3-17-2016

Avatar Self-Identification, Self-Esteem, and Perceived Social Capital in the Real World: A Study of World of Warcraft Players and their Avatars

Melissa Watts

Avatar Self-Identification, Self-Esteem, and Perceived Social Capital in the Real World: A Study of World of Warcraft Players and their Avatars

by

Melissa Watts

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts
Zimmerman School of Advertising
and Mass Communications
College of Arts & Sciences
University of South Florida

Major Professor: Scott S. Liu, Ph.D.
Roxanne Watson, Ph.D.
Jameson Hayes, Ph.D.

Date of Approval:
March 11, 2016

Keywords: communication, gaming, MMORPG, WoW

DEDICATION

This thesis is dedicated to my son, who inspired my research in online gaming.

ACKNOWLEDGMENTS

In no way does a simple expression of gratitude convey my appreciation for all the encouragement and support I have received from Dr. Scott Liu. He has been an inspiration to me from the first time I met him and has always made time to help me whenever I needed it. Any time I felt lost or in over my head, he assured me that I could and would succeed. “You can do it!” was his constant reminder. Thank you, Dr. Liu, for everything. I would also like Dr. Jameson Hayes and Dr. Roxanne Watson for their valuable feedback and assistance in making revisions to my work and helping me to make my paper the best it could be. And finally, I would like to thank the extraordinary WoW community for participating in my survey. Without them, none of this would have been possible.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

This study explored the relationship between people who play massively multiplayer online roleplaying games (MMORPGs) and their avatars, as well as the impact on players' self-esteem and perceived social capital in the real world. To examine these influences of online video gameplay, this research investigated gamers who play the popular MMORPG, World of Warcraft (WoW). This study employed an online survey made available on Reddit, a widely-used news, entertainment, and social-networking website, in which all the content is user-generated. The research questionnaire was intended to reveal the bond between MMORPG players and their avatars; the study examined how this relationship could influence MMORPG players' confidence in themselves and advance their network of relationships in the real world. The strength of the WoW players' identification with their avatar did have some impact on their self-esteem in the real world; however, there was no significant relationship between avatar self-identification and perceived social capital in the real world. Additionally, this research did reveal a substantial correlation between self-esteem and perceived social capital in the real world.

CHAPTER ONE: INTRODUCTION

Massively multiplayer online roleplaying games (MMORPGs) are video games played by individuals in a virtual environment via the Internet; MMORPGs differ from single-player video games, because the people playing MMORPGs can interact with thousands of other players in the virtual world (Longman, O'Connor, & Obst, 2009). MMOData (2012) estimated that approximately 20 million people play online roleplaying games (Gabbiadini, Mari, Volpato, & Monaci, 2014). World of Warcraft (WoW) is a well-known, fantasy-based MMORPG (Graham & Gosling, 2013); at its peak in 2010, WoW had more than 12 million monthly subscribers, and it currently holds the Guinness World Record for the largest and most popular MMORPG (MMOData, 2012).

MMORPGs provide gamers, through their individually designed avatars, a place to connect and socialize online (Gabbiadini, Mari, Volpato, & Monaci, 2014); previous research has shown that MMORPG players tend to create their avatars more similar to their ideal selves rather than their actual selves (Bessiere, Seay, & Kiesler, 2007). Over time, players acquire knowledge, skills, and resources through their avatars; this gives them an overall sense of respective value, which often transcends the game (Bessiere, Seay, & Kiesler, 2007). MMORPGs also offer individuals the opportunity to cultivate and maintain a virtual world, which compels them to interact with other players. Attaining comprehensive management of the WoW environment, creating and developing one's avatar, and bonding with other players involves a significant amount of dedication and time (Gabbiadini, Mari, Volpato, & Monaci,

2014). Consequently, many gamers become emotionally attached to their avatars (Bessiere, Seay, & Kiesler, 2007).

There have been multitudes of studies done on the effects of long-term video gaming (Williams, 2006b; Messias, Castro, & Saini, 2011; Ferguson, Coulson, & Barnett, 2011; Gentile et al., 2011). Much of the research done so far has scientifically tested the concept of pathological video game use, commonly called video game addiction (Byrne A. M., 2014; Haagsma, Pieterse, Peters, & King, 2013; Kirby, Jones, & Copello, 2014); several studies even compare it to substance addiction (Lemmens, Valkenburg, & Peter, 2011; Chiu, Lee, & Huang, 2004; Van Rooij, Meerkerk, Schoenmakers, Griffiths, & Van de Mheen, 2010). Quite a few studies attempt to validate the distinction between computer addiction and high computer engagement (Skoric, Teo, & Neo, 2009; Charlton & Danforth, 2010; Brunborg et al., 2013). Several other researchers have specifically focused on whether or not prolonged video gaming leads to violent behavior, depression, or even suicide (Gentile et al., 2011; Mentzoni et al., 2011; Griffiths, 2005; Kim, Namkoong, Ku, & Kim, 2008). The present study seeks to explore the influence of avatar self-identification on MMORPG players' self-esteem and perceived social capital in the real world.

CHAPTER TWO: BACKGROUND

World of Warcraft

WoW is an MMORPG where gamers from all over the world can come together as characters who explore a virtual fantasy world full of magic and endless adventure. MMORPGs require players to be connected to the Internet in order to play these games and can accommodate thousands, even millions, of individuals simultaneously playing (World of Warcraft (WoW), 2014). Although it is possible to remain independent in WoW's virtual world, collaboration with other players is often required to obtain most of the advanced content, such as exploring dangerous environments and defeating powerful enemies (Blizzard Entertainment, 2015).

In WoW, each type of playable character has a specific set of skills and abilities; these aptitudes define the character's role in Azeroth, which is a virtual "world of swords and sorcery" (Blizzard Entertainment, 2015, para. 8). When playing as part of a group, or guild, there are three essential roles for in-game characters: the tank, who draws attention away from other members of the guild, the damage dealer, and the healer. How much or how little one plays the role of a character in WoW is up to each individual; some people are casual players, while others immerse themselves completely in the fantasy world (Blizzard Entertainment, 2015).

The virtual world of Azeroth is home to numerous races and cultures, with histories and relationships extending back thousands of years: some are bonds of friendship, while others are made up of bitter hatred between sworn enemies. Among these kingdoms, cultures, tribes, and territories, there are two large, opposing factions locked in a constant struggle for dominance: the Alliance and the Horde. In addition to the unyielding conflict between these factions, there are

even greater forces at work against Azeroth: the dreadful Old Gods beneath the surface of Azeroth, who threaten to release untold horrors upon the world, and the demonic legion of the Twisting Nether, an unstoppable force of chaos from a distant realm that craves the fiery destruction of Azeroth (Blizzard Entertainment, 2015).

The essential gameplay of WoW revolves around battling enemies and completing quests. Players regularly encounter non-player characters in the game; these are computer-controlled characters who will usually request assistance. This help could involve anything from everyday tasks to heroic feats that will likely put the player in danger of some sort, although most individuals will be capable of overcoming these hazards on their own. The biggest challenges and rewards can be found in the countless dungeons, where the monsters are strong and smart, and the raids, where the monsters are even stronger and smarter, both of which require teamwork to be triumphant (Blizzard Entertainment, 2015). Some guilds achieve notoriety by completing particularly challenging quests or defeating exceptionally fierce monsters quickly; this typically establishes a hierarchy within the game (World of Warcraft (WoW), 2014).

Individuals who play WoW become a valuable part of an ongoing, constantly changing story in this fantasy world rich with lore. Over time, playable characters, or avatars, will go on thousands of quests, acquire powerful new abilities, collect and spend fortunes in gold, amass hundreds of weapons, enchanted items, artifacts, armor, and more. Each character's progress is stored online indefinitely, so players can advance in their own time and pick up back where they left off without losing any data (Blizzard Entertainment, 2015).

Computer-Mediated Communication

Computer-mediated communication (CMC) is an essential means of understanding how behavior is influenced by the physical differences between the virtual world and the real world. Williams (2010) contends that these deviations in the environment can lead to changes in player behavior (Ross & Collister, 2014). According to Peña (2011), computer-mediated interactions through avatars influence multiple communicative processes. An example of this could be when individuals mimic offline personal distances while socializing through their avatars in an online chat (Krikorian, Lee, Chock, & Harms, 2000).

Researchers have speculated as to why people choose to disclose personal information about themselves or to keep that information private when communicating online (Amichai-Hamburger, 2002). They have also questioned why gamers commit to significant and meaningful online relationships as opposed to being disengaged casual relationships. It is possible that these decisions, as well as gaming motives, are influenced by the player's personality (Dunn & Guadagno, 2011; Graham & Gosling, 2013). Dunn and Guadagno (2011) applied the Big Five dimensions of personality, which includes: extraversion, neuroticism, agreeableness, conscientiousness, and openness to new experiences (Goldberg, 1981). Extraversion concerns socialization and expression, neuroticism involves emotional responsiveness, agreeableness relates to positive social tendencies, and conscientiousness conveys responsibility toward tasks and goals (Goldberg, 1981). People who play MMORPGs to experience a sense of achievement are more likely to be high in extraversion and neuroticism, but low on agreeableness and conscientiousness; those who play to socialize are more likely to be high in extraversion, neuroticism, agreeableness, and openness (Graham & Gosling, 2013).

When engaged in the popular MMORPG, WoW, each player becomes a fictional character in a three-dimensional virtual world. In this game, there are two hostile virtual factions: the Horde and the Alliance; choosing a faction is the first selection of many that a player must make when creating an avatar. Players of opposing factions can only interact through fighting or in neutral spaces, but they cannot communicate with one another. Within each faction, players can choose to join groups called guilds, which Billieux et al. (2013, p. 103) defined as "persistent hierarchical organizations of characters with common objectives and backgrounds" (Gabbiadini, Mari, Volpato, & Monaci, 2014).

Once a WoW player chooses a faction, the next step is to select a race within that faction; the race a player chooses will determine the avatar's overall appearance and presents a specific set of skills and abilities only bestowed to that race. There are some limitations within different races; not all races offer the options to choose from all the classes when creating an avatar (Blizzard Entertainment, 2015). When a gamer selects a faction and race, that person is making a social choice that determines with whom the avatar can interact. On the other hand, the choice of class determines what the avatar can and cannot do during gameplay and what kind of experience the player will have with his or her avatar (Blizzard Entertainment, 2015).

Longman, O'Connor, and Obst (2009) discovered that individuals who play WoW derive in-game social support from other players; a positive correlation was found between levels of social support and game engagement. According to Ducheneaut, Yee, Nickell, & Moore (2006) and Yee (2006b), "It is this social interaction that players describe as the key attraction of MMOGs, including WoW" (Longman, O'Connor, & Obst, 2009, p. 563). Cohen and Hoberman (1983) proposed that social support refers to the resources available to individuals, online or offline, through relationships with other people. Haber, Cohen, Lucas, & Baltes (2007) found

that, in the real world, social support can improve physical health; Russell and Cultrona (1991) corroborate this through their findings, stating that offline social support can improve negative psychological symptoms, such as depression. Lee and Robbins (1998) found the same to be true of anxiety. Cummings, Sproull, & Kiesler (2002) and Beaudoin and Tao (2007) concurred that increased levels of online social support are associated with decreased levels of depression and stress (Longman, O'Connor, & Obst, 2009).

Gaming Motivations

"Motivation is the inner force of individuals that drives them to take actions and pursue anticipated achievements" (Zhong & Yao, n.d., p. 557). In his research, Yee (2006b) establishes three types of online gamers based on motivation to play. The first type is goal-oriented and craves power, advancement, and virtual prosperity. The second type seeks social interaction and engagement; many players find the social functions to be the most compelling element of online gaming (Yee, 2006b). The third type of gamer prefers to be completely immersed in the game. According to the Chinese Annual Report of Online Games, the top reason people play online games is to make friends. In fact, the report states that the fifth most significant reason for a player to quit a game is the departure of friends (iResearch.com, 2005).

For many gamers, the online gaming world is more than an entertainment medium; it is a place to socialize and initiate new friendships. Social gamers focus on socialization in the virtual world, spending much of their time and energy interacting with other players with the intention of building lasting meaningful relationships. Their fundamental goal is to engage in the rich social life and collective activities that online video games have to offer. Social gamers would likely sense a deeper avatar self-identification, because their online social interactions are

mediated by their avatars (Zhong & Yao, n.d.). Online gaming communities provide the social reinforcement these players crave, which encourages them to be more socially active through their avatars in the virtual world (Charlton & Danforth, 2004). Some people prefer to become completely immersed in the game; their goal is to escape their troubles in the real world and become fully engaged in their virtual environment (Yee, 2006b). Although these three categories encompass a large portion of gaming motivations, it is also true that some people play online games to simply relax, entertain, and pass the time (Chen, Chen, & Ross, 2010).

