of a woman's life, including employment, social situations and risk of violence. Objectification theory understands how being objectified has mental and social consequences for women (Fredrickson & Roberts, 1997). Heflick, Goldenberg, Cooper and Puvia (2011) tested the objectification theory related to perceptions of male and female bodies. Their hypothesis centered on if objectification was determined by appearance alone or if stereotypes were being primed and associated with the images. First, participants looked at images of popular newscasters, one male and one female, then rated their appearance, performance, warmth, morality and familiarity. The female newscaster was rated as more attractive, but the male was rated as more warm and moral. When appearance was the focus, the females' morality and warmth was undermined and were rated the least competent. However, for the male target, the appearance focus yielded the highest competence levels. Also, when appearance was on the focus, participants perceived the female target as having fewer human traits, such as morality and warmth. This process of dehumanization is a key aspect to sexual objectification.

Objectification affects both genders. The effects on women potentially impact their self-worth and rape acceptance (Fox et al., 2012; Fox & Potocki, 2016; Fox & Tang, 2014), particularly in the video game community. Female objectification's effects on

males' stem from hypermasculinity, a prevalent issue regarding the social climate of video games. Hypermasculinity is the exaggeration of masculine stereotypes that is hostile toward feminine displays. As a stereotype, it can be primed in media consumers and displayed by affected men. The hostility toward femininity can be reflected in objectification, sexism and discrimination (Salter & Blodgett, 2012). Stermer and Burkley (2015) found that males who frequently played video games scored higher on sexism than non-gamers. The male participants reported playing more games featuring sexist content than females. However, there were no main effects of sexism and gaming habits for females. Female players are shown to have self-objectification only for themselves, not other women. However, consistent consumption of objectifying video games has been found to impact sexist beliefs only in male players.

The main source of objectifying material in video games is found in the avatars themselves. Dill, Brown and Collins (2008) exposed participants to sex-typed video game characters or United States politicians as priming stimuli. Then participants were asked questions about sexual harassment, rape attitudes and their gaming habits. When males were exposed to the sex-typed avatar, they displayed the least progressive beliefs and judgments of sexual harassment, with females in the sex-typed condition showing the most progressive judgments. Males, regardless of avatar condition, scored higher on the rape-supportive measures. Supporting Salter and Blodgett (2012), participants who played more video games had increased tolerance of sexual harassment and rape. This avatar effect can be seen in larger online gaming communities.

Brehm (2013) surveyed *World of Warcraft* (WoW) players on their opinions regarding sexism and gendered play. The most prominent issue found among responses

was exclusion. Males reported female players as being detrimental to gameplay. This can lead to female players being removed from groups or ignored by other players. These actions are perpetuated by female gamer stereotypes. These include lack of gaming skill or leadership qualities or having feminine qualities. Female participants also reported leaving gaming chats or entire campaigns because of experienced sexism. These experiences were not shared by the male participants, with only 27.5% of them believing sexism is a problem in the game, compared to 45.3% of the female participants. Behm-Morawitz and Schipper (2015) used *Second Life (SL)* to study sexism in online communities. As another massive virtual world, female *SL* players have similar experiences to the *WoW* players. While both male and female players reported experiencing at least one type of harassment, 38% of female respondents cited sexual harassment versus 13% of males. Females who had a highly-sexualized avatar in *SL* were more likely to experience sexual harassment, name calling and obscene comments. Male avatar sexualization was not related to any source of harassment.

Outside of avatar primed sexual harassment, online gaming communities can encourage female stereotypes. Ivory, Fox, Waddell and Ivory (2014) examined how gender and communication style interacted with online video games and compliance with friend requests. The less female participants communicated with other players, the more likely their friend requests were accepted. If females were more vocal in their gameplay, they were less likely to be accepted, perpetuating the silent and submissive female stereotype. However, males were more likely to be accepted when they said negative comments. As Kuznekoff and Rose (2012) have found, females who are more vocal during their online gameplay are more likely to receive negative comments. While most

of the comments were generally hostile, some qualified as sexual harassment. The culmination of avatar and online-based sexual harassment may include cognitive effects on the male gamers who spread it. Yao and colleagues (2010) studied the short-term cognitive effects on playing sexually explicit games. Males played *Leisure Suit Larry: Magna cum Laude (LSL)*, an adventure game with sexually oriented goals and characters, *The Sims II*, a virtual simulation game or *PacMan II*, another adventure game with no sexual content. Participants in the *LSL* condition were the fastest at recognizing sexual words and sexually objectifying descriptions of women. There were no differences between *the Sims* and *PacMan* conditions. The sexually objectifying material in video games can prime male gamers into objectifying females outside of video games.

The pervasive stereotypes about female gamers can impact interactions outside of avatars and online communities. Schott and Horrell (2000) interviewed adult and children female gamers about their experiences in their local gaming community. The child gamers usually experience being a watcher instead of a player, with male family members slowly edging them out of game play. With the adult gamers, their play time was often limited due to other responsibilities. However, they indicated that their male relatives or partners played regardless of responsibilities. Adult gamers did not like the human characters because of lack of well-represented females. Both children and adults lamented the lack of female characters. From what the child gamers experienced, there can be factors that push them out of playing video games early, not only for lack of female representation, but for how they are treated in real-life for playing games.

If females continue to play video games into adulthood, they can continue to experience gender-unique setbacks to engaging in gaming communities. Beavis and

Charles (2007) examined female gamer interactions in a Local Area Network (LAN) café. These are buildings specifically for groups to play together in the same game without worrying about internet capabilities. Following a group of female gamers who play *Counter Strike*, an online FPS, researchers asked the group about their experiences in LAN cafes. Their common experiences include being dissuaded from playing computer games, being intimidated or occupying in-game female stereotypes. These include assumptions of female inferiority or demeaning comments regarding gender roles. However, the group carried on, being used to sexist comments, and continued to engage in *Counter Strike*. These stereotypes also affect professional females in the gaming community.

Competitive gaming tournaments have grown exponentially with the popularity of video games. As with online gaming communities, females can be stereotyped in these settings. Common places for women in these settings, include being “booth babes”, “Halo hoes” or “Cheerleaders”. Booth babes are women who are hired to be sexual and bring attention to a booth or game. While these women are hired and consented to be presented in this manner, this does not stop the possibility of unwanted action from males. “Halo hoes” are women who play video games for the intention of picking up males in a sexual manner. Again, while this can be a consensual position for women to place themselves in, this image can reflect poorly on professional female players who do not seek that attention. Lastly, cheerleaders participate in the tournament with verbal and physical encouragement for the competing male players. These common places for females are not necessarily harmful to the individual women engaging in them, but these

are persistent enough stereotypes that undermine professional female players who want to seriously compete (Taylor, Jenson & de Castell, 2009).

Another area of professional gaming hostility is academia. Chess and Shaw (2015), as two prominent feminist gaming scholars, shared their experiences of being female while studying gaming culture. Following the development of “GamerGate”, an online movement to bash and discredit feminist culture in video games, Chess and Shaw attempted to bring together feminist academia to discuss the movement. However, following an online publication of notes to help other feminist academics, many gamers felt threatened by feminism pervading video games. Many feminists within the gaming community, even outside of academia, were being threatened and harassed. As Chess and Shaw stated at the end of their experiences, they wished to dismantle the hegemonic masculinity that the video game industry has to resolve the feminist issues within gaming.

Content Analysis Studies

Representation of females and ethnic minorities in media have been important to players identifying with their games. As social cognition theory implies, motivation and regulation often drive a person’s self-beliefs and actions (Bandura, 1991; Bandura, 2001). With proper video game mechanics (King et al., 2010; Ryan et al., 2006; Sherry, Lucas, Greenberg & Lachlan, 2006), players have the motivation to continue playing video games, being immersed in and identifying with them (Csikszentimihalyi, 1975; Lee & LaRose, 2007). Part of the identification process is how the players’ identification is represented in video games. Parts of these aspects can include gender, race or ethnicity and sexuality. Content analyses of video games can explore how well these aspects are represented in video games and if they reflect who is playing the games themselves.

Video games magazines are a popular medium for advertising games, often giving in-depth analyses on game development, hidden content or fan interaction with developers. Gaming magazines are often used for content analysis of characters portrayed in video games. Miller and Summers (2007) examined 115 coded characters from 49 articles in popular gaming magazines. Between the male and female characters analyzed, male characters inhabited more positive and strong stereotypes in their appearance. These include being *muscular* and *powerful*. Female characters had more negative and sexualized stereotypes, including being *sexy*, *attractive*, *helpless* and *innocent*. Aiding in the sexualized stereotypes were the clothes worn by female characters. They were more likely to be more revealing in the chest area. There were more playable male characters who were often heroes or the main characters. Females were primarily supplemental characters.

Summers and Miller (2014) followed up their study with a longitudinal look at how video game magazines portray female characters. Over time, the role of the female character has changed. The likelihood of being a “princess”, “innocent” or “damsel in distress” character has decreased over time. However, female characters have increased over time related to being *sexy* and *revealing*. Dill and Thill (2007), also looking at popular gaming magazines, found similar results. Across male and female characters found in the articles, females were more sexualized, scantily clad, portrayed with a sex role stereotype and as being sexualized and aggressive. The features on the female characters that supported these traits were skimpy clothes, being naked, having large breasts and voluptuous curves.

Burgess, Dill, Stermer, Burgess and Brown (2011), using gaming magazines, found discrepancies in how ethnic minorities are represented as gaming characters. Black males often were characterized by stereotypes. These included being hyper masculine, aggressive, athletic and violent. Hispanic characters were also seen as aggressive and engaged in fighting more than other ethnicities. The portrayal of harmful stereotypes of both females and non-white ethnicities added to a lack of proper representation.

Like magazines, box art can be a persuasive advertising tool to get players to buy games. Near (2013) looked at box art of games rated *Teen* or *Mature* for sexualized content and gaming sales. Female characters were only on about a third of the games with only 19% featuring a female character. However, these games that featured only female characters sold worse than games that featured just males. Sexualized females were featured more often than non-sexualized, regardless of whether they were the central figure on the box art.