Traditional media offers the audience minimal direct influence on its content; in contrast, online computer gaming is an interactive medium. The same game can be played by multiple people in very different ways. Furthermore, single gamers might play the same game multiple times but create different narratives and experiences each time they play. Because of this, the same game could appeal to different players for different reasons (Zhong & Yao, n.d.). Individual player behaviors would reflect different online gaming motivations, which would likely determine player preferences, such as time and energy spent cultivating an avatar, solo-play versus collective-play, and cooperation and communication with other players (Zhong & Yao, n.d.).

Avatars

It has been established that online video games are growing in popularity all over the world (Gabbiadini, Mari, Volpato, & Monaci, 2014). In these games, players are required to accomplish specific goals within a virtual environment by controlling an in-game character called an avatar (Zhong & Yao, n.d.). These avatars function as humans in virtual settings; they are digital representations of the players and establish the interface between the real world and

the virtual world. As these virtual settings continue to expand, so does human interaction within the virtual environment. In order for these interactions to take place, people must construct their avatar to represent them. For this reason, people tend to be very meticulous when creating their avatars, taking great care in selecting their visual representation, establishing a virtual persona, and choosing a name that embodies the avatar's identity (Guitton, 2010). Gamers use their avatars as an extension of themselves in the game to deal with challenges, accomplish tasks, reach goals, alter game narratives, and socialize within the virtual environment. The manner in which MMORPG players identify with their avatars and how much they are attached to their avatars, regardless of the genre or gaming motivations, could be a manifestation of the way in which they perceive the human-avatar relationship (Zhong & Yao, n.d.).

In the past, a gamer's feelings of intimacy and attachment with fictional media characters were considered parasocial interactions; however, online video games have closed the gap between players' and their avatars in virtual environments (Bowman, Schultheiss, & Schumann, 2012). MMORPGs foster the psychological assimilation of players and their avatars, which is a concept known as character attachment (CA); this encompasses feelings of friendship, identification, suspension of disbelief, responsibility and heightened sense of control over the avatar's actions. CA positively correlates with people's game enjoyment, time devoted to gaming, and motivations to play video games (Bowman, Schultheiss, & Schumann, 2012).

Humans and their avatars are connected in multiple ways when playing online games. Individuals select gender, weapons, skills, and physical appearance in order to design a unique avatar that bonds with each player on a mechanical level (Zhong & Yao, n.d.). Gamers also invest considerable psychological resources cultivating and enhancing their avatars by advancing in the game. Avatars give humans a sense of self in the virtual world; they enable players to

express their personality through nonverbal cues, such as gestures, postures, and movements (Zhong & Yao, n.d.). A strong feeling of human-avatar interaction is generated through the process of interacting with other gamers' avatars, which allows them to incorporate perception, cognition, emotion, actions, and strategies in order to level-up (Zhong & Yao, n.d., p. 559). The manner in which an individual presents his or her virtual self can alter human social responses, and thus, influence the way people interact with one another (Yoon & Vargas, 2014).

Leonardelli, Pickett, and Brewer (2010) noted that people tend to have a need to achieve optimal distinctiveness within the virtual environment; each player selects specific attributes for their avatar and then cultivates his or her own unique character while playing the game. Guadagno, Muscanell, Okdie, Burke, & Ward (2011) suggest that, within the confines of a virtual environment, men and women tend to follow gender role expectations for behavior that correspond with societal norms. Additionally, men were more likely to create non-human and opposite-gender avatars, and women tend to create avatars with more dissimilarities from themselves. Sanderson, Darley, and Messinger (2002) proposed that body image might influence how women develop their avatars, which are the virtual representations of their physical selves. This corroborates the research of Ducheneaut, Wen, Yee, & Wadley (2009), which indicated that women are more likely than men to create avatars that characterize more idealized versions of themselves (Dunn & Guadagno, 2011).

Yee (2006a) proposed that female gamers are usually older than male gamers, and females tend to value their online friendships just as much as, if not more than, their real-life friendships. Williams, Consalvo, Caplan, & Yee (2009) agree that women who play MMO's are generally older than men who play MMO's; however, they added that women are more drawn to the social interaction aspect of playing online video games. Bruckman (1996) notes that men are

more inclined to strive for achievement and some admit to gender swapping online to gain attention or assistance. Men usually assume that all other players in their online games are also men unless the other players can prove they are women; but the women who are able to convince the men they are female often face gender discrimination. Yee (2008) notes that women occasionally gender-swap their avatars for this very reason (Dunn & Guadagno, 2011). Although gender might explain variations in the development of avatars in online gaming, a multitude of additional research (Amichai-Hamburger, 2002; Amichai-Hamburger & Ben-Artzi, 2003; Amichai-Hamburger, Wainapel, & Fox, 2002) indicates that a player's personality supersedes the influence of gender when creating an avatar (Dunn & Guadagno, 2011).

Papacharissi and Rubin (2000) found that people are able to use the Internet to reinvent themselves by changing the aspects of their identity that they don't like in order to create an alternate online persona. These researchers determined that many college students consider CMC to be a comparable alternative to face-to-face interaction. In addition, students who were less happy with their lives had a stronger affinity with the Internet for interpersonal interaction. Papacharissi and Rubin (2000) concluded that online communication offers a lower stress environment for people to express themselves more freely (Dunn & Guadagno, 2011).

According to Amichai-Hamburger, Wainapel, & Fox (2002), neurotics use the Internet to express their actual selves, while non-neurotics are more likely to use more traditional forms of social interaction (Dunn & Guadagno, 2011). Bessiere, Seay, and Kiesler (2007) investigated MMO gamers and found that they considered their avatars to be less neurotic then their actual selves. These results indicate a correlation between neuroticism, computer-meditated communication, and online social interaction (Dunn & Guadagno, 2011). People who have a tendency to be neurotic in the real world can turn to CMC because they feel they can control how

they are perceived by others. Neuroticism also facilitates the effect that gender has on avatar attractiveness; women who rate high in neuroticism tend to choose or create the most attractive avatars. These discoveries indicate that neurotic women tend to use avatars to present themselves in the best light (Dunn & Guadagno, 2011).

Some research has shown that there appears to be considerable differences between players and their avatars for those who rate higher in introversion and neuroticism and lower in self-esteem (Dunn & Guadagno, 2011). Bessiere, Seay, and Kiesler (2007) also found that MMO players regarded themselves as more open to new experiences than their avatars. For example, men who rate high in openness tend to experiment more with skin colors and tones that are darker than their actual skin. Also, people who are more open to new experiences within the virtual realm felt more kindred to their avatars and were more likely to try things that were less attainable in their real lives (Dunn & Guadagno, 2011). “These results suggest that participants did not simply rate their characters positively across all personality dimensions but did so selectively for the Big Five characteristics most relevant to the virtual world” (Bessiere, Seay, & Kiesler, 2007, p. 532).

There have not been many studies focusing on CMC that demonstrate agreeableness and conscientiousness as predictors of self-presentation endeavors; however, in conjunction with gender, agreeableness did have some impact on avatar selection. Agreeable men tend to conform to the idea that, in the real world, society finds big, muscular men appealing. Likewise, agreeable women may create smaller avatars as a means to please others and not necessarily because they are trying to reduce the appearance of body size. Extraversions, as well as exaggerating agreeableness, which is considered an inherently positive trait, are likely attributes of online gamers (Dunn & Guadagno, 2011). In their study of WoW, Bessiere, Seay, and Kiesler (2007)

discovered that players perceived their own conscientiousness to be lower than that of their avatars; conversely, they determined that there was no distinction between the gamers' views of their own agreeableness versus those of their avatars (Dunn & Guadagno, 2011). Furthermore, people who have been playing a particular game for a long time often create multiple characters in addition to their main avatar (Gabbiadini, Mari, Volpato, & Monaci, 2014).

Avatar Self-Identification

According to Blanchard and Markus (2004), MMORPGs often generate abundant virtual environments in which players can develop significant bonds and afford a sense of belonging (Gabbiadini, Mari, Volpato, & Monaci, 2014). The virtual communities that these online games encompass present daily opportunities for growth in players' social identities through their avatars (Yee, 2006b). Cole and Griffiths (2007) proposed that MMORPGs offer interactive environments that are vastly social and provide the ideal gateway to create emotional relationships and life-long friendships (Gabbiadini, Mari, Volpato, & Monaci, 2014). According to Klimmt, Hefner, Vorderer, Roth, and Blake (2010), gamers identify with their role in the virtual environment, which leads to a natural shift in their inherent self-perceptions (Gabbiadini, Mari, Volpato, & Monaci, 2014). Empirical research (Gentile, et al., 2009; Greitemeyer & Osswald, 2010) has substantiated that avatar behavior can influence a gamer's self-perceptions, thoughts, and feelings (Yoon & Vargas, 2014). Rosenberg, Baughman, & Bailenson (2013) also concluded that there is a correlation between identification with an avatar and avatar-consistent behavior in the real world (Yoon & Vargas, 2014).

"Identification is a psychological process in which the audience imagine themselves becoming a media character and take the perspectives, goals, and identity of the character"

(Zhong & Yao, n.d., p. 559). Character identification produces a powerful attraction to media consumption (Van Looy J. , Courtois, De Vocht, & De Marez, 2012). Yee (2006a) established two categories of avatars in his gaming research: one type of avatar is a projection or idealization of one's identity, and the second classification is one's attempt to create a new identity. Looy, Courtois, Vocht, & Marez (2012) referred to these two categories as similarity identification, which allows the player to vicariously participate in the avatar's experiences (Hoffner & Buchanan, 2005), and wishful identification, a mental process in which the player desires to be like the avatar (Konijn & Hoorn, 2005).

Van Looy et al. (2012) goes on to state that players prefer these different types of identifications for different reasons. Some people choose to create avatars with similar identities, because they find that online interactions are more fulfilling when they feel their avatars' personality resembles their own (Ducheneaut, Wen, Yee, & Wadley, 2009). Lim and Reeves (2009) noted that similarity identification decreases the psychological distance between human players and their avatars and increases the self-relevance of the games. As such, players are likely motivated to spend more time and more resources, both emotional and monetary, on the development of their avatars (Zhong & Yao, n.d.).

Conversely, wishful identification allows the player to use their avatar to bridge the gap between the actual self and the ideal self. Some online video gamers create avatars with superior identities, which Van Looy et al. (2012) notes, would allow them to indulge more in the virtual world (Zhong & Yao, n.d.). The degree to which gamers identify with their avatars can indicate the extent to which they see their avatars as some part of themselves; thus, the strength of one's avatar self-identification could be determined by his or her identification with the ideal self rather than the actual self (Kim, Lee, & Kang, 2012).

Cohen (2001) suggested that identfication encompasses the repetetive internalization of alternative character identities merged with oneself. Consequently, Li, Liau, & Khoo (2013) proposed that merged identity should be a factor to be considered when defining identification as it applies to online video games. Additionally, Klimmt, Hefner, and Vorderer (2009) emphasized that self-concept and identity are very important when defining avatar self-identification as a merger of player's self-concept and perceived avatar characteristics; as the players take on some of the avatars' identity during gameplay, the players' may not be aware of the changes in their self-concept. This lack of conscious awareness might make it difficult to measure the identification process through surveys or interviews (Li, Liau, & Khoo, 2013).

Dunn and Guadagno (2011) found that men and women tend to create or choose avatars that are typically associated with and beneficial for their gender; however, people who have attributes on the unfavorable end of the personality spectrum, such as introverted, neurotic, or low self-esteem, tend to use avatars that somehow compensate for their shortcomings. In a study focusing on WoW, Bessiere, Seay, and Kiesler (2007) determined that players presented a substantial difference between high and low when rating their own self-esteem. On the other hand, there was essentially no difference in the players' perceptions of their avatars' self-esteem. Players with both high and low self-esteem rated their ideal self higher than both the actual self and the avatar; these MMO gamers tend to rate their avatars somewhere between their ideal selves and their actual selves (Dunn & Guadagno, 2011).

Contradictory to Lim and Reeves' (2009) later findings, Smahel, Blinka, and Ledabyl (2008) suggested that people who perceive their avatars as being more prominent than their actual selves might display greater avatar self-identification. This could lead to these players devoting more time, as well as more emotion, to the development of their avatars. (Zhong &

Yao, n.d.). Therefore, according to Lewis, Weber, and Bowman (2008), avatar self-identification could indicate how much the players consider their avatars to be idealized versions of themselves, how emotionally attached they are to their avatars, and how dedicated they are to the enhancement of their avatar (Zhong & Yao, n.d.). Zhao, Wang and Zhu (2010) proposed that the degree to which people identify with their avatars would likely influence their motivation and commitment to playing online games (Zhong & Yao, n.d.).

The success of one's avatar in the virtual world tends to be significant to the gamer, considering that most perceive their avatars as representations or idealizations of their self-identities; consequently, a player will likely develop a strong emotional attachment to their avatar while creating a virtual life within the game (Gabbiadini, Mari, Volpato, & Monaci, 2014). Klimmt, Hartmann, and Frey (2007) suggested that some virtual environments, like MMORPGs, offer interactive control of the usable game characters; this allows players to establish a strong link with their avatars, which may lead to players feeling as though they actually become their avatars (Gabbiadini, Mari, Volpato, & Monaci, 2014). Yee (2006c) found that many players appreciate the story-telling feature of MMORPG virtual worlds and enjoy constructing the backstory for their avatars that tie in to the game's stories (Gabbiadini, Mari, Volpato, & Monaci, 2014).

Social Capital

Playing MMORPGs is essentially a social experience (Caplan, Williams, & Yee, 2009; Ducheneaut & Moore, 2004); for the most part, MMORPGs promote social interactions and collective play, which typically involves collaborating with other players to complete tasks and helping one another to accomplish mutual goals (Zhong, 2011). Some researchers have studied

the impact of collective MMORPG play on gamers' social capital, which Zhong (2011) has described as "frequency of joint gaming actions and gamers' assessment of the experience in MMORPG guilds and groups" (p. 2353). Guilds are the most important facet of the social life within MMORPGs; this is where players meet and new relationships are formed (Martoncik & Loksa, 2016). According to Reer and Kramer (2014), playing in a guild promotes communication with other gamers, and encourages self-disclosure, which in turn, increases the opportunity to garner social capital (Martoncik & Loksa, 2016).

Whang and Chang (2004) noted that these virtual worlds should no longer be viewed as merely a temporary medium for playing games, but as a social environment where an entirely new type of human relationship can be established. With continuously expanding participation in these online video games, MMORPGs have introduced a new concept of community. Players are not only pursuing their gaming objectives or fighting enemies, they are also making friends, falling in love, and developing virtual communities that offer them a sense of belonging; gamers are encouraged to participate in various activities in a way that is similar to the real world (Whang & Chang, 2004). This has led researchers to study collective MMORPG play as it pertains to social capital within the virtual world (Zhong, 2011).

The concept of social capital has been considered vague in previous research; however, Portes (1998) proposed that the term "social capital" focuses on the positive outcomes of social interactions. Son and Lim (2008) suggested there are two classifications when studying social capital: the individual level and the collective level (Zhong, 2011). "Social capital at the individual level refers to the resources and support provided by bonding and bridging social networks; collective-level social capital refers to people's civic engagement" (Zhong, 2011, p. 2352). As Granovetter (1983) described, individual social capital emphasizes individual

relationships and acquisition of resources within the social network (Zhong, 2011). Alternatively, Putnam (2000) described collective social capital, which focuses on participation in social groups that may enrich the groups or other individuals within the groups (Zhong, 2011).

Coleman (1988) found that social capital includes aspects of social structure and can facilitate behaviors, as well as the outcomes, for both individual and collective participants. Although social capital can be conceptualized to occur at both the individual and the collective level, it is only at the individual level that social capital can be viewed as the resources rooted in the individuals' social networks (Zhong, 2011). According to Putnam (1995), social capital at the individual level can be categorized as either bonding social capital, which are rooted from strong ties, or bridging social capital, which are rooted from weak ties (Zhong, 2011).

Williams (2006a) found that bonding social capital happens to homogeneous groups who commonly extend emotional or substantial support, including access to limited resources and solidarity to overcome outside aggression. Additionally, Williams (2006a) described bridging social capital, which usually takes place with heterogeneous groups who ultimately look beyond themselves to assist one another in order to expand social perspectives, gain information or resources, and the view of oneself as part of a larger community (Zhong, 2011). In MMORPGs, bonding social capital essentially exists with tightly-knit guild members who establish and maintain sociable and supportive relationships through successful cooperation. Conversely, bridging social capital in MMORPGs can be described as the weak connections that are generated during transitory grouping and guild-play; these players know each other, but they do not necessarily share emotional or substantial support. They do, however, offer valuable opportunities for gamers to interact with new people and to be exposed to comprehensive worldviews (Zhong, 2011).

Putnam (1993a, p. 167) defined collective social capital as “the social networks, the norms of reciprocity and trustworthiness that arise from civic engagement” (Zhong, 2011). Putnam (2000) was adamant about the importance of collective efforts and viewed the networks of civic engagement, “people’s connections with the life of their communities” (Putnam, 1995, p. 665), to be at the very core of social capital. Son and Lin (2008) offer examples of civic engagement in the real world, including things like becoming a member in a volunteer organization, helping to raise money for charities, participating in church activities, and voting. Comparable civic engagement in the virtual world could include participating in online interest groups and online communities, online donating, or online voting (Blanchard & Horan, 1998). Consistent civic involvement will lead to a reliable social network, which will result in cooperation and a sense of shared responsibility for collective objectives (Brehm & Rahn, 1997; Putnam, 1993b).

According to Winnie et al. (2007), collective social capital promotes a more efficient community and allows individuals to achieve collective goals that cannot be accomplished on their own (Zhong, 2011). In MMORPGs, participation in groups or guilds would be an example of collective social capital; collaboration within groups or guilds encourages social interaction and shared responsibility, builds teamwork, and cultivates the substantial norm of reciprocity, which Putnam (2000) asserted to be the most important behavior in the foundation of social capital (Zhong, 2011). Zhong (2011) was unable to prove that there is a positive correlation between online collective play and offline bonding and bridging social capital (Zhong, 2011).

Self-Esteem

According to Rosenberg, Schooler, and Schoenbach (1989), the definition of self-esteem is one's self-concept, which is largely contingent upon an individual's reflected appraisals, social comparisons, and self-attributions. Rosenberg (1965) believed that self-esteem relates to one's feeling of his or her self-worth (Huang, Yang, & Chen, 2015). Psychosocial well-being is comprised of a wide array of interrelated constructs, including self-esteem, social competence, loneliness and life satisfaction; these constructs reflect the quality of intrapersonal and interpersonal functioning. For example, social incompetence and low self-esteem tend to result in avoidance of social interaction, which may eventually lead to loneliness and a lower satisfaction of life (Lemmens, Valkenburg, & Peter, 2011). Shaw and Gant (2002) discovered that Internet use, such as online chat sessions, can significantly increase perceived social support and self-esteem, and can significantly decrease perceived loneliness and depression. Kaplan and Maehr (1999) and Seligman (2008) determined that self-esteem and self-confidence can be improved through a sense of achievement and accomplishment; this will, in turn, yield a positive impact on individuals' overall psychological well-being (Kirby, Jones, & Copello, 2014).

Brooks, Hogan, Ellison, Lampe, & Vitak (2014) used Facebook to study CMC concerning social network systems employing a modified version of Williams' (2006a) Internet Social Capital Scales (ISCS) to measure perceptions of social capital as they relate to individual-level metrics, such as self-esteem. According to Brooks et al. (2014), additional research utilizing ISCS has emphasized significant relationships within social network systems between both bonding and bridging social capital and several behavioral and attitudinal factors, including self-esteem (Burke, Marlow, & Lento, 2010; Ellison, Steinfield, & Lampe, 2007; Papacharissi and Mendelson, 2011; Steinfield, Ellison, & Lampe, 2008; Valenzuela, Park, & Kee, 2009).

Furthermore, Ellison, Steinfield, & Lampe (2007) determined that self-esteem might moderate the relationship between social network involvement and social capital; they found that Facebook seems to benefit younger people with low self-esteem more than those with higher self-esteem (Steinfield, Ellison, & Lampe, 2008). Lin (1999) determined that relationships help build social capital, and there are several studies (Kraut et al., 1998; Kraut et al., 2002; Shaw & Gant, 2002; Valkenburg, Peter, & Schouten, 2006) that have produced evidence that there is a correlation between Internet use, especially social network sites, and a person's self-esteem and psychological well-being (Steinfield, Ellison, & Lampe, 2008).

CHAPTER THREE: REVIEW OF LITERATURE

Van Looy et al. (2012) proposed a scale for measuring player identification in massively multiplayer online games. According to Cohen (2001, 2006), character identification is a significant motivator of media experiences (Van Looy J. , Courtois, De Vocht, & De Marez, 2012); however, it is only recently that researchers have turned their focus to character identification in video games (Hefner, Klimmt, & Vorderer, 2007). Most of these studies employed ad hoc methods using self-reporting scales: Lewis, Weber, and Bowman (2008), Smahel, Blinka, and Ledabyl (2008), Ducheneaut et al. (2009), and Klimmt et al. (2010). Bessiere, Seay, and Kiesler (2007) refrained from using subjective identification measures at all, instead electing to apply the Big Five Personality Inventory (John & Srivastava, 1999) in their study on avatar idealization.

There is also previous research that focuses on identification in video games that utilized scales for measuring identification in other types of media. Some of these include Peng's study (2008) on the effects of a healthy diet promotion game, which utilized a scale adapted from Cohen's (2001) 10-item identification scale, and Konijn, Nije Bijvank, and Bushman's (2007) study of identification's mediating effects on aggressive behavior, which adapted a 4-item wishful identification scale from Von Feilitzen and Linné's (1975) television research (Van Looy J. , Courtois, De Vocht, & De Marez, 2012).

Taking into account this previous research, Van Looy et al. (2012) designed a unified method to measure identification specifically applied to video games. They included multiple subcomponents in their scales for avatar identification, which included differentiating between

similarity identification and wishful identification. Additionally, to account for the player-avatar bond, they added an embodied presence, which refers to the emotions embodied in the character, as well as both group and game identification dimensions to account for the social dimensions within online games. Using WoW as their platform, Van Looy et al. (2012) successfully implemented their proposed structure of identification in MMOGs. The results of their study supported their three-factorial scales to measure avatar identification, group identification, and game identification (Van Looy et al., 2012). (Van Looy J. , Courtois, De Vocht, & De Marez, 2012).

In addition to validating the proposed identification scales for MMOG's, Van Looy et al. (2012) found that most of the identification factors moderately correlate with gaming motivations. Moreover, they found a correlation between avatar identification and the players' desire to customize their avatars and fantasize about their ideal self-image, which frequently leads to players using these video games as a form of escapism. The present study will use an adaptation of the identification scale presented by Van Looy et al. (2012) to measure avatar self-identification with the intention of determining a correlation between avatar self-identification and perceived real-world social capital and self-esteem.

In an effort to construct new social capital scales specifically designed for online social interactions, Williams' (2006a) set out to update measures previously used in literature from television research to fit Internet research. ISCS were proposed to measure bridging and bonding social capital in both online and offline contexts; they were necessary to allow for the functional differences between the Internet and older media (Williams D. , 2006a). Applying Putnam's (2000) concepts of bridging and bonding social capital, which are related but not equivalent, Williams' (2006a) concept could allow for different norms and networks.

In order for the ISCS to compare across two separate dimensions, bridging vs. bonding and online vs. offline, it was necessary to construct two parallel scales: one for online measures and one for offline measures. Within each of those scales, there are additional subscales for bridging and bonding measures, resulting in a total of four subscales (Williams D. , 2006a). The bonding social capital measures include four underlying dimensions generated through strong-tie networks: emotional support, access to scarce or limited resources, ability to mobilize solidarity, and out-group antagonism (Williams D. , 2006a). The bridging social capital measures are made up of the following four underlying dimensions: outward looking, contact with a broader range of people, a view of oneself as part of a broader group, and diffuse reciprocity with a broader community (Williams D. , 2006a).

The ISCS was developed to clarify how social capital forms, both online and offline, and to provide an effective multidimensional tool with which to measure it. Williams (2006a) not only successfully validated the ISCS in this research, but he presented future researchers with scales to be used for everything from broad applications of the Internet to more specific social Internet activities, like chat rooms and online gaming. Williams (2006a) applied his ISCS research to a random sample of volunteers from various online message boards, which ranged in interests from gaming to support groups. The present study utilizes a modified version of the ISCS to measure social capital and its correlation with self-esteem and avatar self-identification in MMORPGs.

In a study to explore online gaming motivations and gratifications, Huang, Yang, and Chen (2015) examined a group of 11-18-year-olds who played a popular Facebook game called Happy Farm. Previous social network sites (SNS) and game research typically focused on addictions (Wu, 2013), flow experiences (Seger & Potts, 2012), and mental traits (Seger & Potts,

2012; Yang & Huang, 2011); however, this study is directed toward online socializing and gaming behaviors. These researchers analyzed the participants' interpersonal relationships, specifically considering the psychological traits of self-esteem and self-concept, within the game (Huang, Yang, & Chen, 2015).

This research was intended to reveal how media can gratify the participants' social-psychological needs for communication (Rubin, 2009) using online community games (Huang, Yang, & Chen, 2015). Huang, Yang, and Chen (2015) applied the uses and gratifications framework (U & G) to this study in order to investigate the fundamental motivations of Happy Farm players. The U & G framework, often applied to diverse types of CMC, proposes that people are cognizant of their social and psychological needs and therefore use media to fulfill those needs (Katz, 1959). Huang, Yang, and Chen (2015) examined multiple variables in gaming, such as usage patterns, motivations, gratification, and social relationships, along with psychological variables, including self-esteem and self-concept.