The most accurate way to evaluate content of video games is within the game itself. Jansz and Martin (2007) evaluated introduction cut scenes of 12 video games for female character analysis. An introduction scene in a game is used to familiarize the player with a story, the main characters and to motivate players to engage in their game. Twenty-two characters were found with 7 being female. Most characters were white with six being Black, Hispanic or Asian. Female characters in the cut scenes were more sexualized than males, with most having large breasts and buttocks. There were no differences found in the role of the genders. However, since this is an introduction scene to show the main characters to the player, the lack of difference is expected. Martins, Williams, Harrison and Ratan (2009) investigated how photorealism impacts female

character body imagery. Screenshots of female characters were taken from top-selling video games, measured and compared to realistic measurements from American women. Female characters had smaller chests, waists and hips but larger heads. These were especially different with highly rendered video games, ones with more realistic looking characters and higher graphical output. Minimally rendered video games feature more realistic females with their features being closer to real women, the exception being head size. Researchers replicated the study but for male characters. Unlike the female characters, highly rendered games feature males with larger features, including heads, waists and hips. Minimally rendered characters were also larger in these areas, adding a large chest size (Martins, Williams, Ratan & Harrison, 2011). With the disparity in body measurements, these characters are not representative of accurate body measurements of Americans.

Other content analysis studies look at the actual characters for representation and stereotype presentation. As addressed before, actual analysis of the characters is the most accurate way to find how video games represent specific traits. Dietz (1998) looked at popular video games from the Nintendo Entertainment System (NES) and the Sega Genesis (Sega) for their portrayal of women and violence. Most of the games contained no female characters with the few present being portrayed stereotypically in appearance or role. Seven of the games with female characters featured violence against them. Beasley and Standley (2002), using Nintendo 64 (N64) and Sony PlayStation (PS1) games, found a gender bias based on character clothing. Females were more likely to wear clothes that exposed their skin more than males. This included sleeve length, neck line and overall cleavage. Downs and Smith (2010), also examined attire comparisons

between genders, considering more recent games belonging to the next generation of video game consoles. These included the Microsoft Xbox (Xbox), Sony PlayStation 2 (PS2) and the Nintendo GameCube (GC). As found in the previous study, female characters wore more revealing clothing. Female characters were also more partially or totally nude, had an unrealistic body proportion, small waist and overall inappropriate attire.

Lynch, Tompkins, van Driel and Fritz (2016) examined the trend of female sexualization in female video game characters over time. Earlier researchers found sexualization traits in their respective sample, being restricted to one generation of games. Lynch and colleagues, however, looked at every video game from 1983 to 2014 with playable female characters, looking for sexualization trends. Fighting games featured the most sexualized females, with games rated Mature (M) and Teen (T) including more sexualized characters than ones rated Everyone (E). Females remained secondary characters over primary characters over the entire time span. The secondary characters were more sexualized than primary ones. Similarly, Williams, Martins, Consalvo and Ivory (2009) conducted a large-scale content analysis of over 150 games looking for gender, ethnicity and age representation. As found in the earlier studies, females were underrepresented, both as primary and secondary characters. This was reflected in every non-white ethnicity. In terms of age, children and elderly were under- represented while adults are over-represented.

Hypotheses and Research Questions

As social cognitive theory suggests, the interaction between motivation and learning within people can explain how video games can facilitate regulation of behaviors. Through use of self-perception, players can get attached to characters, particularly ones they create themselves. Certain traits that video game characters have, including their gender, race and sexuality, are ones that players can connect to and increase the immersion in and liking of the game. However, previous content analysis studies have shown how population groups have been misrepresented and shown in stereotypical manners in video games. This can lead to a disconnect between the character and the player as their identity group could be falsely represented in video games.

By taking United States Census data (“United States, 2010”, 2013), we can compare that to the frequency of gender, race, sexuality and age in video games. The use of census data (Burgess et al., 2011 Williams et al., 2009) as a comparison to video game frequencies has shown a large disparity between the general population and video game frequencies. Across previous content analyses, data related to gender (Beasley et al., 2002; Dietz, 1998; Downs & Smith, 2010; Near, 2013; Miller & Summers, 2007; Williams et al., 2009), race (Burgess et al., 2011; Williams et al., 2009;) and age (Williams et al., 2009) showed that minorities within their groups are underrepresented. However, previous analyses have not examined rates of different sexualities in video games. Based on previous research, we formulated our first hypothesis:

H1: The frequencies of gender, race, age and sexuality in video games will not match United States Census data. Females, non-white minorities and non-straight sexualities will be under-represented in video games compared to census data.

Males, Caucasians and heterosexuals will be over-represented in video games compared to census data.

An important component of video games are the characters. They can be divided into two groups: primary and secondary. Primary characters are ones the player can control throughout the game and have an impact on the plot of the game. The main character, the one the player controls most often in the game, is often deemed the most important character. Secondary characters are all other characters that the player interacts with. In both groups, these characters have been found to be overwhelmingly male (Miller et al., 2007; Williams et al., 2009). Our second hypothesis is as follows:

H2: Male characters are more likely to be controlled by the player than female characters.

As previous stated, minority groups are often underrepresented in video games. These include characters that are female, non-white ethnicities and not heterosexual. These groups, when portrayed in media, can have stereotypical features and behaviors of their respective group. Black and Hispanic characters are often portrayed as aggressive, violent or athletic (Burgess et al., 2011). These stereotypes can be harmful by misrepresenting these groups within video games and having real-world effects (Gray, 2012a; Lee & Park, 2011; Najdowski et al., 2015). Females are often portrayed as sexualized and without agency in their characterization (Jansz & Martins, 2007; Dietz, 1998; Miller & Summers, 2007; Summers & Miller, 2014) which can impact how they are treated in the video game community (Behm-Morawitz & Ta, 2015; Brehm, 2013; Kuznekoff & Rose, 2012). Therefore, our third hypothesis is:

H3: Female characters are more likely to be portrayed stereotypically. Non-white ethnicities are also more likely to be portrayed stereotypically.

Both males (Cacioli & Mussap, 2014; Martins et al., 2011) and females (Beasley et al., 2002; Lynch et al., 2016; Martins, 2009) have been portrayed unrealistically in video games. These images can influence self-body image and distortion views. For females, distorted body images are often due to sexualized features and clothing levels (Downs & Smith, 2010; Lynch, 2016) which can also lead to self-objectification (Fox et al., 2015; Fox et al., 2012). Based on this research, we predict the following:

H4: Females will be more likely to be portrayed with over-sexualized images than males.

Miller and Summers (2007) found differences in weapon use between genders. Male avatars were more likely to use weapons within their games than females. Within the types of weapons, males used guns and had more magical abilities than females. Based on this finding, we also predict that:

H5: Males will be more likely to engage in combat than females. Males will also use guns more than females.

II. METHOD

Sample

I chose to include video games from the year 2010 for comparison against the United States Census data from the same year (“United States, 2010,” 2013). Wikipedia was referenced to compile a list of every video game released in 2010 ($n = 549$) from January 5th to December 29th (“2010 in Video Gaming”, 2017). These games were released on the following platforms: Linux (Lin), MacOS (Mac), Nintendo DS (NDS), PlayStation 2 (PS2), PlayStation 3 (PS3), PlayStation Portable (PSP), Nintendo Wii and WiiWare (Wii), Microsoft Windows (Win), Microsoft Xbox 360 and Xbox Live Arcade (X360) and iPhone OS (iOS).

To get a sample of the best games released in 2010, we referenced GameRankings (GameRankings.com, 2017) to obtain a mean ranking for each game on the list. Each ranking is based on a percentage ranging from 0 to 100%. The percentage is based on how good the video game is. The mean is compiled from multiple video game review websites from different video game reviewers. Each reviewer has their own system of ranking a game, compiling a percentage score based on numerous components. GameRankings collects the different reviews and compiles a set mean for each game. Review scores were used to get a sample instead of net sales data, as used by Williams et al., 2009, because we wanted to look at the best quality games released. Each game was searched on GameRankings with most having a score on the website. Seventy-two games did not have a mean rating on the website and were removed from the list. If a mean score was compiled from fewer than 10 reviews, the score was not recorded and was excluded from the list. The original percentage cutoff was 70% to allow for every game

that had at least an average score to be included in the sample. However, the sample created after that cutoff was too large. We then reduced the sample to include games that received a 78% or higher rating, resulting in 122 games.

Next, the remaining 122 video games were examined for exclusion criteria. Games that were not originally released in 2010 were removed. Examples of these are ones that have a “Game of the Year Edition” (e.g. *Resident Evil 5: Gold Edition*) release with additional content added to the original game or high definition (HD) re-releases of previously released games. Games that were only downloadable content (DLC) (e.g. *World of Warcraft: Cataclysm*) for pre-existing games were removed. Video games that included no humanoid characters (e.g. *Blur*) for analysis were exempt from consideration. Lastly, any game that was no longer publicly available (e.g. *Chaos Rings*) or too expensive to purchase for the experiment (*Shin Megami Tensei: Persona 3*) were removed. After the appropriate games were removed, the top 50 games were selected for analysis. These games were deemed representative of the highest quality video games released in 2010. The games titles can be found on Appendix A.

Each game was played by an experienced video game player as a research confederate, known as the player. Another person video recorded the play. The recorder was not a coder to eliminate any bias during the coding and data entry process. Each game was played for an hour. The recording process began when the player took control of a character. A Logitech webcam was attached to a laptop to record game footage not played on a computer. The recording program that came with the webcam was used to view the footage and saved it as an MP4 file. The games on the list that were released on PC were recorded using Open Broadcaster Software (OBS) and saved as MP4 files. The

coders were not present during recording sessions to eliminate bias. Each game was played on the easiest difficulty level possible to reduce rates of character death. This allowed for more gameplay to be analyzed. When the game presented the confederate with multiple options (e.g. avatar creation), a random number generator was used to make choices. This was to eliminate bias toward the types of choices available to the player, such as gender, race or body type options.

Units of Analysis

Each video game selected served as the first unit of analysis. Game data were found on their respective Wikipedia pages. The characters observed were the main unit of analysis. Characters in the game qualified for analysis if they followed a set criteria. First, all characters that are controlled by the recorder counted. This included characters that could be indirectly controlled. For example, in *Professor Layton and the Unwound Future*, players do not physically move the main characters but are inferred to play as them when solving puzzles. Any non-playable character (NPC) that the played character interacted with during gameplay counted. The recorder was instructed to interact with as many NPC's as possible. However, if the controlled character interacts with other characters during a video cut-scene, they did not count. This is due to these cut-scene interactions being out of the player's control, not counting as a game-play interaction. For example, in *Super Mario Galaxy 2*, Princess Peach, a well-known character from the *Super Mario* series did not count. She was only present during the introductory cut-scene and was not present for the rest of the hour. Enemies or bosses that had their own names were also counted. Most enemy characters in the games have stock names, like "grunt" or "soldier" and do not have distinguishable characteristics. More important enemies or boss

characters, like Poseidon from *God of War III*, were included in the data. For the sports games, every character in the team being controlled by the confederate was included. Every character in the opposing team was also included. Lastly, characters that never showed their faces to the controlled character were not counted. For example, in *BioShock 2*, a character named Sinclair communicates to the player character through a radio system. But within the hour of gaming footage, Sinclair is not shown to the character. No characteristics can be found related to this character. Using these criteria, data from a total of 509 characters were compiled from an hour of footage per game.

Measures

Stereotype development. A pilot survey was conducted to gather lists of stereotypes based on gender, race and sexuality. Using an undergraduate Introduction to Psychology course as a subject pool, 342 students filled out a questionnaire asking them demographic questions and questions about stereotypes. The stereotype questions asked participants to list any positive and negative stereotypes they had heard or experienced based on their own race, gender and sexuality. They were also asked to report any stereotypes based on their demographics heard in the media. Using the students' responses, lists were compiled of the most common responses to each category. The categories were determined by multiple groups. First, they were divided by positive and negative stereotypes. Then they were separated by gender (male and female), ethnicity (White, Black, Hispanic/Latino, Asian/Pacific Islander, Middle Eastern and Native American) and sexuality (heterosexual, Gay/Lesbian and Bisexual/Pansexual). Similar stereotypes were condensed into one (e.g. synonyms for jerk) single stereotype and were rated by frequency of report. The twenty most frequently reported stereotypes were

selected for each category. Then each category was reduced for media-applicable items. For example, “hard-workers” was present in the “positive male stereotype” category and the “positive Hispanic stereotype” category. However, this is a subjective stereotype that cannot be determined through video game footage so was dropped. The complete list of stereotypes available to the coders for data analysis is given in Appendix B.

Coding packet. A coding packet was developed to gather content information on each character. Each game was given a cover sheet (Appendix C) on which information about the game was recorded. The variables associated with the game include the country of origin, developer, month of release, genre, the Entertainment Software Rating Board rating (ESRB), player availability and number of characters per game. Each character then received its own set of coding sheets (Appendix D) to collect data on each character. Part one recorded if the character was being controlled or not. Part two involved demographic questions which included gender, age, sexuality, ethnicity and species. Part three covered the physical features of each character. This included descriptive aspects of the character over all parts of their body. There were female specific items, such as breast size, cleavage and hip/waist ratio. There were also male specific items, such as chest muscles, abdominal muscles and penis bulges. An overall clothing level item was also included which asked about the amount of clothing the character was wearing. The items ranged from nude to completely covered. Part four recorded the characters’ abilities. These included if the character engaged in combat, the weapons they used and if they had magical abilities. Two non-ability questions were added at the end. These asked if the characters swear and if they flirt or engage in sexual relationships. Lastly, part five asks the coder to record any stereotypes the character portrays. Using the final stereotype list

provided, coders listed the corresponding number associated with the character stereotype. For example, an “8” in the positive gender area for a male character was coded as “Manly or Masculine.” A codebook was developed with these coding sheets for data entry in SPSS (Appendix E).

Additional variables. After data entry was complete, 64 variables were found between the game and the character units of analysis. There were 124 possible stereotype variables for each character. If there was little to no data available for a variable, it was removed before inter-rater reliability analysis. The final coding booklet included 30 original variables with 55 stereotypes across the game and character units of analysis. Multiple variables were computed after inter-rater reliability analysis. Thirty-two variables were created to analyze rates of stereotypes across the characters. These included totaling positive, negative and overall stereotypes for each gender and ethnicity. Other stereotype dummy variables were created for statistical testing analysis. Ten variables were created to analyze rates of sexualization and body distortion in characters. There was a variable for both males and females computing individual traits that can be equated with sexualization and body distortion. For males, having exaggerated chest, abdominal, arm and leg muscles and having a penis bulge were added together. For females, having exaggerated bust size, cleavage size and hip/waist ratio were added together. For both genders, being partially or fully nude was added to their individual variables. Overall, 136 variables were analyzed.

Coders

There were two coders with one being the primary researcher and the other being a separate confederate. The primary research was a white female with the separate coder being a Hispanic male. The primary researcher was a highly-experienced player with the second coder being familiar with video games but not as experienced. Neither coder was the player who had recorded the game-play footage and was not present for any recording to eliminate bias. Coding training took place over a week with one day devoted to being familiar with the measurements. To train over multiple items, *Fallout 4* and *Gears of War II* were used as training footage. Neither of these games are ones included in the 50 games analyzed. *Fallout 4* was chosen to display how games that offer avatar creation have traits chosen at random. *Gears of War II* was chosen to show the criteria for character analysis as the game has many examples. Over both games, the coding sheet was used to rate characters together. Any editing of the coding materials for clarification or including missing variables were done during training. Over the course of the week, both coders mock rated an hour of footage that the recorder had played. The training game, *Killer is Dead*, was unknown to both coders to allow for unbiased practice coding the footage. For training, inter-rater reliability was calculated using Krippendorff's alpha (Hayes & Krippendorff, 2007). Krippendorff's alpha is a reliability measure developed specifically for content analysis literature that is flexible to the number of coders, observers, levels of measurement and missing data. After separately coding *Killer is Dead*, an acceptable average of $\alpha = .80$ was achieved.

Both coders separately coded all 50 games to allow for two raters for post hoc reliability assessment. Individual variable reliability will follow below. The game

variables, including country of origin, developer, month of release, genre, ESRB rating and player availability, were not included in post hoc reliability analysis as these were provided for both coders prior to coding.

III. RESULTS

Inter-Rater Reliability

To measure inter-rater reliability between the two coders, Krippendorff's alpha (KALPHA) was used. KALPHA, developed by Hayes and Krippendorff (2007) computes reliability using components from previous reliability measures and is used for media analysis. Using De Swert's (2012) guide to calculating KALPHA in SPSS, a macro developed by Krippendorff (2010) was applied to run inter-rater calculations for variables. KALPHA was run on each of the individual variables that both coders rated. The alphas can be found in Appendix F.

Descriptive Results

There were four variables in the final analysis associated with the game level unit of analysis. These include the console, ESRB rating, genre and player availability. The frequencies of each corresponding variable for the 50 games is seen in Appendix G. The frequencies of each variable for the 509 characters are seen in Appendix H.

Findings

H1. The first hypothesis predicted that the frequencies of gender, race, age and sexuality in video games will not match United States Census data. Females, non-white minorities and non-straight sexualities will be under-represented in video games compared to census data. Males, Caucasians and heterosexuals will be over-represented in video games compared to census data. Chi-Square Goodness of Test tests were used to compare the frequencies of each trait in the sample with the U.S. population. Across ten different trait comparisons, seven were significant. Therefore, H1 overall was moderately

supported. Percentage comparisons for gender are in Figure 1, ethnicity in Figure 2 and age in Figure 3.

There were 410 males and 88 females observed in the sample. There was a significant difference between the observed frequency of male characters and the expected frequency of males in the population, $\chi^2(1) = 200.67, p < .001, \phi = .63$. Males are significantly over-represented in video games. There was also a significant difference between the frequency of female characters in our sample and in the population, $\chi^2(1) = 229.25, p < .001, \phi = .67$. Females are significantly under-represented in video games.

Between 509 characters, 309 were White, 78 Black, 13 Hispanic/Latino, 21 Asian/Pacific Islander, 2 Middle Eastern and 1 Native American. There was a significant difference between the frequency of White characters and the population, $\chi^2(1) = 34.89, p < .001, \phi = .26$. White characters are under-represented in video games compared to the population. There was also a significant difference between Hispanic/Latino characters and the population, $\chi^2(1) = 70.83, p < .001, \phi = .37$. Hispanics are significantly under-represented. There were no significant differences between Black characters and the population, $\chi^2(1) = 3.40, p = .07$ and for Asian/Pacific Islander characters, $\chi^2(1) = 0.70, p = .40$. Because there were fewer than 5 characters that were Middle Eastern and Native American, Chi-Square tests could not be used for statistical comparison.

There were 23 heterosexuals in the sample with no other sexuality observed. However, because the United States Census does not collect data on sexuality, we cannot directly compare the sample to the 2010 population. Therefore, we cannot conclude on the representation of sexualities in video games.

In our sample, we found 33 characters that were children and teenagers, 434 adults and 26 elderly adults. There was a significant difference in the observed frequency of children and teenagers in the sample compared to the population, $\chi^2 (1) = 85.84, p < .001, \phi = .41$. These characters are significantly under-represented in video games. There was also a significant difference in the frequency of adults in the sample compared to the population, $\chi^2 (1) = 160.78, p < .001, \phi = .56$. Adults are significantly over-represented in games. Lastly, there is a significant difference in the number of elderly adults in the sample compared to the population, $\chi^2 (1) = 60.48, p < .001, \phi = .34$.

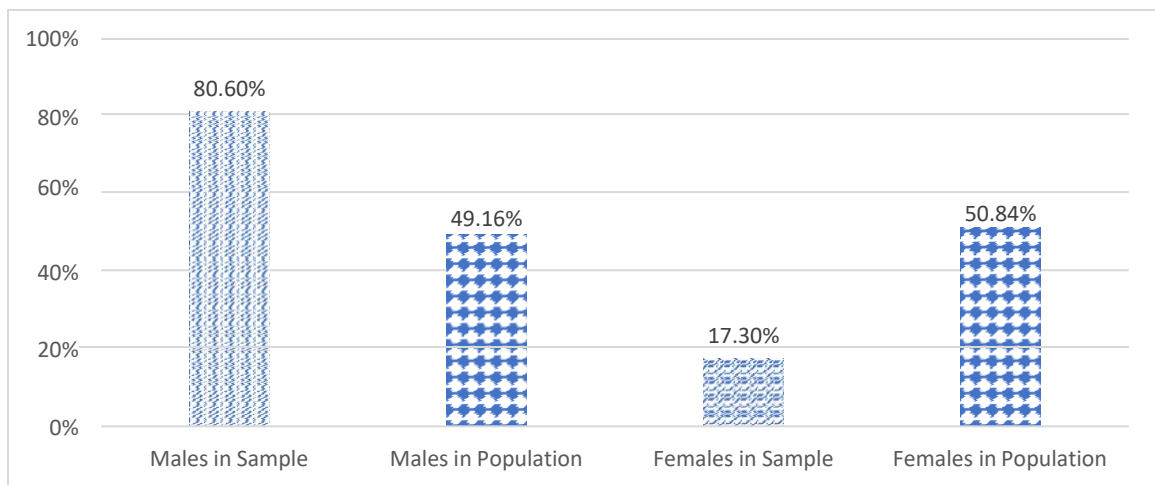


Figure 1: The percentages of each gender in the sample are based from 509 total characters. The population percentages were based from 308,745,538 Americans in the U.S. Census.