Several instruments were used to measure these variables: the Usage Scale was adapted from Ellison, Steinfield, and Lampe's (2007) Facebook Intensity Scale; the Self-Esteem scale was developed by Rosenberg (1965); the Self-Concept Scale was borrowed from Chuang (2002); and the Usage Motivation and Gratification Scale was designed by Huang, Yang, and Chen (2015). The results of this study supported the research of Cole and Griffiths (2007), finding that social interactions are an essential part of online gaming enjoyment (Huang, Yang, & Chen, 2015). This research also determined that Happy Farm players seek specific types of gratification from media to fulfill psychological and social needs; these online gamers intentionally pursued interaction with others to enhance their social connections. Additionally, this research established that the Happy Farm players who were more engaged in the game tended to have a

higher self-esteem, better self-concept, and stronger interpersonal relationships (Huang, Yang, & Chen, 2015).

The present research also employs the Rosenberg Self-Esteem Scale (Rosenberg M. , 1965), as well as the Collective Self-Esteem Scale (Luhtanen & Crocker, 1992) to investigate the influence that playing MMORPGs has on players' self-esteem. Furthermore, gamers' perceived social capital will be measured by implementing an adapted version of the existing Internet Social Capital Scale (ISCS) (Williams D. , 2006a) in order to determine a correlation between self-esteem and perceived social capital as they apply to avatar self-identification. In lieu of the U & G theory, as Huang, Yang, and Chen (2015) did in their research, this study will employ Social Identity Theory, as it can be better applied to this avenue of research.

CHAPTER FOUR: SOCIAL IDENTITY THEORY

"Social identification is the process by which we define ourselves in terms and categories that we share with other people. In contrast to characterizations of personal identity, which may be highly idiosyncratic, social identities assume some commonalities with others" (Deaux, 1994, p. 1). Social identity is an individual's self-concept derived from his or her social group memberships (Deaux, 1994). A social group can be defined as a collection of individuals who interact with one another with the idea that they are members of the same social category; these members tend to share a similar emotional involvement and a common valuation of themselves and their group, which is an important source of pride and self-esteem (Tajfel & Turner, 1979).

Social Identity Theory (SIT) proposes that strong social psychological motives lead to intergroup experiences (Hogg, Sherman, Dierselhuis, Maitner, & Moffitt, 2007). Previous research indicates that a fundamental motive in identity development is the need for self-esteem (Vignoles, Regalia, Manzi, Golledge, & Scabini, 2006). Everyone strives to have a positive social identity, and this, in turn, leads to a higher self-esteem (Abrams & Hogg, 1988; Brown, 2000). When an individual gains a positive self-esteem through membership in a group, that person's self-worth will increase. As that same individual's self-definition becomes stronger, he or she will find that group membership to be more important, and therefore, the positive emotions associated with that group will become more intense (Gabbiadini, Mari, Volpato, & Monaci, 2014).

McKenna and Bargh (1998) noted that virtual groups tend to follow the same basic ideologies of social group functioning as comparable face-to-face groups. These online groups

foster the development and maintenance of personal relationships and social identity. According to Williams et al. (2009), online video gamers consider these social connections to be as substantial and supportive as any tangible relationship (Gabbiadini, Mari, Volpato, & Monaci, 2014). Previous research (Bagozzi, Dholakia, & Pearo, 2007) has indicated that the social bonds established between members of a virtual group could lead to the creation or adaptation of an individual's social identity within the virtual environment (Gabbiadini, Mari, Volpato, & Monaci, 2014). According to Blanchard and Markus (2004), "MMORPGs often give life to virtual communities in which members may develop affective bonds and express a sense of belonging to the in-group" (Gabbiadini, Mari, Volpato, & Monaci, 2014, p. 141).

CHAPTER FIVE: PRESENT STUDY

Although this research has uncovered several studies on avatar self-identification, self-esteem, and social capital, none have specifically sought to determine a correlation between all three of them. According to Sedikides and Strube (1997), the degree of self-esteem a person feels could escalate as a direct result of self-enhancement or as an indirect result of self-improvement (Golledge, Manzi, Regalia, Scabini, & Vignoles, 2006).

Bessiere, Seay, and Kiesler (2007) found that most gamers bring some aspects of their ideal selves to life through their avatars, which may have positive benefits for users with low self-esteem (Ducheneaut, Wen, Yee, & Wadley, 2009). Additionally, Dunn and Guadagno (2011) discovered that some gamers with low-self-esteem use avatars in the virtual world to compensate for their shortcomings in the real world. Based on this reasoning, one could argue that people with low self-esteem who play MMORPGs, by designing avatars that they believe are superior to their actual selves, might find that avatar self-identification increases their self-esteem. Therefore, the first hypothesis proposed for this study is:

H1: The strength of avatar self-identification positively correlates with MMORPG players' individual self-esteem in the real world.

According to Zhong and Yao (n.d.), avatars are closely linked to online gamers' sense of self. Social gamers tend to be very dynamically involved in online collective activities; these social interactions are mediated by their avatars, and they are likely to perceive a strong avatar self-identification. Avatar-based collaboration within an MMORPG helps to decrease distrust in

CMC, which initiates new weak ties that produce bridging social capital; additionally, this gratifying collaboration in MMORPGs creates a comradery within that same community, establishing strong social relationships indicative of bonding social capital (Zhong, 2011). Blanchard and Horan (1998) found that virtual communities modeled after existing communities can increase social capital. Furthermore, Putnam (2000) stated that the Internet might actually have the ability to reverse declining social capital.

In a previous study of WoW, players formed different types of social networks where rules, boundaries, and norms were established; it was evident that social capital was created during the process of forming these social networks (Huvila, Holmberg, Ek, & Widén-Wulff, 2010). The present study also aims to prove that strong avatar self-identification positively correlates with MMORPG players' social capital in the real world. Therefore, the second hypothesis proposed for this study is:

H2: The strength of avatar self-identification positively correlates with MMORPG players' perceived social capital in the real world.

Previous research has revealed that many forms of social capital are related to indicators of psychological well-being, including self-esteem (Bargh, McKenna, & Fitzsimons, 2002; Helliwell & Putnam, 2004). Ellison, Steinfield, & and Lampe (2007) found that self-esteem could moderate the relationship between online social networking and social capital (Steinfield, Ellison, & Lampe, 2008). In a study by Shaw and Gant (2002), it was discovered that online communication can lead to a decrease in loneliness and depression, which is linked to psychological well-being and self-esteem, and an increase in perceived social capital (Steinfield, Ellison, & Lampe, 2008).

Steinfield, Ellison, and Lampe (2008) found that, when using an SNS, self-esteem positively correlates with social capital. The present study is not dissimilar; overall, it aims to prove that strong avatar self-identification positively correlates with MMORPG players' self-esteem in the real world, as well as MMORPG players' perceived social capital in the real world. If self-esteem and perceived social capital in the real world are both related to strong avatar self-identification, it only stands to reason that a third hypothesis will be:

H3: MMORPG players' individual self-esteem in the real world positively correlates with their perceived social capital in the real world.

Figure 1 displays the structural equation model, which incorporates all three research hypotheses stated above. The three variables are treated as latent variables with multiple measured indicators.

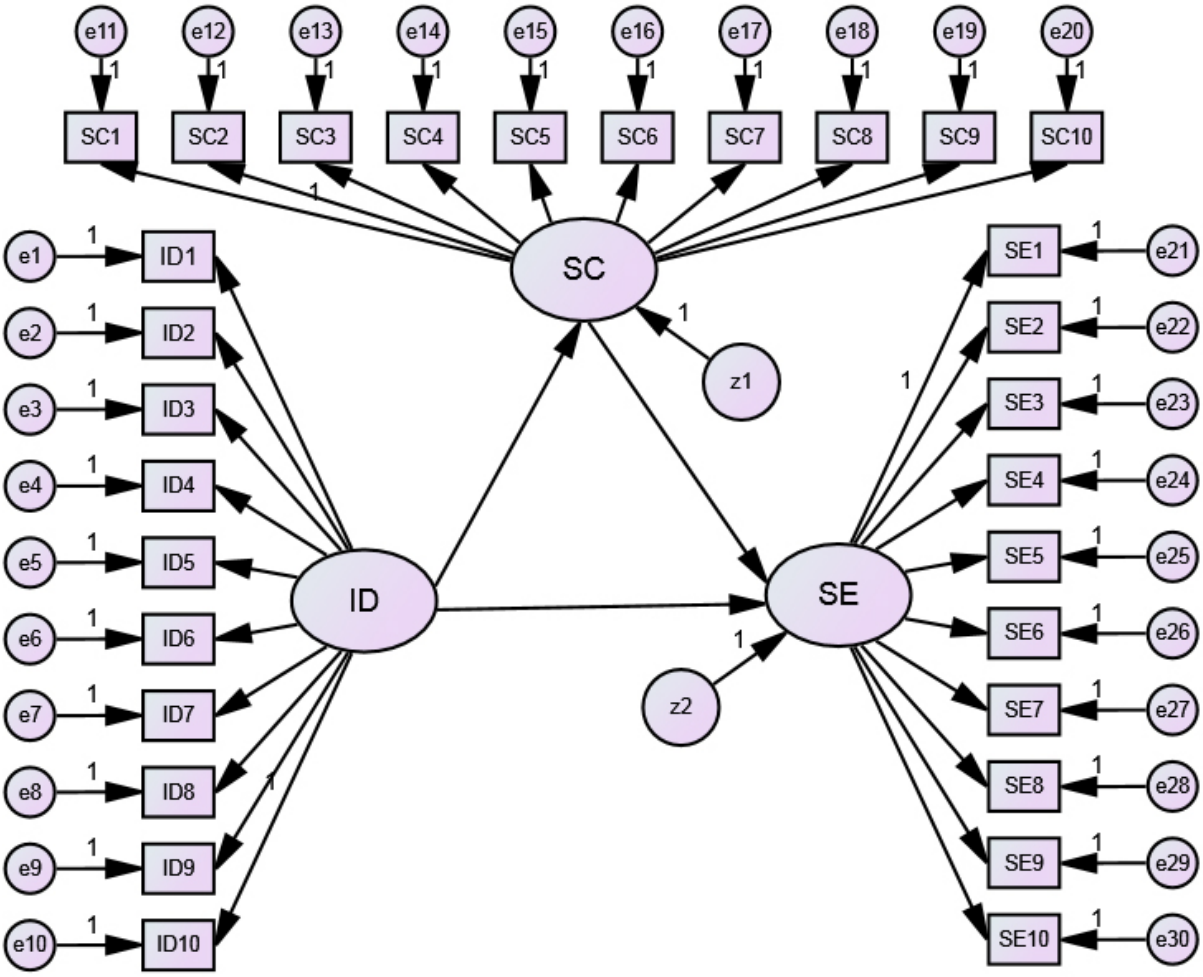


Figure 1: Hypothesized Structural Equation Model

Method

A random sample of WoW players, ages 18 and up, from the WoW subreddit (www.reddit.com), along with the Video Game Club at University of South Florida, were invited to take part in an online WoW research survey for an empirical study using a multifaceted questionnaire. The invitation included a description of the study, information about confidentiality, and a link to the questionnaire. The survey was conducted through an online

platform called SurveyMonkey (www.surveymonkey.com) and had the potential to reach a large number of participants from all over the world.

Table 1 Are you 18 or Older?

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	956	98.2	98.2	98.2
No	18	1.8	1.8	100.0
Total	974	100.0	100.0	

Table 2 Do you play World of Warcraft (WoW)?

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	906	93.0	95.3	95.3
No	45	4.6	4.7	100.0
Total	951	97.6	100.0	
Missing System	23	2.4		
Total	974	100.0		

Avatar self-identification was measured by modifying selected items from an exploratory factor analysis found in previous WoW research called a Player Identification Scale (Van Looy J. , Courtois, De Vocht, & De Marez, 2012). The answers to these ten questions were reported on a 5-point Likert scale.

Table 3 Identification: Reliability Statistics

Cronbach's Alpha	N of Items
.896	10

Table 3 (Continued) Identification: Reliability Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ID1	25.9868	71.766	.530	.892
ID2	25.8675	70.417	.561	.890
ID3	24.7974	67.029	.714	.880
ID4	25.1722	67.570	.699	.882
ID5	24.8450	66.487	.721	.880
ID6	25.1695	66.425	.716	.880
ID7	25.0583	66.726	.696	.882
ID8	24.7404	69.280	.587	.889
ID9	25.1139	67.788	.640	.885
ID10	25.4040	69.047	.541	.893

Individual self-esteem was measured using elements from the Rosenberg Self-Esteem Scale (Rosenberg M. , 1965). The answers to these twenty questions were reported on a 5-point Likert scale.