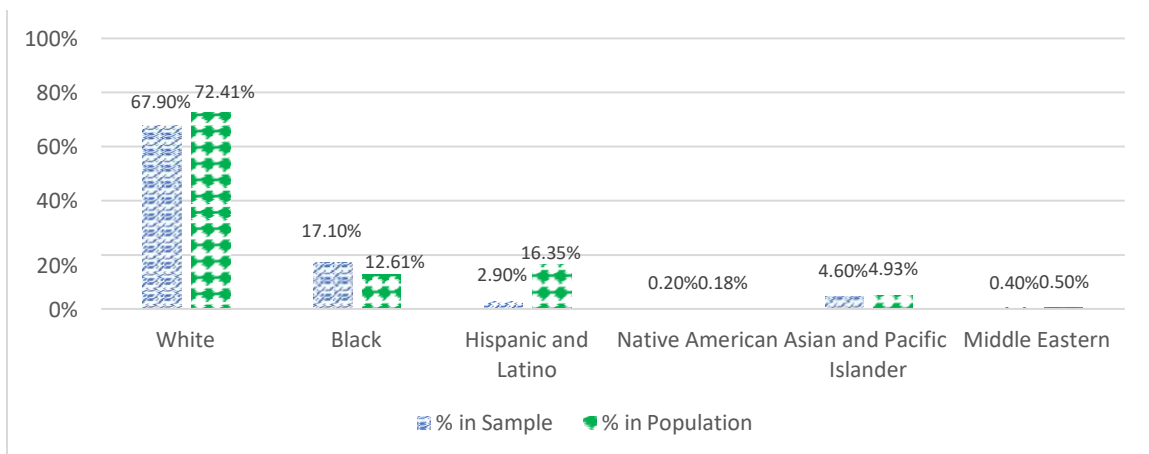


Figure 2: Over-representation and under-representation by ethnicity of human characters. For Native Americans, Asian/Pacific Islanders and Middle Eastern's, no statistical testing was performed.

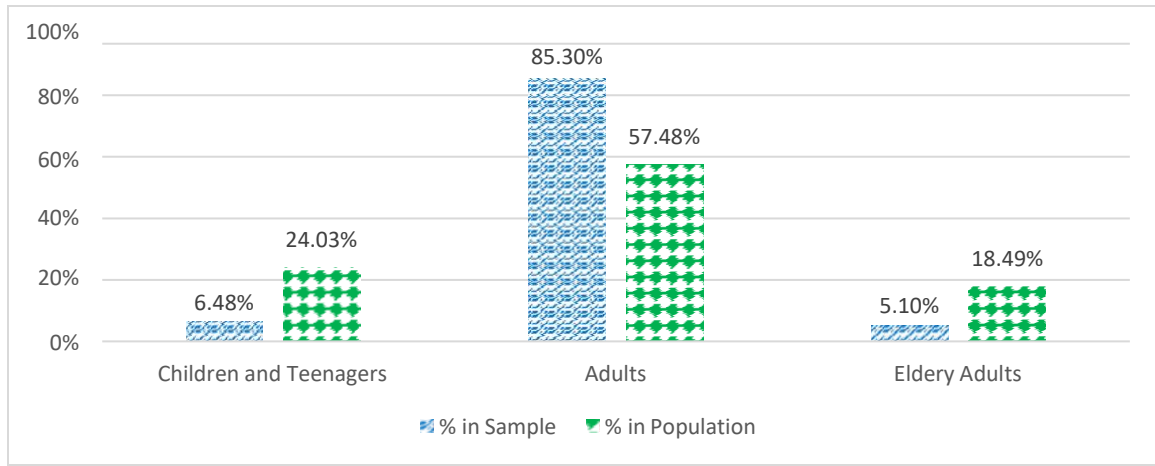


Figure 3: Over-representation and under-representation by age groups.

H2. The second hypothesis predicted that male characters are more likely to be controlled by the player than female characters. A chi-square test of independence test was used to compare gender with being controlled at any time during gameplay. There was a significant difference in the frequency of controlled characters based on gender, $\chi^2(1) = 24.02, p < .001, \phi = .22$. Males are significantly more likely to be controlled by the player. Another chi-square test of independence was used to compare how long the character is controlled based on gender. Males were significantly more likely to be controlled for the entire game compared to females, $\chi^2(1) = 6.58, p = .01, \phi = .19$. Percentage comparisons of the rates of player control based on gender are seen in figure 4.

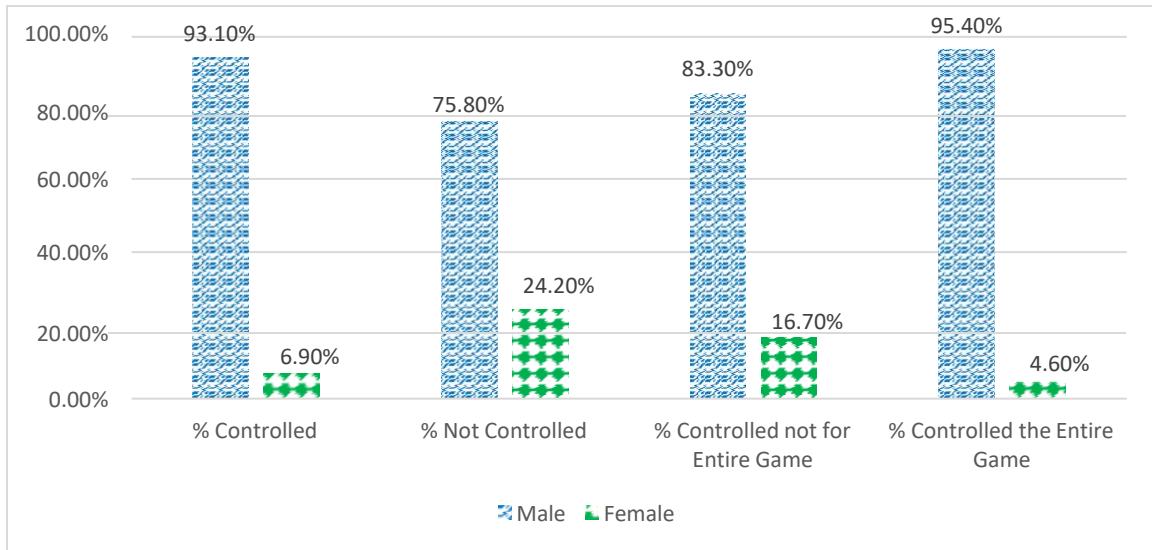


Figure 4: Male characters are overwhelmingly controlled by the player, particularly for the entire hour of gameplay.

H3. The third hypothesis predicted that females and racial minority characters are more likely to be portrayed stereotypically. Chi-square Goodness of Fit tests were used to analyze each trait with how likely they were portrayed stereotypically.

For Black characters, there was a significant difference in the frequency of having at least one stereotype compared to having no stereotypes, $\chi^2 (1) = 55.85, p < .001, \phi = .85$. Many Black characters were from sports games ($n = 66$) and are modeled from real people. For just the sports characters, there is a significant difference of having at least one stereotype compared to having none, $\chi^2 (1) = 50.97, p < .001, \phi = .88$. For Black characters not based on real people, there was also a significant difference between having at least one stereotype, $\chi^2 (1) = 5.33, p = .02, \phi = .67$.

For Asian/Pacific Islander characters, there was no significant difference in the frequency of being portrayed stereotypically. However, they were significantly more likely to not having a stereotype, $\chi^2 (1) = 13.76, p < .001, \phi = .81$. There was no

significant difference between White characters in being portrayed stereotypically, $\chi^2(1) = 3.11, p = .08$.

The thirteen Hispanic/Latino characters were not portrayed stereotypically. The two Middle Eastern characters were also not portrayed stereotypically. There was one Native American character who was portrayed stereotypically. Because of the low frequencies of these ethnicities, Chi-Square tests could not be used for statistical comparison.

For female characters, there was a significant difference in the frequency of having at least one stereotype compared to having no stereotypes, $\chi^2(1) = 49.50, p < .001, \phi = .75$. Females are more likely to have positive stereotypes, $\chi^2(1) = 38.23, p < .001, \phi = .27$ than negative ones, $\chi^2(1) = 6.55, p < .05$. For male characters, there was also a significant difference in the frequency of having at least one stereotype compared to none, $\chi^2(1) = 316.10, p < .001, \phi = .88$. Males were more likely to have positive stereotypes, $\chi^2(1) = 305.65, p < .001, \phi = .87$, than negative ones, $\chi^2(1) = 164.88, p < .001, \phi = .63$.

H4. The fourth hypothesis predicted that females will be more likely to be portrayed with over-sexualized images than males. A Chi-Square Goodness of Fit test was used to compare the frequencies of males and females who were over-sexualized or portrayed features related to body distortion. Females are significantly more likely to be portrayed as over-sexualized than males, $\chi^2(1) = 35.87, p < .001, \phi = .27$. Percentage comparisons can be found on figure 5.

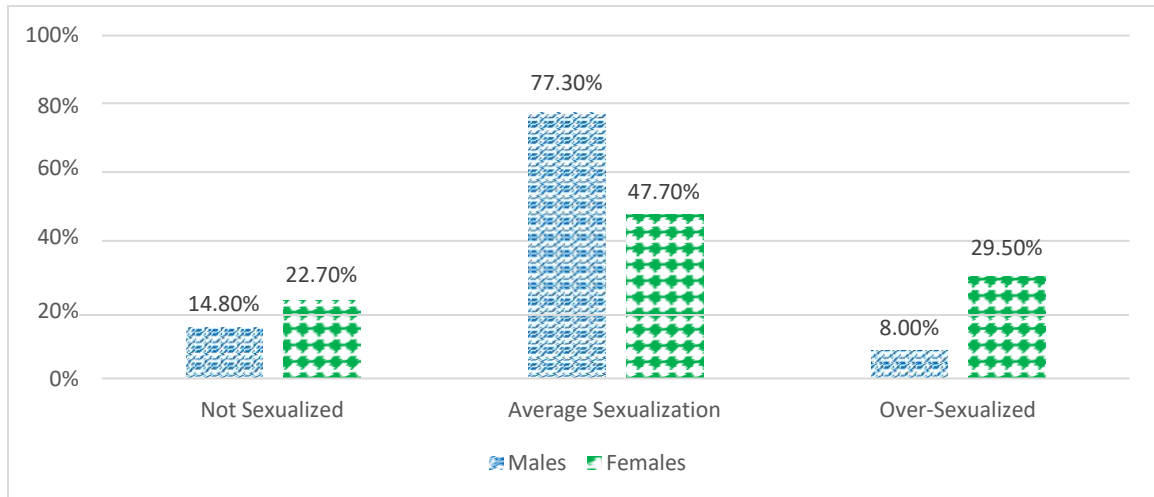


Figure 5: Percentages of sexualization based on gender. While females are more likely to be over-sexualized, they are also more likely to have no sexual traits compared to males.

H5. The final hypothesis predicted that males will be more likely to engage in combat than females. Males will also use guns more than females but other weapons will have no significant gender differences. A Chi-Square Test of Independence was used to compare the frequencies of engaging in combat based on gender, considering only characters who fought. There was a significant difference, $\chi^2(1) = 5.84, p = .02, \phi = .11$, in which males are significantly more likely to engage in combat than females.

Chi-Square Tests of Independence were used to compare gender to each weapon group in the sample. These include guns, bladed weapons, fists/arms, feet/legs and other types. For guns, there was no significant difference in the frequency of gun use based on gender, $\chi^2(1) = .70, p = .40$. There was also no significant difference in frequency of bladed weapons, $\chi^2(1) = 1.77, p = .18$, use of fists/arms, $\chi^2(1) = .01, p = .94$, use of feet/legs, $\chi^2(1) = .131, p = .72$ and other types of weapons, $\chi^2(1) = .89, p = .35$. An independent samples t-test was used to compare gender to the total number of weapons

used during gameplay. There were no significant differences between males and females in total number of weapons used, $t(133) = -.02, p = .98$.

III. DISCUSSION

There were several purposes to this content analysis. First was to compare the rates of certain demographic traits in the video game character sample to the United States population. Next the characters in the sample were also analyzed for stereotypes based on gender and ethnicity. Then males and females were compared on rates for being a main character, being sexualized and engaging in combat. By examining past literature, we addressed how ethnicity and gender are portrayed in video games. Media portrayals of non-white ethnicities interact with harmful stereotypes. These stereotypes have been shown to influence implicit racism and consequential behaviors, both in the real-world and within video game communities. Non-white gamers often feel excluded and attacked when engaging in racist gaming communities (Gray, 2012a; Gray, 2012b; Lee & Park, 2011). Females are also misrepresented in video games. Their unrealistic portrayal can change the thoughts and behaviors of people who interact with them (Yao et al., 2010). Both males and females can have more objectifying thoughts toward women. However, only males showed more aggressive and sexist behaviors after exposure to over-sexualized females (Fox et al., 2015).

Past content analyses have shown disparities between video game characters and real-world representation. Williams and colleagues (2009) compared a massive character sample from March 2005 to February 2006 against United States Census data, like the present study. They also found significant misrepresentation in the rates of gender, ethnicity and age in video game characters. Over the four years between studies, rates of female, African-American and elderly characters increased. However, rates of Hispanic/Latino, Native American and Asian/Pacific Islander have remained the same.

Considering the growth of Hispanic/Latino people in the United States, they are vastly underrepresented for the current data. Comparisons between the sample here and population statistics showed that White characters are underrepresented in video games. However, Williams et al., (2009) found that Whites were significantly overrepresented. For our sample data, many characters did not have discernable ethnicities and were marked “unknown.” This could have impacted the statistics to show White characters are underrepresented.

When compared to the current census data however, Black and Asian/Pacific Islander character percentages were not significantly different. Due to the low number of Middle Eastern and Native American characters, no statistical comparison could be done. However, their sample percentages matched the population percentages. While these percentages are not significantly different from the population, we would still consider them underrepresented based on the data. By only having two Middle Eastern and one Native American character, these are minimal representations of these ethnicities.

While rates of sexuality were investigated, we did not observe any characters that were not straight. Most of the sample were coded as “unknown/cannot determine.” Heterosexuality was only coded if the game play footage provided direct evidence of a heterosexual relationship. For example, in *Heavy Rain*, Ethan and Grace Mars are a married couple with two children. In the footage, they are shown kissing and flirting with each other. This was counted as direct evidence of being heterosexual. Other married couples in the sample, including characters from *Alan Wake* and *Red Dead Redemption* were counted as heterosexual. Other characters that engaged in kissing or flirting with the opposite sex, like in *Super Meat Boy*, *Assassin’s Creed II* and *Castle Crashers*, also were

coded heterosexual. Only 23 characters had their sexuality coded. Due to the lack of other sexualities, there was no percentage comparison. Because the United State Census does not collect data on sexuality, no direct comparison could be done with population. Other sampling companies either have low samples of data or are cautioned as being inaccurate due to sexuality being incriminating to discuss.

There are several explanations for the discrepancy in character representation. First, the video game industry is often driven by the demand of their customers. As shown in by the Entertainment Software Association's report (2016), White males of all age groups are reported to play the most video games. Representation of White males is plentiful in video games, as shown by our content analysis and previous ones (Williams et al., 2009; Jansz et al., 2007). The video game industry is also populated primarily by White males ("Essential Facts" 2016) with there being low representation of game developers that are female, non-White. Shaw (2009), in her study of LGBTQ representation, remarks on the high amount of risk of being LGBTQ in the workforce, particularly working on video games. Discrimination based on sexuality is common and leads to less representation in the workforce and, consequently, in video games.

Williams and colleagues (2009) also studied gender differences in the role of player. Similarly, the current study looked at gender differences in being a controlled character compared to a non-controlled character. Male characters were significantly more likely to be controlled by the player than females. When comparing characters that were not controlled, they were also significantly more likely to be male. Based on previous research, these results were expected. Williams found that both primary and secondary characters were overwhelmingly male. As we found and as reported by others,

female characters are more likely to be portrayed as secondary or side characters, often used for sexualization (Lynch et al., 2016; Downs & Smith, 2010; Beasley & Standley, 2002; Dill & Thill, 2007) or as a “damsel in distress” trope (Summers & Miller, 2014).

Our findings support previous research regarding female and Black characters being portrayed stereotypically. We found that Black characters were significantly more likely than not to be portrayed stereotypically by having at least one stereotype. When the Black characters were separated into sports characters based on real people and fictional characters, they were still significantly likely to have at least one stereotype. Burgess and colleagues (2011) examined how Black males were portrayed in video game magazines. All the Black characters were portrayed as “athletic” with most being “aggressive” or “fighting.” The “athletic” stereotype applied to 87% of our character sample. After removing the “athletic” Black characters, 54% of the remainder were coded as “violent” or “aggressive.”

All other ethnicities in our study were not significantly portrayed stereotypically. Asian/Pacific Islander characters were significantly more likely to not have a stereotype compared to the two characters that did. Those two were coded with a positive stereotype of “being hard working.” The two Middle Eastern characters’ present in the sample were not portrayed stereotypically. The thirteen Hispanic/Latino characters were also not portrayed as significantly stereotypical. However, the single Native American character was shown in stereotypical “tribal” garb.

While White characters were not significantly more likely to be shown stereotypically compared to non-stereotypical Whites, they were the only ethnicity to have more positive stereotypical traits than negative ones. Only 2.27% of White

characters were portrayed negatively compared to 44% being portrayed positively. The most common positive trait was “being the protagonist” followed by “being in charge/leader.” There is no present literature examining the stereotypes that other ethnicities can have in video games. However, this could be due to a lack of consistent stereotypes being held about other ethnicities that can apply to video games. For our sample, a pilot sample was conducted to gather lists of stereotypes for each ethnicity. Many of the stereotypes in the responses were not applicable to video games due to their subjectivity. The lack of past literature could also be attributed to the low number of ethnic minority characters.

As discussed previously, only 23 characters had their sexuality coded. These characters were heterosexual and were not portrayed stereotypically. Previous research examining sexuality in video games discusses the low representation of sexuality in video games. Shaw (2009), Pulos (2013) and Condis (2015) have found many examples of discrimination against LGBTQ players and game developers. Because they experience discrimination, developers could feel less comfortable creating LGBTQ characters. However, because of the low number of LGBTQ characters within games, discrimination and stereotypes against them have not been studied.

Our study found that females were significantly more likely to be displayed stereotypically, with 87.5% having at least one stereotype. Surprisingly, female characters were more likely to have a positive stereotype than a negative one. Out of 88 females, 73 had at least one positive stereotype. The most coded ones were being “strong/tough”, “good listeners” and “independent.” For the negative stereotypes, 56 females had at least one negative stereotype with the most coded being “a sex object”,

“having large breasts/buttocks” and being “weak/fragile.” Previous research supports having sexualized stereotypes being the top rated negative stereotypes for females. The most common stereotypes for female character in previous content analyses are having an over-sexualized body or wearing revealing clothing (Downs & Smith, 2010; Jansz et al., 2007; Miller & Summers, 2007; Summers & Miller, 2014). However, the “weak/fragile” stereotype is often shown in female characters being the “damsel in distress”, a common role for secondary characters (Miller & Summers, 2007; Summers & Miller, 2014). There have been no previous studies examining the positive stereotypes that female characters can have. This could be due to the positive stereotypes not being gender specific. A character being shown as “strong/tough” or “independent” could apply to both male and female characters. Female negative stereotypes are either gender specific, relating to “large breasts/buttocks” or found in a role typically for females, such as being “weak/fragile.”

Similar results were found for the male characters. They were more likely than not to be portrayed stereotypically with 94% having at least one stereotype. Like female characters, males were more likely to be portrayed with positive stereotypes, with 93% having at least one positive stereotype. The most common that were coded were being “manly/masculine”, “athletic”, “strong/tough” and being the “hero or protagonist.” Comparatively, only 82% of male characters had a negative stereotype. The most common were being “obsessed with working out/athletic”, being an “asshole/douchebag/jerk” and being “demanding of other characters.”

Previous research regarding male stereotypes have found high rates of positively coded stereotypes. Burgess and colleagues (2011) compared different ethnicities on their

stereotypical character portrayals. The most commonly coded stereotypes, regardless of ethnicity breakdown, were being “athletic”, “aggressive” and “hyper-masculine.” Miller and Summers (2007) found that “muscular” and “powerful” were the most common traits to define male characters. Regarding negative stereotypes, there is no previous research that specifically look at them. Being “athletic” was considered both a positive and negative stereotype by the pilot study used for the content analyses. The previously mentioned studies do not specify being “athletic” as positive or negative, just that it is a common portrayal for male characters. However, this could be considered a subjective stereotype that could apply to both categories.