Table 4 Individual Self-Esteem: Reliability Statistics

Cronbach's Alpha			N of Items
.924			10
	Scale Mean if Item Deleted	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
SE1	31.7102	56.286	.734	.915
SE2	32.2997	53.752	.743	.915
SE3	31.2344	61.025	.622	.922
SE4	31.3125	60.386	.602	.922
SE5	31.9034	54.648	.741	.915
SE6	32.4688	53.601	.741	.915
SE7	31.4616	58.016	.739	.916
SE8	32.4560	56.052	.637	.921
SE9	31.6534	52.941	.811	.911
SE10	31.7855	54.852	.800	.912

Perception of social capital was measured by modifying existing Internet Social Capital Scale (ISCS) (Williams D. , 2006a), as well as some adaptations from the Interpersonal Support Evaluation List (ISEL) (Cohen & Hoberman, 1983), using wording that reflects the context of this study. The answers to these twenty questions were reported on a 5-point Likert scale.

Table 5 Social Capital: Reliability Statistics

Cronbach's Alpha			N of Items	
.869			10	
	Scale Mean if Item Deleted	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
SC1	33.5666	39.843	.603	.856
SC2	33.1842	40.563	.635	.853
SC3	33.4876	38.849	.680	.849
SC4	33.5882	39.511	.673	.849
SC5	33.6471	39.748	.645	.852
SC6	33.2740	41.852	.664	.853
SC7	33.4690	42.274	.541	.860
SC8	33.3189	42.388	.522	.862
SC9	33.4505	42.220	.514	.862
SC10	33.8111	42.225	.419	.871

Tables 3 through 5 present the Cronbach's alphas, the measures of internal consistency, which indicate how reliable the scales are for each assessment: Tables 3 indicates a high reliability coefficient of .896 for the avatar self-identification measures; Table 4 indicates a high reliability coefficient of .924 for the individual self-esteem measures; and Table 5 indicates a high reliability coefficient of .869 for perceived social capital in the real world.

The expected cohort for this study was 500-1,000 participants who play WoW at least three days a week and include both male and female gamers; the study ended with a sample size of 906. Additional covariates were to be measured, including age, gender, and frequency of

gameplay, which would be determined by average hours and days per week spent playing WoW. There were a few qualifying questions at the beginning of the survey to determine these details. Participants who chose to submit their email address at the end of the questionnaire were entered into a random drawing to win a $20 Battle.net gift card.

CHAPTER SIX: RESULTS

The research hypotheses and the reliability of the measurement models were tested using structural equation modeling (SEM). In order to contribute to this research study, participants were required to be 18 years of age or older and currently play WoW on a regular basis; Tables 1 and 2 simply display the statistics of those engaged in the survey.

Presented in Table 6 are the means and standard deviations of each of the distinct descriptive statements used to measure avatar self-identification (ID), self-esteem (SE), and perceived social capital (SC) in a cohort of 906 participants.

Table 6 Descriptive Statistics (N = 906)

	Item	Mean	Std. Deviation
ID1	I resemble my avatar.	2.0448	1.07582
ID2	My avatar resembles me.	2.1573	1.13296
ID3	I identify with my avatar.	3.2446	1.16310
ID4	My avatar is like me in many ways.	2.8615	1.15201
ID5	My avatar is an extension of myself.	3.1746	1.19957
ID6	In the game, it is as if I become one with my avatar.	2.8492	1.20742
ID7	When I am playing, it feels as if I am my avatar.	2.9664	1.21279
ID8	In the game, It is as if I act directly through my avatar.	3.2747	1.17582
ID9	I would like to be more like my avatar.	2.9117	1.21542
ID10	My avatar is a better me.	2.6287	1.27895
SE1	On the whole, I am satisfied with myself.	2.6061	1.06654
SE2	At times, I think I am no good at all.	2.9540	1.10709
SE3	I feel that I have a number of good qualities.	2.3369	1.12730
SE4	I am able to do things as well as most other people.	2.3810	1.12266
SE5	I feel I do not have much to be proud of.	2.7305	1.09624

Table 6 (Continued) Descriptive Statistics (N = 906)

	Item	Mean	Std. Deviation
SE6	I certainly feel useless at times.	3.0595	1.11332
SE7	I feel that I'm a person of worth, at least on an equal plane with others.	2.4741	1.07423
SE8	I wish I could have more respect for myself.	3.0447	1.05553
SE9	All in all, I am inclined to feel that I am a failure.	2.5802	1.22493
SE10	I have a positive attitude toward myself.	2.6529	1.06856
SC1	There are several people I trust to help me solve my problems.	2.7077	1.12005
SC2	There is someone I can turn to for advice about making very important decisions.	2.5357	1.24840
SC3	When I feel lonely, there are several people I can talk to.	2.6703	1.15940
SC4	The people I interact with would put their reputation on the line for me.	2.7194	1.06605
SC5	The people I interact with would share their last dollar with me.	2.7468	1.05245
SC6	I know people well enough to get them to do something important.	2.5735	1.09084
SC7	Interacting with people makes me want to try new things.	2.6612	1.03371
SC8	Interacting with people makes me feel like part of a larger community.	2.5965	1.13026
SC9	Interacting with people makes me feel connected to the bigger picture.	2.6555	1.07734
SC10	I come in contact with new people all the time.	2.8246	1.04191

The measurement model results are shown in Table 7, where the standardized regression weight estimates are displayed along with the standard errors (S.E.) for the construct indicators (ID, SE, SC). The regression weights for all the indicators are statistically significant ($P < .001$), and the standard errors are insignificant; these outcomes are acceptable and therefore validate the measurement model.

Table 7 Measurement Model Results

			Estimate	S.E.	P
ID	→	ID10	.533		
ID	→	ID9	.666	.060	< .001
ID	→	ID8	.581	.077	< .001
ID	→	ID7	.686	.087	< .001
ID	→	ID6	.703	.088	< .001
ID	→	ID5	.829	.094	< .001
ID	→	ID4	.727	.083	< .001
ID	→	ID3	.766	.086	< .001
ID	→	ID2	.486	.070	< .001
ID	→	ID1	.449	.065	< .001
SE	→	SE1	.840		
SE	→	SE2	.549	.042	< .001
SE	→	SE3	.819	.038	< .001
SE	→	SE4	.762	.037	< .001
SE	→	SE5	.749	.037	< .001
SE	→	SE6	.461	.043	< .001
SE	→	SE7	.870	.035	< .001
SE	→	SE8	.451	.041	< .001
SE	→	SE9	.861	.038	< .001
SE	→	SE10	.872	.030	< .001
SC	→	SC1	.741		
SC	→	SC2	.832	.041	< .001
SC	→	SC3	.832	.040	< .001
SC	→	SC4	.816	.044	< .001
SC	→	SC5	.742	.044	< .001
SC	→	SC6	.902	.048	< .001
SC	→	SC7	.716	.042	< .001
SC	→	SC8	.738	.048	< .001
SC	→	SC9	.682	.044	< .001
SC	→	SC10	.527	.043	< .001

The results of the structural model are displayed in Table 8. It is essential to verify that the structural equation analysis estimates for the model provide an adequate fit for the data collected. Chi-square is commonly used to test model fit in this type of analysis; however, in the case of a large sample size, the results of the Chi-square test can often be misleading. In the

present study, which has a sample size of 906, the Chi-square test indicated a lack of model fit (X^2 = 1033.138, df = 335, P = .000). In this case, it was necessary to utilize additional goodness-of-fit indices to assess this model.

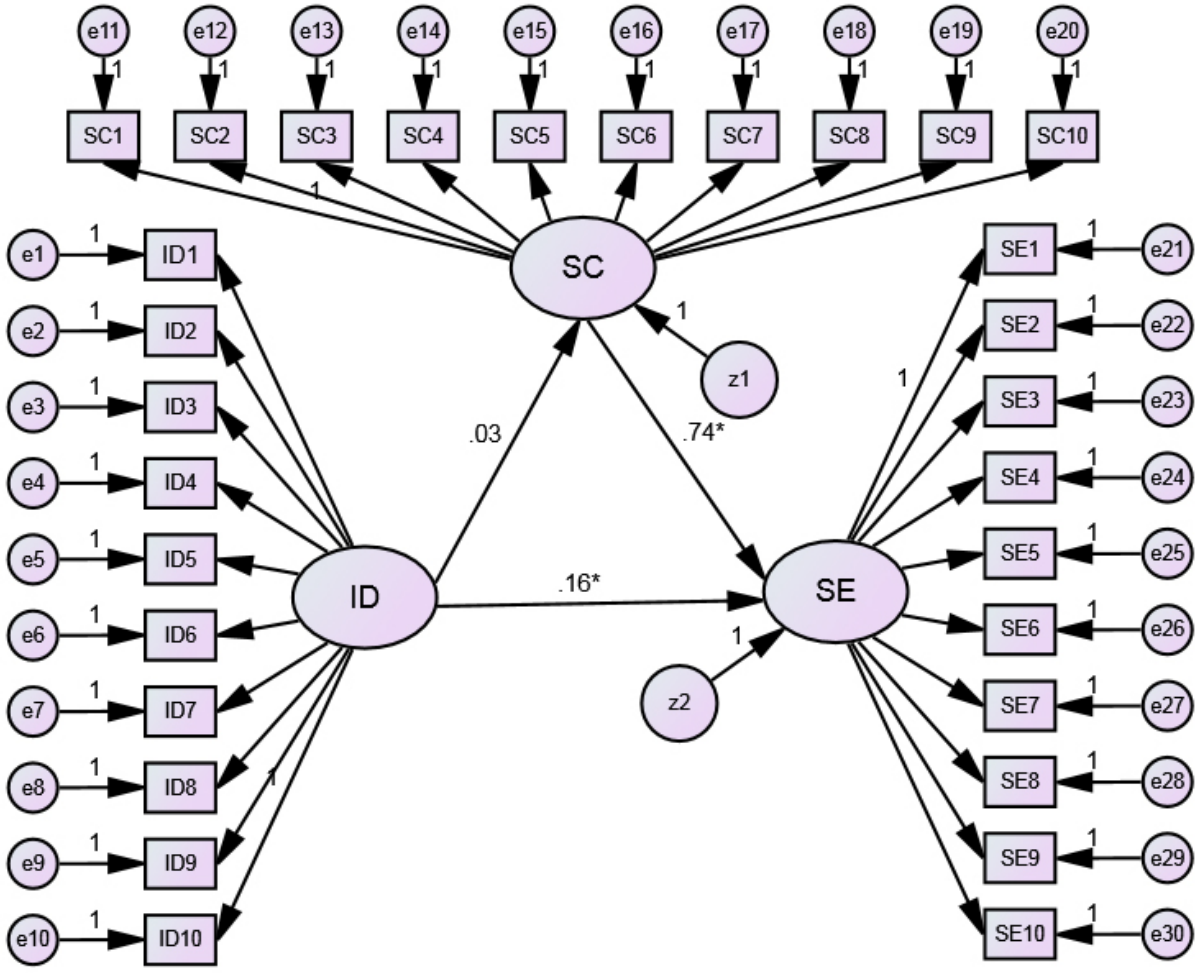
According to B. Byrne (2001), measurement models that have a Goodness-of-Fit Index (GFI), Adjusted Goodness-of-Fit Index (AGFI), and Comparative Fitness Index (CFI) greater than .90 and a Root Mean Square Error Approximation (RMSEA) of less than or equal to .10 are accepted to provide a sufficient fit for the data. The CFI is a derivative of Bentler and Bonett's (1980) Normed Fit Index (NFI), which originally accepted a value of greater than .90 and was later revised to greater than .95 as an acceptable value (Byrne B. , 2001). Additionally, Hu and Bentler (1999) had suggested that a RMSEA value of .06 or less can indicate a good fit for a large sample size, and MacCallum and Austin (2000) strongly recommend using RMSEA as a goodness-of-fit index (Byrne B. , 2001). In the present study, as shown in Table 9, all these measures indicate that this model provides acceptable fit for the data.

Table 8 Standardized Regression Weights

			Estimate	**P**
ID	→	SC	.028	.439
ID	→	SE	.156	< .001
SC	→	SE	.739	< .001

Table 9 Model Fit Summary

	GFI	**AGFI**	**CFI**	**NFI Delta 1**	**RMSEA**
Default Model	.929	.902	.968	.954	.048
Saturated Model	1.000		1.000	1.000	
Independence Model	.197	.142	.000	.000	.235



*P < .001

Figure 2: Structural Equation Model Results

The results of the hypothesized relationships among the presented variables (ID, SE, SC) are shown in Fig. 2. In this study, H1 asserts that there is a positive correlation between MMORPG players' avatar self-identification (ID) and self-esteem (SE) in the real world. This hypothesis is supported by the positive relationship between ID and SE with statistically significant results ($\beta_{ID \rightarrow SE}$ =.156, P < .001); as MMORPG players' avatar self-identification becomes stronger, their self-esteem increases in the real world.

Conversely, the results in this study failed to support H2, which states that there is a positive correlation between MMORPG players' avatar self-identification (ID) and perceived social capital (SC) in the real world. Instead, the relationship between ID and SC was found to be statistically insignificant ($\beta_{ID \rightarrow SC} = .028$, $P = .439$). However, there were statistically significant results to support H3, which contends that there is a positive correlation between MMORPG players' increased self-esteem (SE) in the real world and their perceived social capital (SC) in the real world ($\beta_{SE \rightarrow SC} = .739$, $P < .001$).