Another effect of stereotypical video game characters is the impact on gamers’ social cognition and self-perception. As part of social cognitive theory, Bandura (1991) includes self-monitoring as well as judgments based on feedback. Videogames typically provide high levels of feedback facilitating self-monitoring and judgments about performance. Similarly, Bem’s (1969) self-perception theory predicts that consequences, such as those provided by game playing, impact how we perceive ourselves. Not only may individuals’ choices or creation of avatars be partially based on their current perceptions of themselves, but their choices may in turn impact the continued development of self-perceptions and self-monitoring, perhaps particularly in interactive games.

With the high motivation to play video games, gamers will be more immersed in the game play and the interactions with the characters (De Grove et al., 2014). When the characters are portrayed with stereotypical features, gamers can often identify with those avatars and the role they have. Klimmt and colleagues (2009) have found this

identification happening with solidier-like traits and FPS. Leonard (2009), in his analysis of Black stereotypes in *GTA III*, cites the influence of stereotypes on Devin Moore and his murder of police officers. Self-perception theory can be used to explain how gamers identify with these harmful roles and how it changes their thoughts and beliefs.

The fourth hypothesis predicted that female characters will more likely be portrayed as over-sexualized than males. Female characters were significantly more likely to be portrayed as over-sexualized compared to male characters. The sexualization variables were created using gender specific traits and the amount of clothing worn by the characters. Previous research shows that the individual variables chosen for the composite variables accurately measure traits of body image. The amount of clothing worn by the character portrays how sexualized they are (Beasley & Standley, 2002; Dill et al., 2007; Downs & Smith, 2010). Characters who were partially or fully nude scored a one with clothing level while all other characters scored a zero. For the female characters, breast size, cleavage and hip/waist ratio were computed into a female sexualization variable. The variable was measured on a three point Likert scale, ranging from “not sexualized” to “over-sexualized.” The larger the breasts and cleavage and the more exaggerated their hip/waist ratio, the more sexualized they were. Previous studies examining female characters have found that these traits are often exaggerated portraying females as oversexualized (Jansz & Martins, 2007; Dill et al., 2007). For the male characters, having exaggerated chest, arm and leg muscles and having a penis bulge were computed into a male sexualization variable. This was measured on the same three point Likert scale as female characters. Previous studies examining male characters suggest

these exaggerated traits can be harmful to self-body image (Hobza, Walker, Yakushko & Peugh, 2007; Martins et al., 2011).

The final hypothesis examined gender differences in engaging in combat and using different types of weapons. Like Miller and Summers (2007), we found the male characters engage in combat more often than female characters. However, we found no significant gender differences in the types of weapons used, including firearms and swords. There were also no significant differences in the total number of weapons used based on gender. Given that 81% of the sample was male, they were more available to engage in combat during gameplay.

Limitations

There were several limitations with the current study. First, as with most content analyses, there was a specific sample of characters examined based on certain criteria. For this study, the first hour of gameplay was recorded for examination. The first hour was chosen because of the immersive nature of video games. The game must be able to immerse the player within a certain amount of time to keep them interested. The first hour of gameplay is a rough amount of time during which most gamers ultimately decide whether to keep playing the game. The first hour is also when most video games introduce their main characters to the player. This allowed for prime coding of these characters during these story elements. However, a more random selection of gameplay footage may have been preferable as this would have allowed for a random selection of characters within the chosen game (Schmierbach, 2009). This process of gameplay selection, however, can lead to a lack of background on certain character traits. Another possibility for a random selection of gameplay, as mentioned by Schmierbach (2009), is

to analyze how the game divides its break points. Examples of these are with narrative chapters, cut scenes or after important battles. Future content analyses should consider employing these techniques rather than, or in addition to, a stagnant amount of time, such as an hour.

Another limitation was the sampling of the video games. As addressed by Schmierbach (2009), a true random sample of the games released within the experiment criteria may be the most appropriate way to obtain a sample. However, my method permitted an analysis of the potentially most influential games. For the current study, the top 50 games were selected based on mean ratings. This sampling method was chosen as these would be the highest quality and most played games of 2010. We wanted to examine the most popular games to see what types of characters gamers would be interacting with. However, because of our sampling limitations, our results cannot be easily applied to other video games selected with different methods.

Another limitation was the number of recorders and coders. Given time constraints, only one person was chosen to record the gameplay footage. While this eliminates reliability issues, like differences in gaming experience or how they interact with the game, the recorder was familiar with some of the games in the study. This could have impacted the number of characters coded in a familiar game versus an unfamiliar game. Only two coders were recruited to examine the gameplay footage. While this was acceptable to calculate Krippendorff's alpha, adding other coders may have improved the reliability of the character trait coding. However, this was another time constraint issue.

We could not account for every single trait that these characters could have. These included interactions with their environment, other characters and sometimes the player.

The traits we did examine were focused on stereotypes, appearance and their fighting abilities, if applicable. These variables were chosen due to their ease of observation and their relevance to past literature. Some of the variables chosen were dropped due to a low Krippendorff's alpha. The low alpha is attributed to a poor inter-rater reliability between the two coders. Most of the dropped variables, such as "nationality", "species" "magical abilities" and "role within the game" were needed for hypothesis testing. Adding more coders and having additional training could have allowed for these variables to have higher alphas. Other variables were not as strong due to low numbers in specific conditions. The variable measuring "non-White race/ethnicity" only had one Native American character and two Middle Eastern characters. These numbers were not high enough to allow for chi-square testing. The sexuality variable was also weak due to the lack of non-heterosexual characters.

Conclusion

This study is the latest content analysis to analyze the most popular video games and compare them to United States census data. The analysis demonstrates that video game characters are not representative of the overall population and the gaming community. Future research should consider Schmierbach's (2009) article to improve content analysis research to allow for true random sampling and prepared coders. More subjective variables should be considered to allow for further character observation within the environment and the storyline. The study also shows that most video game characters, of all ethnicities and genders, are portrayed stereotypically which can be harmful. This is especially evident for female characters, who are portrayed as over-sexualized and are not available as main characters, and Black characters, who are

primarily athletes. Another strength of the study is an update of character traits in more recent video games. Compared to the Williams and colleagues study (2009), our study uses a more recent generation of video games. Recently made games could be more likely to be played by gamers. The implications of this study can show video game developers the importance of representation of gamers and the consequences of stereotypical portrayals.

APPENDIX SECTION

- A. LIST OF TOP 50 VIDEO GAMES
- B. LIST OF STEREOTYPES
- C. VIDEO GAME COVER SHEET
- D. CHARACTER CODING SHEETS
- E. CODEBOOK FOR SPSS
- F. KALPHA RATIOS FOR CHARACTER TRAIT VARIABLES
- G. FREQUENCIES OF GAME UNIT OF ANALYSIS
- H. FREQUENCIES OF VIDEO GAME CHARACER UNIT OF ANALYSIS

APPENDIX A: LIST OF TOP 50 VIDEO GAMES

Rank	Title	Console Recorded on	ESRB Rating
1	Super Mario Galaxy 2	Wii	E
2	Mass Effect 2	X360	M
3	Red Dead Redemption	PS3	M
4	God of War III	PS3	M
5	Halo: Reach	X360	M
6	Infinity Blade	iOS	*E10+
7	Super Street Fighter IV	X360	T
8	Super Meat Boy	Win	T
9	Limbo	XBLA	T
10	Cave Story	Win	E10+
11	Assassin's Creed: Brotherhood	X360	M
12	NHL 11	X360	E10+
13	Heavy Rain	PS3	M
14	Civilization V	Win	E10+
15	Kirby's Epic Yarn	Wii	E
16	NBA 2K11	X360	E
17	Dragon Quest IX: Sentinels of the Starry Skies	NDS	E10+
18	Pokemon HeartGold and SoulSilver	NDS	E
19	Donkey Kong Country Returns	Wii	E
20	Bayonetta	PS3	M
21	PixelJunk Monsters Deluxe	PSP	E
22	BioShock 2	X360	M
23	God of War: Ghost of Sparta	PSP	M
24	Professor Layton and the Unwound Future	NDS	E10+
25	NBA Jam: On Fire Edition	X360	E
26	BlazBlue: Continuum Shift	X360	T
27	Shantae: Risky's Revenge	DSiWare	E10+
28	Lara Croft and the Guardian of Light	XBLA	T
29	Castle Crashers	PS3	T
30	Amnesia: The Dark Descent	Win	M
31	Tatsunoko Vs. Capcom: Ultimate All-Stars	Wii	T
32	Warhammer 40,000: Dawn of War II - Chaos Rising	Win	M
33	NCAA Football 11	X360	E
34	Call of Duty: Black Ops	X360	M

35	MLB 10: The Show	X360	E
36	Monster Hunter Tri	Wii	T
37	Tom Clancy's Splinter Cell: Conviction	X360	M
38	Valkyria Chronicles II	PSP	T
39	Alan Wake	X360	T
40	Atelier Rorona: The Alchemist of Arland	PS3	T
41	Vanquish	X360	M
42	Fallout: New Vegas	Win	M
43	Assassin's Creed II	X360	M
44	Sam & Max: The Devil's Playhouse Episode 1: The Penal Zone	Win	E10+
45	Darksiders	Win	M
46	999: 9 Hours, Nine Persons, Nine Doors	NDS	M
47	Final Fantasy XIII	X360	T
48	Super Scribblenauts	NDS	E10+
49	Recettear: An Item Shop's Tale	Win	NR
50	Kingdom Hearts: Birth by Sleep	PSP	E10+

APPENDIX B: LIST OF STEREOTYPES

Positive Stereotypes based on Gender

Males

1. Strong/Tough
2. Dominant/Authoritative
3. Often the Hero or Protagonist
4. Logical
5. Protective of other Characters
6. Good at Sports/Athletic
7. Leaders with other Character
8. Manly/Masculine
9. Independent

Females

1. Nurturing of other characters
2. Can Cook/Clean and Maintain a Household
3. Gets things for Free
4. Cleaner/Neat/Tidy
5. Emotional/Sensitive (if they show a lot of emotion – either happy or sad)
6. Independent
7. Strong/Tough
8. Powerful
9. Good Listeners/Sociable with Characters

Negative Stereotypes based on Gender

Males

1. Sex Hungry/Perverts/" Can't Keep it in their Pants"/Unfaithful
2. Stoic toward other characters
3. Chauvinistic/Misogynistic/" Pigs"/" Dogs"
4. Too Aggressive
5. Abusive
6. "Asshole"/" Douchebag"/" Jerk"
7. Obsessed with Working out/Sports/Athletics
8. Tough Guys
9. Demanding of other characters

Females

1. Weak/Fragile
2. Can Only be a Housewife/Watch Children/Cook – No outside Careers
3. Over-Emotional/Sensitive
4. Cannot do "Men" Things/What Men are expected to do (if the female character has been talked to in this manner, count it)
5. Stupid/Ditzy/" Blonde"