CHAPTER SEVEN: DISCUSSION

This study proposed to uncover the relationships between MMORPG players and their avatars and how those relationships impact gamers outside of the virtual world. More specifically, this research aimed to reveal a correlation between avatar self-identification and both self-esteem and perceived social capital in the real world. Through the use of a questionnaire designed to measure these variables, modeled after previous researchers' validated designs (Cohen & Hoberman, 1983; Luhtanen & Crocker, 1992; Rosenberg, 1965; Van Looy, Courtois, De Vocht, & De Marez, 2012; Williams D, 2006a), three hypotheses were tested through gamers who play WoW on a regular basis.

Avatars function as humans in the virtual environment, which allows interactions to take place in the online world much like they would in the real world (Guitton, 2010). MMORPG players in this study who revealed a strong avatar self-identification also exhibited higher self-esteem in the real world. This may indicate that the more deeply these online gamers identify with their avatars, the more these virtual communities are able to nurture emotional growth that extends into their lives in the real world. This conclusion corresponds with Yee's (2006b) suggestion that MMORPGs offer players an opportunity to cultivate their identities though their avatars in the virtual world. It is likely that the relationships that are built online are just as substantial as those developed in the real world, often leading to offline friendships with the very people these players first met as avatars, thereby creating a greater sense of self-esteem. Also, gaining new friendships online could, in itself, increase one's self-confidence enough to initiate new friendships offline, thus increasing self-esteem, as well.

Furthermore, this study revealed a significant correlation between offline self-esteem and offline perceived social capital. That means that the higher a person's perceived social capital is in the real world, the higher his or her self-esteem will be in the real world. Although this study did not test for causal outcomes, the nature of the study precludes that greater perceived social capital likely leads to higher self-esteem. Moreover, previous research found that people with lower self-esteem who use social network sites tend to gain more social capital the more they use them; however, those with higher self-esteem did not seem to display as much of an increase in social capital (Ellison, Steinfield, & Lampe, 2007). Although this study found a positive relationship between offline self-esteem and offline social capital, it is likely that self-esteem is also a moderator between avatar self-identification and perceived social capital.

Previous studies have emphasized the significance of personal relationships when investigating a correlation between self-esteem and social capital (Bishop & Inderbitzen, 1995; Keefe & Berndt, 1996). Additional research by Ellison, Steinfield, and Lampe (2007) also suggested that self-esteem could be a moderator between online social networking and social capital (Steinfield, Ellison, & Lampe, 2008). Because the present study found a correlation between avatar self-identification and self-esteem, considering the previous research, this might lead one to conclude that avatar self-identification positively correlates with social capital, as well. Nevertheless, in this study, gamers who revealed a strong avatar self-identification did not exhibit a higher perceived social capital in the real world. Although there has been previous research focused on social networks in the virtual world (Zhong, 2011), it has only proven to have some impact on online social capital; this study, however, emphasized the correlation between MMORPG player's identification with their avatars and their offline social capital. In

this case, much like Zhong's (2011) study of online collective play and offline social capital, the hypothesis was not supported.

Social Identity Theory (SIT) is a theoretical framework that helps to better explain the processes and the outcomes in the present study. Social identity, simply put, is the way in which people define themselves within a social group (Deaux, 1994). The fundamental need for self-esteem drives people to pursue a stronger, more positive sense of social identity (Hogg, Sherman, Dierselhuis, Maitner, & Moffitt, 2007). Because MMORPGs are comprised of virtual environments where individuals participate in collective play, they are predominantly a social activity, even without face-to-face interaction. Avatars offer individuals the opportunity to socialize without leaving the comfort of home and without the anxiety that often accompanies social situations. SIT suggests that these online intergroup experiences are compelled by the need for a stronger self-identity and a higher self-esteem (Gabbiadini, Mari, Volpato, & Monaci, 2014). This would support the positive correlation between a strong avatar self-identification and a higher self-esteem, and because virtual groups tend to follow the same basic principles as face-to-face groups (McKenna & Bargh, 1998), it also supports the positive correlation between offline self-esteem and perceived social capital.

CHAPTER EIGHT: CONCLUSION

MMORPGs have continued to gain popularity over the years and have become a common worldwide gathering place for individuals of all ages and backgrounds to network and socialize while collaborating to defeat their mutual, albeit virtual, adversaries. Individuals play these multifaceted online games for a multitude of reasons; however, one thing all these gamers have in common is their link to the virtual world through a personalized avatar. Each player's avatar represents who they are and becomes the agent through which all their interactions take place in their online communities. The degree to which individuals identify with their avatars varies from person to person and will influence the outcomes of their MMORPG experiences. The relationships that are formed in these virtual environments are not unlike those established in the real world, and it is natural for individuals to seek connections that will raise their self-esteem and increase their social capital.

The present study used a random sample of WoW players in an effort to validate a positive correlation between avatar self-identification, self-esteem, and perceived social capital in the real world. Based on the results of this study, MMORPG players who strongly identify with their avatars also have a higher self-esteem in the real world; however, it was not determined, through the questionnaire, whether these players were predisposed to similarity identification or wishful identification. Also, the survey did not take into account the gaming motivations of each participant, which might have a tendency to limit the outcomes. Nonetheless, this study determined that there is a statistically significant positive correlation between avatar self-identification and self-esteem in the real world.

This research also determined that a strong avatar self-identification does not directly lead to a higher perception of social capital in the real world; however, the survey did establish a substantial relationship between perceived social capital and self-esteem in the real world. Initially, one might think that if there is a positive correlation between avatar self-identification and self-esteem in the real world and between perceived social capital and self-esteem in the real world, it would be reasonable to deduce that there must also be a positive correlation between avatar self-identification and perceived social capital in the real world; nevertheless, the results of this study revealed a statistically insignificant relationship between the latter. These outcomes could be due to the fact that this research focused specifically on offline rather than online self-esteem and perceived social capital.

The sample in this study of MMORPGs was limited to individuals who play WoW and are at least 18 years of age; they were recruited through specific online forums, which were selected for their convenience. Although it was required for participants to be WoW players, how long they have been playing and the amount of time spent playing, as well as age and gender, were variables that could not be used in this research. These demographic inquiries were made in the questionnaire for data enrichment purposes; however, due to a technical error in the online survey, the results were null and therefore ineffectual. Some things to consider for future MMORPG research, particularly when using WoW players as the focus of a study, are diverse guild dynamics, as well as the distinction between player-versus-player realms and role-playing realms within the game. Additionally, it might be beneficial to investigate more diverse player motives, such as escapism, to further explore this area of research. These variables have the potential to significantly impact outcomes regarding a correlation between avatar self-identification, self-esteem, and perceived social capital, both offline and in the virtual realm.

REFERENCES

(2005). Retrieved from iResearch.com: http://www.iresearch.com.cn/

Abrams, D., & Hogg, M. A. (1988). *Social Identifications: A Social Psychology of Intergroup Relations and Group Processes.* London and New York: Routledge and Kegan Paul.

Amichai-Hamburger, Y. (2002). Internet and personality. *Computers in Human Behavior, 18*, 1-10.

Amichai-Hamburger, Y., & Ben-Artzi, E. (2003). Loneliness and internet use. *Computers in Human Behavior, 19*(1), 71-80.

Amichai-Hamburger, Y., Wainapel, G., & Fox, S. (2002). ‘‘On the Internet no one knows I’m an introvert’’: Extroversion, neuroticism, and Internet interaction. *CyberPsychology and Behavior, 5*, 125–128.

Bagozzi, R. P., Dholakia, U. M., & Pearo, L. (2007). Antecedents and consequences of online social interactions. *Media Psychology, 130*, 77-114. doi:10.1080/15213260709336804

Bargh, J. A., McKenna, K. Y., & Fitzsimons, G. M. (2002). Can you see the real me? Activation and expression of the “true self” on the Internet. *Journal of Social Issues, 58*, 33-48.

Beaudoin, C., & Tao, C. (2007). Benefiting from social capital in online support groups: an empirical study of cancer patients. *CyberPsychology & Behavior, 10*, 587-590.

Bentler, P., & Bonett, D. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88*, 588-606.

Bessiere, K., Seay, A. F., & Kiesler, S. (2007). The ideal elf: Identity exploration in world of warcraft. *CyberPsychology & Behavior, 10*(4), 530-535.

Billieux, J., Van der Linden, M., Achab, S., Khazaal, Y., Paraskevopoulos, L., Zullino, D., & Thorens, G. (2013). Why do you play World of Warcraft? An in-depth exploration of self-reported motivations to play online and ingame behaviours in the virtual world of Azeroth. *Computers in Human Behavior,, 29*(1), 103-109. doi:10.1016/j.chb.2012.07.021

Bishop, J., & Inderbitzen, H. (1995). Peer acceptance and friendship: An investigation of their relation to self-esteem. *The Journal of Early Adolescence*, 476-489.

Blanchard, A. L., & Markus, M. L. (2004). The experienced "sense" of a virtual community: Characteristics and processes. *The DATA BASE for Advances in Information, 35*(1), 64-79. doi:10.1.1.88.1815

Blanchard, A., & Horan, T. (1998). Virtual communities and social capital. *Social Science Computer Review, 16*(2), 293-307.

Blizzard Entertainment. (2015). Retrieved from World of Warcraft: Beginner's Guide: http://us.battle.net/wow/en/game/guide/

Bowman, N. D., Schultheiss, D., & Schumann, C. (2012). ‘‘I’m Attached, and I’m a Good Guy/Gal!’’: How Character Attachment Influences Pro- and Anti-Social Motivations to Play Massively Multiplayer Online Role-Playing Games. *CyberPsychology, Behavior, and Social networking, 15*, 169-174. doi:10.1089/cyber.2011.0311

Brehm, J., & Rahn, W. (1997). Individual-level evidence for the causes and consequences of social capital. *American Journal of Political Science, 41*(2), 999-1023.

Brooks, B., Hogan, B., Ellison, N., Lampe, C., & Vitak, J. (2014). Assessing Structural correlates to social capital in Facebook ego networks. *Social Networks, 38*, 1-15.

Brown, R. (2000). Social Identity Theory: Past achievements, current problems, and future challenges. *European Journal of Social Psychology, 30*, 745–778. doi:10.1002/1099-0992(200011/12)30:6<745::AID-EJSP24>3.0.CO;2-O

Bruckman, A. (1996). Gender swapping on the internet. *High noon on the electronic frontier: Conceptual issues in cyberspace*, 317-326.

Brunborg, G. S., Mentzoni, R. A., Melkevik, O. R., Torsheim, T., Samdal, O., Hetland, J., . . . Palleson, S. (2013). Gaming Addiction, Gaming Engagement, and Psychological Health Complaints Among Norwegian Adolescents. *Media Psychology, 16*(1), 115-128. doi:10.1080/15213269.2012.756374

Burke, M., Kraut, R., & Marlow, C. (2011). Social capital on Facebook: differentiating uses and users. *Human factors in computing systems* (pp. 571-580). New York: ACM. doi:10.1145/1978942.1979023

Burke, M., Marlow, C., & Lento, T. (2010). Social network activity and social well-being. *28th International Conference on HumanFactors in Computing Systems* (pp. 1909-1912). New York: ACM. doi:10.1145/1753326.1753613

Byrne, A. M. (2014). Massively Multiplayer Online Role-Playing Games: Problematic use. *Dissertation Abstracts International*, 74.

Byrne, B. (2001). *Structural equation modeling with AMOS: Basic concepts, applications, and programming.* Mahwah, NJ: Erlbaum.

Caplan, S., Williams, D., & Yee, N. (2009). Problematic internet use and psychosocial well-being among MMO players. *Computers in Human Behavior, 25*(6), 1312-1319.

Charlton, J. P., & Danforth, I. D. (2010). Validating the distinction between computer addiction and engagement: online game playing and personality. *Behaviour & Information Technology, 29*(6), 601-613.

Charlton, J., & Danforth, I. (2004). Differentiating computer related addictions and high engagement. In K. Morgan, C. Brebbia, J. Sanchez, & A. Voiskounsky, *Human perspectives in the internet society: Culture, psychology, gender* (pp. 59-68). Southampton: WIT Press.

Chen, K., Chen, J. V., & Ross, W. H. (2010). Antecedents of online game dependency: the implications of multimedia realism and uses and gratifications theory. *Journal of Database Management, 21*(2), 69-99.

Chiu, S.-I., Lee, J.-Z., & Huang, e.-H. (2004). Video game addiction in children and teenagers in Taiwan. *CyberPsychology and Behavior, 7*(5). doi:10.1089/1094931042403127

Chuang, J. C. (2002). Study of the relationship of junior high school students' self-concept, life adjustment, and self-damage. *Unpublished master's thesis, Nanhua University* .

Cohen, J. (2001). Defining identification: A theoretical look at the identification of audiences with media characters. *Mass Communication & Society, 4*, 245-264. doi:10.1207/S15327825MCS0403_01

Cohen, J. (2006). *Audience identification with media characters.* Mahwah, NJ: Erlbaum.