6. Sex Objects/Sex Props/Sexually Objectified (if portrayed very sexualized, this counts)
7. Whores/Sluts
8. Submissive/Not Dominant
9. Bitchy/Naggy/Demanding/Bossy when in Charge of the Situation
10. Has Large Breasts/Large Butt
11. High Maintenance/Vain/Gold-diggers/Needy

Positive Stereotypes based on Ethnicity

African-Americans

1. Natural Athletics
2. "Black don't Crack"/Ages very well
3. Good Dancers
4. Good Rappers/Have good Rhythm
5. Good Singers
6. Good Cooks
7. Secondary Characters (not a main character of the game)

Asians/Pacific Islander

1. Nerdy/Geeky
2. Goody Two-Shoes/Suck up to other characters
3. Are Good Dancers
4. Have Clear Skin
5. Are Hard Working
6. Love Anime (Japanese Cartoons)

Native Americans

1. Look Tan
2. Have a lot of Casino Money
3. Are in Tune with Nature

Hispanic/Latino

1. Hard Working
2. Very Family Oriented
3. Have Huge Families
4. Can Build/Construct Things
5. Have a Good Attitude
6. Religious
7. Speaks Spanish Only
8. Bilingual
9. Women considered very attractive

Whites/Caucasians

1. Rich
2. Privileged/Can Access Resources and Opportunities
3. Is in charge/Leader of the group
4. Protagonist

5. Above the Law/No Consequences for Law-Breakers
6. Have a Perfect Family/Home Life

Negative Stereotypes based on Ethnicity

African-Americans

1. Criminals/Thieves
2. "Ghetto"
3. Loud
4. Thugs
5. Violent
6. Poor
7. Drug Addicts
8. Have no Fathers/Dead Beat Dad
9. Nappy Hair
10. Athletic
11. First to Die in Media
12. Cannot Be Trusted/Liar/Deceiver

Asians/Pacific Islander

1. Weak
2. Cannot See Very Well
3. Eat Pet Animals
4. Are Anti-Social
5. Short
6. Narrow Minded
7. Have a Big Forehead
8. Loud Native

Americans

1. Scalp Their Enemies
2. Make Howling Noises
3. All are Cannibals
4. All are Drunks
5. Poor
6. Lazy
7. Are Casino Owners
8. Tribal
9. Antagonists

Hispanic/Latino

1. Illegals/Immigrants/Aliens
2. Stealing American Jobs
3. Criminals/Thieves
4. Poor
5. Rapists
6. Drug Dealers

7. Only Work in the Fields/Agricultural Work
8. Cannot Speak English/Broken English
9. Only Work as Cleaners/Maids/House workers
10. “Wetback”/”Mojado” (if slurs are used toward them)
11. Only Work in Construction
12. “Ghetto” (if slurs are used toward them)
13. Only know Spanish
14. In a Gang

Whites/Caucasians

1. Racist/Discriminatory
2. Snobby/Stuck Up
3. White Trash/Redneck
4. Cannot Dance/Jump/Play Sports
5. Ignorant/Intolerant about Race/Ethnic Issues
6. Stupid
7. KKK/Third Reich/White Power
8. Get Away with Anything/Lucky Breaks
9. Lazy
10. Crazy
11. Nerds/Geeks
12. “Cracker” (if slurs are used toward them)
13. Meth Head

Positive Stereotypes based on Sexuality

Heterosexual

1. “Normal”
2. Religiously Correct/Accepted by God
3. Widely Accepted in Society
4. Can Reproduce
5. The “Way it Should Be”
6. Have it Easier than Other Sexualities
7. No Judgment Based on Sexuality
8. Majority of Population is Straight
9. All Rights are Intact

Bisexual/Pansexual

1. Can Have Sex with Whomever
2. Can Reproduce
3. Can Have Threesomes
4. Attractive
5. “Have More Fun”

Homosexuals (Lesbians and Gays)

1. Good Fashion Sense
2. Are the Gay Best Friend (GBF)
3. Are Good Decorators

4. Sassy

Negative Stereotypes based on Sexuality

Heterosexual

1. Homophobic/Discriminates against Non-Straight People
2. Cannot Empathize with Non-Straight People
3. Judgmental
4. Traditional
5. Ignorant
6. Boring
7. Sex Hungry
8. The “Correct” Sexuality
9. Violent
10. Religious

Bisexual/Pansexual

1. Cannot make up their Minds/Indecisive
2. Confused
3. Going Through a Phase
4. Greedy
5. Are not Real
6. Excuse to be a Slut
7. Make Out with a Woman to Appease a Man
8. Cheat Often
9. “Faggots”

Homosexuals (Lesbians and Gays)

1. Disgusting
2. Immoral
3. All of Them have AIDS
4. Only Good for “Girl on Girl”
5. Promiscuous
6. Not Faithful/Cheaters
7. Bitchy
8. “Faggot”
9. Attracted to Straight People

APPENDIX C: VIDEO GAME COVER SHEET

COVER SHEET

- Fill out this sheet for every game, not for every character.
- Fill out the character examination sheet for each observable character.
- Keep each character set of pages together with a staple. Then paperclip this sheet on top of all the character exams.
- Use the **Documents in Data Collection for Ranking, Console/Console Code and Game Rating/Rating Code. The third tab will have these.**

Ranking: _____

Game Title: _____

Country of Origin: _____

Developer: _____

Date of Release: _____

Console/Console Code: _____

Genre: _____

Game Rating/Rating Code: _____

Single or Multi-Player: _____

of Playable Characters Analyzed: _____

of Relevant Non-Playable Characters Analyzed: _____

of Other Observed Characters Analyzed: _____

APPENDIX D: CHARACTER CODING SHEETS

Part One: Time

1. Is the recorder controlling this character?: _____
 - a. If yes, please put the amount of time the player is controlling this character:

 - If the character is playing as them for the whole hour, the time will be 60.00
 - If they switch to another character at another point in the game, put the time as a range (00.00-06.41 where the player controls a new character after six minutes and forty-one seconds into the video)
2. Is the character one that the playable character has interacted with during gameplay?:

3. Is the character **not** being controlled by the player at all **AND** do they not interact with the playable character during gameplay?: _____

Part Two: Demographics

4. Name of character: _____
5. Gender:
 - a. Male
 - b. Female
 - c. Transgendered/Non-Gendered
 - d. Other: _____
 - e. Unknown/Cannot determine
6. Age
 - a. Baby/Child
 - b. Teenager
 - c. Adult
 - d. Older Adult/Elderly
 - e. Unknown/Cannot Determine

7. Sexuality:

- a. Heterosexual
- b. Homosexual
- c. Bisexual/Pansexual
- d. Asexual
- e. Unknown/Cannot determine (if the character doesn't explicit say what their sexuality is)

8. Species:

- a. Human
- b. Animal (does not look humanoid but can be a talking animal)
- c. Alien (a non-human from a different planet in a universe where Earth is present)
- d. Humanoid (human like features, but not of the human race – synths, robots – but no aliens)
- e. Other (specify): _____
- f. Cannot determine

9. Race and/or Ethnicity (only if they are human)

- a. White/Caucasian
- b. Non-White/Person of Color (**only indicate specific race if you can. If you cannot determine past non-white skin, circle b only**)
 - i. Black/African America
 - ii. Hispanic/Latino
 - iii. Pacific Islander/Asian
 - iv. Middle Eastern
 - v. Native American
- c. Multiple races/ethnicities
- d. Other: _____
- e. Cannot determine

10. Nationality, if from Earth (C.D. if Cannot determine):

Part Three: Physical Features

11. Role:

- a. Powerful/In Charge – if the recorder is controlling them
- b. Powerful/In Charge - if a non-controlled character
- c. In the middle
- d. Helpless/Vulnerable
- e. Neutral/Not Involved with the Plot
- f. Cannot Determine

12. Clothing Level

- None (nude)
- Very little (underwear/swim suit)
- Average Amount (shirt/short or pants)
- More than Usual (arms/legs fully covered, face **not** covered)
- Completely covered (no visible skin on body or face)
- Cannot Determine

13. Here is a list of body areas we want to observe in the characters. Write down how these body areas look on the character. The words in parenthesis are the features we are looking for with each body area.

- a. Facial Features (unusually large/small eyes, lips, cheeks, nose; facial hair, scars, glasses, tattoos)

- b. Hair and Accessories in the Hair (style, color)

- c. Bust/Chest size for females & Broad Chest Muscles for males:

- d. Hip/Waist Ratio – Primarily for Females

- e. Abdominal muscles – cannot determine if wearing chest armor: YES/NO/CD
i. Are they exaggerated/overly large?: YES/NO/CD

- f. Penis/Testicle Bulge – Primarily for Males - cannot determine if wearing armor:
YES/NO/CD
 - i. Is it exaggerated/overly large or protruding? YES/NO/CD

- g. Arms and Hands (muscle size, length, scars, tattoos, accessories) – If character is an athlete, appropriated muscle tone for that sport is **not** exaggerated:

- h. Legs and Feet (muscle size, length, scars, tattoos, accessories): – If character is an athlete, appropriated muscle tone for that sport is **not** exaggerated:

- i. Other – any other body part not mentioned that is exaggerated or featured:

Part Four: Abilities – Put C.D. If Cannot Determine

- 14. Does the character fight/engage in combat?: YES/NO
- 15. Do they use a weapon (an object that does not include fists or legs)? YES/NO
 - a. Do they use their fists or legs as weapons (hand to hand combat)? YES/NO
- 16. If yes to either, what is the first weapon do they use? Put the basic type and then details if possible (ex: Gun, Sniper Rifle). If they use hand to hand, put which body parts are used instead.

If they use more than one weapon, put them here with the same format:

17. Do they use magic or special powers?: YES/NO

18. If the character fights, but **DOES NOT** use a weapon, use hand to hand combat or magic/special powers, please write what the character uses to fight:

19. Does the character use swear words when they talk?: YES/NO

- a. If yes, how often do they use swear words in the hour of gameplay? Use the empty space on the side for tally marks if needed.
 - i. About 1-10 words
 - ii. About 11-20 words
 - iii. About 21-30 words
 - iv. About 30 or more

20. Do they flirt/instigate sexual relationships?: YES/NO

- a. If yes, detail the gender of the other person and examples of flirting:

Part Five: Stereotypes – Put the Number corresponding with the list given

Does the character portray any **positive** stereotypes based on:

21. Gender

22. Race/Ethnicity

23. Sexuality

Does the character portray any **negative** stereotypes based on:

24. Gender

25. Race/Ethnicity

26. Sexuality

APPENDIX E: CODEBOOK FOR SPSS

Codebook for Character Database

Left side of the codebook is the number of the variable in SPSS followed by the variable name. The center shows the label of the variable. The right side shows the conditions per variable and instructions for coding.

99 – No Data Available/Or not applicable

1	Game	Top 50 Games of 2010	Enter according to the Top 50 Games List with the top game being 1
2	Country_of_Origin	Country where game was developed	Enter one of the following: 1 USA 2 Japan 3 France 4 Canada 5 Other
3	Date_Release	The month the game was released	Enter the number matching the month where January is 1
4	Console	The console the game was released on	Enter one of the following: 1 iOS/iPhone 2 NDS/DSiWare 3 PS3 4 PSP 5 Wii 6 Win 7 X360/XBLA
5	Genre	The genre of the game	Enter one of the following: 1 Action/Adventure 2 Action/RPG 3 Fighter 4 Other Genres 5 Platformer 6 RPG 7 Shooter 8 Sports
6	Game_Rating	The official ESRB rating of the game	Enter one of the following: 1 E 2 E10+ 3 T 4 M 99
7	Single_Multi	How many players can play the game	Enter one of the following:

			1 Single Player 2 Multi Player 3 Both
8	Controlling_Character	Does the player control this character	Enter either: 0 No 1 Yes
9	Time_Controlling_Character	How much time out of the hour was used to control this character	Enter one of the following: 0 Not Controlling Character 1 30 minutes or less 2 30 minutes or more 3 The entire hour
10	Interacted_Character	Was this character not controlled but interacted with during gameplay?	Enter one the following: 0 No 1 Yes
11	Gender	What is the gender of the character?	Enter one the following: 1 Male 2 Female
12	Age	What age group does this character belong to?	Enter one the following: 1 Baby/Child 2 Teenager 3 Adult 4 Older Adult/Elderly
13	Sexuality	What is the sexuality of the character?	Enter one the following: 1 Heterosexual 2 Homosexual 3 Bi/Pansexual 4 Asexual
14	Species	What is the species of the character?	Enter one the following: 1 Human 2 Non-Human
15	Race_Ethnicity	What is the race/ethnicity of the character?	Enter one the following: 1 White Caucasian 2 Non-White/Person of Color 3 Multiple Races 4 Other
16	Non_White_Ethnicity	If the character is non-white, what is their specific ethnicity?	Enter one the following: 1 Black 2 Hispanic/Latino

			3 Pacific Islander/Asian 4 Middle Eastern 5 Native American 99 White/NA
17	Clothing_Level	How much clothing is the character wearing?	Enter one the following: 1 None/Nude 2 Very Little 3 Average 4 Completely Covered
18	Facial_Features_Glasses	Does the character wear glasses?	Enter one of the following: 0 Doesn't wear glasses 1 Wears glasses
19	Facial_Features_Facial_Hair	What type of facial hair do they have?	Enter one of the following: 0 No Facial Hair 1 Have either mustache or beard 2 Have Both
20	Facial_Features_Earrings	Do they wear earrings?	Enter one of the following: 0 No earrings 1 Have earrings
21	Hair_Color	What type of hair color do they have?	Enter one of the following: 0 Bald 1 Normal Color 2 Abnormal Color
22	Hair_Accessories	Does the character have any hair accessories?	Enter one of the following: 0 No Accessories 1 Have One 2 Have Two or more
23	Chest_Female_Bust	What is the size of the female character's breasts	Enter one of the following: 1 Small 2 Average 3 Large 4 Abnormally Large 98 Male Character
24	Chest_Female_Bust_NEW	Breast size was reduced to three choices	Enter one of the following: 1 Small 2 Average 3 Large 98 Male Character

25	Chest_Female_Cleavage	How much cleavage does the female character have?	Enter one of the following: 0 No Cleavage 1 Normal 2 Abnormally Large 98 Male
26	Chest_Male_Muscles	How large are the chest muscles on the male character?	Enter one of the following: 0 None 1 Normal 2 Exaggerated 98 Female
27	Hip_Waist_Ratio	What is the ratio of the hip and waist of the female character?	Enter one of the following: 1 Normal 2 Exaggerated 98 Male
28	Abdominal_Muscles	Does the character feature their abdominal muscles?	Enter one of the following: 0 No 1 Yes
29	Penis_Bulge	Does the male character have a penis bulge?	Enter one of the following: 0 No 1 Yes 98 Female
30	Arms_Muscles	What is the arm muscle size?	Enter one of the following: 0 No Arms 1 Average 2 Exaggerated
31	Legs_Muscles	What is the leg muscle size?	Enter one of the following: 0 No Legs 1 Average 2 Exaggerated
32	Fight_Engage_in_Combat	Does the character fight or engage in combat?	Enter one of the following: 0 No 1 Yes
33	Use_A_Weapon	If the character fights, do they use a weapon?	Enter one of the following: 0 No 1 Yes 98 Doesn't Fight
34	Use_HandtoHand	If the character fights, do they use hand to hand combat?	Enter one of the following: 0 No 1 Yes 98 Doesn't Fight

35	Use_A_Gun	Did the character use a gun during combat?	Enter one of the following: 1 Hand Gun 2 Two Handed Gun 3 All Other Weapons 98 Doesn't Fight
36	Use_A_BladedWeapon	Did the character use a bladed weapon during combat?	Enter one of the following: 1 Swords 2 Other Bladed 3 All Other Weapons 98 Doesn't Fight
37	Use_Fists	Did the character use their fists during combat?	Enter one of the following: 0 Doesn't use Fists 1 Uses Fists 98 Doesn't Fight
38	Use_Legs	Did the character use their legs during combat?	Enter one of the following: 0 Doesn't use Legs 1 Uses Legs 98 Doesn't Fight
39	Other_Fighting_Object	Does the character use any other object to engage in combat?	Enter one of the following: 0 No 1 Yes
40	Total_Weapons	How many weapons does the character use?	Add up all of the listed weapons
41	Flirting_Sexual_Relationships	Does the character flirt or engage in sexual activities?	Enter one of the following: 0 No 1 Yes
42-50	Positive_Male Stereotypes	These are the nine positive male stereotypes.	Enter one of the following: 0 No 1 Yes
51-59	Positive_Female Stereotypes	These are the nine positive female stereotypes	Enter one of the following: 0 No 1 Yes
60-68	Negative_Male Stereotypes	These are the nine negative male stereotypes	Enter one of the following: 0 No 1 Yes
69-79	Negative_Female Stereotypes	These are the eleven negative female stereotypes	Enter one of the following: 0 No 1 Yes
80-81	Positive_Black Stereotypes	There are two positive black stereotypes	Enter one of the following:

			0 No 1 Yes
82	Positive_Asian Stereotypes	There is one Asian stereotype	Enter one of the following: 0 No 1 Yes
83-88	Positive_White Stereotypes	These are the six positive white stereotypes	Enter one of the following: 0 No 1 Yes
89-93	Negative_Black Stereotypes	These are the five negative black stereotypes	Enter one of the following: 0 No 1 Yes
94	Negative_Native Stereotypes	There is one negative native stereotype	Enter one of the following: 0 No 1 Yes
95-97	Negative_White Stereotypes	These are the three negative white stereotypes	Enter one of the following: 0 No 1 Yes

APPENDIX F: KALPHA RATIOS FOR CHARACTER TRAIT VARIABLES

Variables	KALPHA (α)
Demographics	
Controlling the Character	.930
Interacting with the Character	.938
Gender	.938
Sexuality	.707
Age	.732
Species ^a	.664
Race – All Ethnicities	.790
Race – Non-White Ethnicities	.772
Nationality ^a	-.156
Role within the Game ^a	.485
Appearance – All Characters	
Clothing Level	.772
Wearing Glasses	.883
Hair Color	.944
Hair Length	.830
Wearing Hair Accessory	.822
Have Facial Scars ^a	.568
Have Facial Tattoos	.698
Have Arm Tattoos ^a	.379
Have Leg Tattoos ^a	-.003
Wearing Necklace ^a	.314
Wearing Earrings	.752
Wearing Ring ^a	-.003
Abdominal Muscles	.904
Arm Muscles	.819
Leg Muscles	.707
Appearance – Female Characters	
Bust Size	.841
Cleavage Size	.925

Hip/Waist Ratio	.849
Appearance – Male Characters	
Chest Muscles	.934
Penis Bulge	.921
Abilities and Traits	
If Character Fights/Engages in Combat	.930
Uses a Weapon	.871
Uses Hand to Hand Combat	.871
Primary Weapon Use	.805
Primary Hand to Hand Use	.840
Secondary Weapon Use	.822
Other Weapon Use	.774
Total Amount of Weapons Used	.805
Magic/Special Ability Use ^a	.574
Swearing/Obscenities ^a	.256
Flirting/Engaging in Sexual Relationships	.778

Table 1: Variables with a KALPHA lower than .667 were dropped from analysis.

APPENDIX G: FREQUENCIES OF GAME UNIT OF ANALYSIS

Variables	<i>n</i>
Console	
Apple iOS	1
Nintendo DS	6
PlayStation 3	6
PlayStation Portable	4
Nintendo Wii	5
Microsoft Windows	9
XBOX 360	19
Total = 50	
ESRB Rating	
Everyone (E)	9
Everyone 10 years or Older (E10+)	10
Teen (T)	18
Mature (M)	12
Not Rated (NR)	1
Total = 50	
Genre	
Action/Adventure	10
Action Role Playing Game	7
Fighting	3
Other (Puzzle, Horror, Strategy)	8
Platformers	7
Role Playing Game	5
Shooters (FPS and TPS)	5
Sports	5
Total = 50	
Playability	
Single Player	25
Single and Multiple Players	25
Total = 50	

APPENDIX H: FREQUENCIES OF VIDEO GAME CHARACTER UNIT OF
ANALYSIS

Variables	<i>n</i>
Console	
Apple iOS	6
Nintendo DS	51
PlayStation 3	40
PlayStation Portable	17
Nintendo Wii	37
Microsoft Windows	60
XBOX 360	298
Total = 509	
ESRB Rating	
Everyone (E)	148
Everyone 10 years or Older (E10+)	1169
Teen (T)	174
Mature (M)	114
Not Rated (NR)	4
Total = 509	
Genre	
Action/Adventure	56
Action Role Playing Game	40
Fighting	40
Other (Puzzle, Horror, Strategy)	49
Platformers	31
Role Playing Game	37
Shooters (FPS and TPS)	27
Sports	229
Total = 509	
Playability	
Single Player	140
Single and Multiple Players	369
Total = 509	

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