Cohen, S., & Hoberman, H. (1983). Positive events and social supports as buffers of life change stress. *Journal of Applied Social Psychology, 13*, 99-125.

Cohen, S., & Hoberman, H. M. (1983). Positive events and social supports as buffers of life change stress. *Journal of Applied Social Psychology, 13*(2), 99-125.

Cole, H., & Griffiths, M. D. (2007). Social interactions in Massively Multiplayer Online Role-Playing gamers. *CyberPsychology and Behavior, 10*, 575-583. doi:10.1089/cpb.2007.9988

Coleman, J. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94*, S95-S120.

Cummings, J., Sproull, L., & Kiesler, S. (2002). Beyond hearing: where real-world and online support meet. *Group Dynamics: Theory, Research & Practice, 6*, 78-88.

Deaux, K. (1994). Social identity. *Psychologist-Leicester, 7*, 259.

Ducheneaut, N., & Moore, R. J. (2004). The social side of gaming: A study of interaction patterns in a Massively Multiplayer Online Game. *Proceedings of the ACM Conference on Computer-Supported Cooperative Work* (pp. 360-369). New York: ACM. doi:10.1145/1031607.1031667

Ducheneaut, N., Wen, M., Yee, N., & Wadley, G. (2009, April). Body and mind: A study of avatar personalization in three virtual worlds. *Paper presented at the CHI 2009*. Boston, MA, USA. doi:10.1145/1518701.1518877

Ducheneaut, N., Yee, N., Nickell, E., & Moore, R. (2006). Alone together? Exploring the social dynamics of massively multiplayer games. *Proceedings of CHI* (pp. 407–416). Montreal: ACM Press.

Dunn, R., & Guadagno, R. (2011). My avatar and me - Gender and personality predictors of avatar-self discrepancy (English). *Computers In Human Behavior, 28*(1), 97-106.

Ellison, N., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends": social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication, 12*(4), 1143-1168. doi:10.1111/j.1083-6101.2007.00367.x

Ferguson, C. J., Coulson, M., & Barnett, J. (2011). A meta-analysis of pathological gaming prevalence and comorbidity with mental health, academic and social problems. *Journal of Psychiatric Research, 45*(12), 1573-1578.

Gabbiadini, A., Mari, S., Volpato, C., & Monaci, M. G. (2014). Identification Processes in Online Groups: Identity Motives in the Virtual Realm of MMORPGs. *Journal of Media Psychology, 26*(3), 141-152.

Gentile, D. A., Anderson, C. A., Yukawa, S., Ihori, N., Saleem, M., Ming, L. K., . . . Sakamoto, A. (2009). The effects of prosocial video games on prosocial behaviors: International evidence from correlational, longitudinal, and experimental studies. *Personality and Social Psychology Bulletin,, 35*, 752-763.

Gentile, D., Choo, H., Liau, A., Sim, T., Li, D., Fung, D., & Khoo, A. (2011). Pathological Video Game Use Among Youths: A Two-Year Longitudunal Study. *Pediatrics, 127*(2), e319-e329. doi:10.1542/peds.2010-1353

Goldberg, L. (1981). Language and individual differences: The search for universals in personality lexicons. *Review of Personality and Social Psychology, 2*, 141-165.

Golledge, J., Manzi, C., Regalia, C., Scabini, E., & Vignoles, V. L. (2006). Beyond Self-Esteem: Influence of Multiple Motives on Identity Construction. *Journal of Personality and Social Psychology, 90*(2), 308-333.

Graham, L. T., & Gosling, S. D. (2013). Personality Profiles Associated with Different Motivations for Playing World of Warcraft. *CyberPsychology, Behavior, and Social Networking, 16,* 189-193. doi:10.1089/cyber.2012.0090

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology, 78*(6), 1360-1380.

Granovetter, M. (1983). The strength of weak ties: a network theory revisited. *Sociological Theory,, 1*, 201-233.

Greitemeyer, T., & Osswald, S. (2010). Effects of prosocial video games on prosocial behavior. *Journal of Personality and Social Psychology, 98*, 211–221.

Griffiths, M. D. (2005). A components model of addiction within a biopsychosocial framework. *Journal of Substance Use, 10,* 191-197.

Guadagno, R. E., Muscanell, N. L., Okdie, B. M., Burke, N. M., & Ward, T. B. (2011). Even in virtual environments women shop and men build: Gender differences in Second Life. *Computers in Human Behavior, 27,* 304-308.

Guitton, M. (2010). Cross-modal compensation between name and visual aspect in socially active avatars (English). Computers In Human Behavior, 26(6), 1772-1776. *Computers In Human Behavior, 26*(6), 1772-1776.

Haagsma, M., Pieterse, M., Peters, O., & King, D. (2013). How Gaming May Become a Problem: A Qualitative Analysis of the Role of Gaming Related Experiences and Cognitions in the Development of Problematic Game Behavior. *International Journal Of Mental Health & Addiction, 11*(4), 441-452.

Haber, M., Cohen, J., Lucas, T., & Baltes, B. (2007). The relationship between self-reported received and perceived social support: a metaanalytic review. *American Journal of Community Psychology, 13,* 133-44.

Hefner, D., Klimmt, C., & Vorderer, P. (2007). Identification with the player character as determinant of video game enjoyment. *Entertainment Computing* (pp. 39-49). Shanghai, China: 6th International Conference. doi:10.1007/978-3-540-74873-1_6

Helliwell, J. F., & Putnam, R. D. (2004). The social context of well-being. *Philosophical Transactions of the Royal Society B: Biological Sciences, 359*, 1435−1446.

Hoffner, C., & Buchanan, M. (2005). Young adults' wishful identification with television characters: The role of perceived similarity and character attributes. *Media Psychology, 7*, 325-351.

Hogg, M. A., Sherman, D. K., Dierselhuis, J., Maitner, A. T., & Moffitt, G. (2007). Uncertainty, entitativity, and group identification. *Journal of Experimental Social Psychology, 43*, 135-142. doi:10.1016/j.jesp.2005.12.008

Hu, L., & Bentler, P. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55.

Huang, C.-L., Yang, S. C., & Chen, A.-S. (2015). Motivations and gratification in an Online Game: Relationships Among Players; Self-Esteem, Self-Concept, adn Interpersonal Relationships. *Social Behavior and Personality, 43*(2), 193-204. doi:dx.doi.org/10.2224/sbp.2015.43.2.193

Huvila, I., Holmberg, K., Ek, S., & Widén-Wulff, G. (2010). Social Capital in Second Life. *Online Information Review, 34* (3), 295-316.

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin, & O. P. John, *Handbook of personality: Theory and research* (pp. 102-138). New York, NY: Guilford.

Kaplan, A., & Maehr, M. (1999). Achievement goals and student well-being. *Contemporary Educational Psychology, 24*, 330–358.

Katz, E. (. (1959). Mass communications research and the study of popular culture: An editorial note on a possible future for this journal. *Studies in Public Communication, 2*, 1-6.

Keefe, K., & Berndt, T. (1996). Relations of friendship quality to self-esteem in early adolescence. *The Journal of Early Adolescence, 16*, 110-129.

Kim, C., Lee, S.-G., & Kang, M. (2012). I became an attractive person in the virtual world: Users' identification with virtual communities and avatars . *Computers in Human Behavior, 28*.

Kim, E., Namkoong, K., Ku, T., & Kim, S. (2008). The relationship between online game addiction and aggression, self-control and narcissistic personality traits. *European Psychiatry, 23*(3), 212-218.

Kirby, A., Jones, C., & Copello, A. (2014). The Impact of Massively Multiplayer Online Role Playing Games (MMORPGs) on Psychological Wellbeing and the Role of Play Motivations and Problematic Use. *International Journal Of Mental Health And Addiction, 12*(1), 36-51.

Klimmt, C., Hartmann, T., & Frey, A. (2007). Effectance and control as determinants of video game enjoyment. *Cyberpsychology and Behavior, 10*(6), 845-847. doi:10.1089/cpb.2007.9942

Klimmt, C., Hefner, D., & Vorderer, P. (2009). The video game experience as ‘‘true’’ identification: A theory of enjoyable alterations of players’ self-perception. *Communication Theory, 19*(4), 351–373.

Klimmt, C., Hefner, D., Vorderer, P., Roth, C., & Blake, C. (2010). Identification with video game characters as automatic shift of self-perceptions. *Media Psychology, 13*(4), 323-338. doi:10.1080/15213269.2010.524911

Konijn, E., & Hoorn, J. (2005). Some like it bad: Testing a model for perceiving and experiencing fictional characters. *Media Psychology, 7*, 107-144.

Konijn, E., Nije Bijvank, M., & Bushman, B. (2007). I wish I were a warrior: The role of wishful identification in the effects of violent video games on aggression in adolescent boys. *Developmental Psychology, 43*, 1038-1044. doi:10.1037/00121649.43.4.1038

Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Helgeson, V., & Crawford, A. (2002). Internet paradox revisited. *Journal of Social Issues, 58*, 49−74.

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukhopadhyay, T., & Scherlis, W. (1998). The Internet paradox: A social technology that reduces social involvement and psychological well-being. *American Psychologist, 53*, 1017-1032.

Krikorian, D. H., Lee, J.-S., Chock, T. M., & Harms, C. (2000). Isn’t that spatial? Distance and communication in a 2-D virtual environment. *Journal of Computer-Mediated Communication, 5*(4).

Lee, R., & Robbins, S. (1998). The relationship between social connectedness and anxiety, self-esteem and social identity. *Journal of Counseling Psychology*, 338-345.

Lemmens, J., Valkenburg, P., & Peter, J. (2011). Psychosocial causes and consequences of pathological gaming. *Computers in Human Behavior, 27*, 144-152.

Leonardelli, G. J., Pickett, C. L., & Brewer, M. B. (2010). Optimal distinctiveness theory: A framework for social identity, social cognition and intergroup relations. In M. Zanna, & J. Olson, *Advances in experimental social psychology* (pp. 65-115). New York: Elsevier. doi:10.1016/S0065-2601(10)43002-6 2010

Lewis, M. L., Weber, R., & Bowman, N. D. (2008). ‘‘They may be pixels, but they’re MY pixels’’: Developing a metric of character attachment in role-playing video games. *Cyberpsychology & Behavior, 11*(4), 515-518.

Li, D. D., Liau, A. K., & Khoo, A. (2013). Player–Avatar Identification in video gaming: Concept and measurement. *Computers in Human Behavior, 29*, 257–263.

Lim, S., & Reeves, B. (2009). Being in the game: Effects of avatar choice and point of view on psychophysiological responses during play. *Media Psychology, 12*, 348-370. doi:10.1080/15213260903287242

Lin, N. (1999). Building a network theory of social capital. *Connections, 22*, 28-51.

Longman, H., O'Connor, E., & Obst, P. (2009). The Effect of Social Support Derived from World of Warcraft on Negative Psychological Symptoms. *CyberPsychology & Behavior, 12*(5), 563-566. doi:10.1089/cpb.2009.0001

Luhtanen, R., & Crocker, J. (1992). A collective self-esteem scale: Self-evaluation of one's social identity. *Personality and Social Psychology Bulletin, 18*, 302-318.

MacCallum, R., & Austin, J. (2000). Applications of structural equation modeling in psychological research. *Annual Review of Psychology, 51*, 201-226.

Martoncik, M., & Loksa, J. (2016). Do World of Warcraft (MMORPG) players experience less loneliness and social anxiety in online world (virtual environment) than in real world (offline)? *Computers in Human Behavior, 56*, 127-134.

McKenna, K. Y., & Bargh, J. A. (1998). Coming out in the age of the Internet: Identity ''demarginalization'' through virtual group participation. *Journal of Personality and Social Psychology, 75*, 681-694. doi:10.1037/00223514.75.3.681

Mentzoni, R. A., Brunborg, G. S., Molde, H., Myrseth, H., Skouverøe, K. J., Hetland, J., & Pallesen, S. l. (2011). Problematic Video Game Use: Estimated Prevalence and Associations with Mental and Physical Health. *Cyberpsychology, Behavior, and Social Networking, 14*(10). doi:10.1089/cyber.2010.0260

Messias, E., Castro, J., & Saini, A. (2011). Sadness, Suicide, and Their Association with Video Game and Internet Overuse among Teens: Results from the Youth Risk Behavior Survey 2007 and 2009. *The American Association of Suicidology*, 307-315.

MMOData. (2012). Retrieved from MMOData: keeping track of the MMORPG scene: http://mmodata.blogspot.it/

Papacharissi, Z., & Mendelson, A. (2011). Toward a new(er) sociability: uses,gratifications, and social capital on Facebook. In S. Papathanassopoulos, *Media Perspectives for the 21st Century* (pp. 212-230). Routledge, London.

Papacharissi, Z., & Rubin, A. M. (2000). Predictors of internet use. *Journal of Broadcasting & Electronic Media, 44*, 175-196.

Peña, J. F. (2011). Integrating the Influence of Perceiving and Operating Avatars Under the Automaticity Model of Priming Effects. *Communication Theory, 21*(2), 150-168. doi:10.1111/j.1468-2885.2011.01380.x

Peng, W. (2008). The mediational role of identification in the relationship between experience mode and self-efficacy: Enactive role-playing versus passive observation. *CyberPsychology & Behavior, 11*, 649–652. doi:10.1089/cpb.2007.0229

Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology, 24*, 1-24.

Putnam, R. (1993a). *Making democracy work: Civic traditions in modern Italy.* Princeton: Princeton University Press.

Putnam, R. (1995). Bowling alone: America's declining social capital. *Journal of Democracy, 6*(1), 65-78.

Putnam, R. (2000). *Bowling alone: The collapse and revival of American community.* New York: Simon & Schuster.

Reddit Wiki. (2015). Retrieved from Reddit: https://www.reddit.com/wiki/index

Reer, F., & Kramer, N. C. (2014). Underlying factors of social capital acquisition in the context of online-gaming: Comparing World of Warcraft and Counter-Strike. *Computers in Human Behavior, 36*, 179-189.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton: Princeton University Press.

Rosenberg, M., Schooler, C., & Schoenbach, C. (1989). Self-esteem and adolescent problems; Modeling reciprocal effects. *American Sociological Review, 54*, 1004-1018.

Rosenberg, R. S., Baughman, S. L., & Bailenson, J. N. (2013, January 2013). *Virtual superheroes: Using superpowers in virtual reality to encourage prosocial behavior.* doi:10.1371/journal.pone.0055003

Ross, T. L., & Collister, L. B. (2014). A social scientific framework for social systems in online video games: Building a better looking for raid loot system in World of Warcraft. *Computers In Human Behavior, 1*. doi:10.1016/j.chb.2014.03.023

Rubin, A. M. (2009). Uses-and-gratifications perspective on media effects. In J. Bryant, & M. B. Oliver, *Media effects: Advances in theory and research* (pp. 165-184). New York, NY: Routledge.

Russell, D., & Cutrona, C. (1991). Social support, stress, and depressive symptoms among the elderly: test of a process model. *Psychology & Aging, 6*, 190-201.

Sanderson, C. A., Darley, J. M., & Messinger, C. S. (2002). ‘‘I’m not as thin as you think I am:’’ The development and consequences of feeling discrepant from the thinness norm. *Personality & Social Psychology Bulletin, 28*(2), 172-183.

Sedikides, C., & Strube, M. J. (1997). Self-evaluation: To thine own self be good, to thine own self be sure, to thine own self be true, and to thine own self be better. *Advances in Experimental Social Psychology, 29*, 209–269.

Seger, J., & Potts, R. (2012). Personality correlates of psychological flow states in videogame play. *Current Psychology, 31*, 103-121.

Seligman, M. (2008). Positive health. *Applied Psychology, 57*, 3-18.

Shaw, B., & Gant, L. (2002). In defense of the Internet: The relationship between Internet communication and depression, loneliness, self-esteem, and perceived social support. *CyberPsychology & Behavior, 5*, 157-171.

Skoric, M. M., Teo, L. L., & Neo, R. L. (2009). Children and Video Games: Addiction, Engagement, and Scholastic Achievement. *CyberPsychology & Behavior, 12*(5), 567-572. doi:10.1089/cpb.2009.0079

Smahel, D., Blinka, L., & Ledabyl, O. (2008). Playing MMORPGs: Connections between addiction and identifying with a character. *CyberPsychology & Behavior, 11*, 715-718. doi:10.1089/cpb.2007.0210

Son, J., & Lin, N. (2008). Social capital and civic action: A network-based approach. *Social Science Research, 37*(1), 330-349.

Steinfield, C., Ellison, N. B., & Lampe, C. (2008). Social capital, self-esteem, and use of online social network sites: A longitudinal analysis. *Journal of Applied Developmental Psychology, 29*, 434-445.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin, & S. Worchel, *The social psychology of intergroup relations* (pp. 33-47). Monterey, CA: Brooks-Cole. doi:0.1007/s10979-007-9095-7

Valenzuela, S., Park, N., & Kee, K. (2009). Is there social capital in a social network site? Facebook use and college students’ life satisfaction, trust, and participation. *Journal of Computer-Mediated Communication, 14*(4), 875-901. doi:10.1111/j.1083-6101.2009.01474.x

Valkenburg, P. M., Peter, J., & Schouten, A. P. (2006). Friend networking sites and their relationship to adolescents' well being and social self-esteem. *CyberPsychology and Behavior,, 9*, 584-590.

Van Looy, J., Courtois, C., De Vocht, M., & De Marez, L. (2012). Player identification in online games: Validation of a scale for measuring identification in MMOGs. *Media Psychology, 15*, 197-221.

Van Looy, J., Courtois, C., De Vocht, M., & De Marez, L. (2012). Player Identification in Online Games: Validation of a Scale for Measuring Identification in MMOGs. *Media Psychology, 15*(2), 197-221. doi:10.1080/15213269.2012.674917

Van Rooij, A. J., Meerkerk, G., Schoenmakers, T. M., Griffiths, M., & Van de Mheen, D. (2010). Video game addiction and social responsibility. *Addiction Research & Theory, 18*(5), 489-493. doi:10.3109/16066350903168579

Vignoles, V. L., Regalia, C., Manzi, C., Golledge, J., & Scabini, E. (2006). Beyond self-esteem: Influence of multiple motives on identity construction. *Journal of Personality and Social Psychology, 90*(2), 308-333. doi:10.1037/00223514.90.2.308

Von Feilitzen, C. &. (1975). Identifying with television characters. *Journal of Communication, 25*(4), 51-55. doi:10.1111/j.1460-2466.1975.tb00638.x

Whang, L., & Chang, G. (2004). Lifestyles of virtual world residents: living in the on-line game "lineage". *Cyberpsychology & Behavior, 26*(6), 592-600.

Williams, D. (2006a). On and off the ‘‘net’’: Scales for social capital in an online era. *Journal of Computer-Mediated Communication, 11*(2), 593–628. doi:10.1111/j.1083-6101.2006.00029.x

Williams, D. (2006b). Virtual Cultivations: Online Worlds, Offline Perceptions. *Journal of Communication, 56*, 69-87.

Williams, D. (2010). The mapping principle, and a research framework for virtual worlds. *Communication Theory, 20*(4), 451–470.

Williams, D., Consalvo, M., Caplan, S., & Yee, N. (2009). Looking for gender: Gender roles and behaviors among online gamers. *Journal of Communication,, 59*(4), 700-725.

Winnie, Y., Subramanian, S. V., Mitchell, A. D., Dominic, L. T., Wang, J., & Kawachi, I. (2007). Does social capital enhance health and well-being? Evidence from rural China. *Social Science & Medicine,, 64*, 35-49.

World of Warcraft (WoW). (2014). *Encyclopædia Britannica*.

Wu, P.-C. (. (2013). Addictive behavior in relation to the Happy Farm Facebook application. *Social Behavior and Personality: An international journal, 41*, 539-554.

Yang, S.-C., & Huang, K.-L. (2011). Analyses of junior high school students' online gaming experience and its relationship with self-concept, life adaptation and well-being. *Journal of Educational Media & Library Sciences, 48*, 407-442.

Yee, N. (2006a). The demographics, motivations and derived experiences of users of massively multiuser online graphical environments. *Presence, 15*, 309-329.

Yee, N. (2006b). Motivations of play in online games. *CyberPsychology & Behavior, 9*(6), 772-775.

Yee, N. (2006c). The psychology of MMORPGs: Emotional investment, motivations, relationship formation, and problematic usage. In R. Schroeder, & A. Axelsson, *Avatars at work and play: Collaboration and interaction in shared virtual environments* (pp. 187-207). London: Springer.

Yee, N. (2008). Maps of digital desires: Exploring the topography of gender and play in online games. In Y. Kafai, C. Heeter, J. Denner, & J. Sun, *Beyond Barbie and Mortal Kombat: New perspectives on gender and gaming* (pp. 83-96). Cambridge: MIT Press.

Yoon, G., & Vargas, P. T. (2014). Know Thy Avatar: The Unintended Effect of Virtual-Self Representation on Behavior. *Psychological Science, 25*(4), 1043-1045. doi:10.1177/0956797613519271

Zhao, Y., Wang, W., & Zhu, Y. (2010). *Journal of Database Management, 21*(2), 41-68.

Zhong, Z., & Yao, M. (n.d.). Gaming motivations, avatar-self identification and symptoms of online game addiction., 23(5), . *Asian Journal Of Communication, 23*(5), 555-573.

Zhong, Z.-J. (2011). The effects of collective MMORPG (Massively Multiplayer Online Role-Playing Games) play on gamers' online and offline social capital. *Computers in Human Behavior, 27*, 2352-2363.

APPENDICES

Appendix A: World of Warcraft Gamer Survey

Thank you for participating in my survey. Your feedback is very important. I am interested in your honest answers. Be assured, your answers will be kept strictly confidential. This survey should take approximately 10 minutes. At the end of the survey, you will have the option to submit your email address to be entered into a drawing to win a $20 Battle.net gift card.

1. Are you 18 or older?

O Yes

O No

2. Do you play World of Warcraft (WoW)?

O Yes

O No

3. How long have you been playing WoW?

O Less than 6 months

O 6-12 months

O 1-3 years

O Greater than 3 years

4. On average, approximately how many days a week do you play WoW? _____

5. On average, approximately how many hours a day do you play WoW? _____

6. What is your age? _____

7. What is your gender?

O Male

O Female

Questionnaire

8. I resemble my avatar.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

9. My avatar resembles me.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

10. I identify with my avatar.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

11. My avatar is like me in many ways.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

12. My avatar is an extension of myself.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

13. In the game, it is as if I become one with my avatar.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

14. When I am playing, it feels as if I am my avatar.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

15. In the game, it is as if I act directly through my avatar.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

16. I would like to be more like my avatar.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

17. My avatar is a better me.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

18. On the whole, I am satisfied with myself.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

19. At times, I think I am no good at all.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

20. I feel that I have a number of good qualities.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

21. I am able to do things as well as most other people.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

22. I feel I do not have much to be proud of.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

23. I certainly feel useless at times.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

24. I feel that I'm a person of worth, at least on an equal plane with others.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

25. I wish I could have more respect for myself.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

26. All in all, I am inclined to feel that I am a failure.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

27. I have a positive attitude toward myself.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

28. I am a worthy WoW player.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

29. I often regret that I play WoW.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

30. Overall, playing WoW has very little to do with how I feel about myself.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

31. I feel I have a lot to offer when playing WoW.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

32. In general, I'm glad to be a WoW player.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

33. I am a cooperative participant when playing WoW.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

34. Overall, I often feel that playing WoW is not worthwhile.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

35. In general, others respect that I play WoW.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

36. Playing WoW is unimportant to my sense of what kind of person I am.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

37. In general, playing WoW is an important part of my self-image.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

38. There are several people I trust to help me solve my problems.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

39. There is someone I can turn to for advice about making very important decisions.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

40. When I feel lonely, there are several people I can talk to.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

41. The people I interact with would put their reputation on the line for me.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

42. The people I interact with would share their last dollar with me.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

43. I know people well enough to get them to do something important.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

44. Interacting with people makes me want to try new things.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

45. Interacting with people makes me feel like part of a larger community.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

46. Interacting with people makes me feel connected to the bigger picture.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

47. I come in contact with new people all the time.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
O	O	O	O	O

Appendix B: IRB Approval Letter

UNIVERSITY OF SOUTH FLORIDA

RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX (813) 974-7091

January 26, 2016

Melissa Watts
School of Advertising and Mass Communications
Tampa, FL 33612

RE: **Exempt Certification**
IRB#: Pro00024721
Title: Avatar Self-identification, Self-Esteem, and Perception of Social Capital in the Real World: A Study of World of Warcraft Players and their Avatars

Dear Ms. Watts:

On 1/26/2016, the Institutional Review Board (IRB) determined that your research meets criteria for exemption from the federal regulations as outlined by 45CFR46.101(b):

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
(i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Approved Items:

IRB Protocol Sheet_Watts.docx

IRB Online Informed Consent Form - Watts.docx

As the principal investigator for this study, it is your responsibility to ensure that this research is conducted as outlined in your application and consistent with the ethical principles outlined in the Belmont Report and with USF HRPP policies and procedures.

Please note, as per USF HRPP Policy, once the Exempt determination is made, the application is closed in ARC. Any proposed or anticipated changes to the study design that was previously declared exempt from IRB review must be submitted to the IRB as a new study prior to initiation

of the change. However, administrative changes, including changes in research personnel, do not warrant an amendment or new application.

Given the determination of exemption, this application is being closed in ARC. This does not limit your ability to conduct your research project.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

Kristen Salomon, Ph.D., Vice Chairperson
USF Institutional Review Board