RELATIONSHIP BETWEEN ONLINE ROLE-PLAYING GAMES, PERSONALITY AND INTERPERSONAL RELATIONSHIPS

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ABSTRACT

RELATIONSHIP BETWEEN ONLINE ROLE-PLAYING GAMES, PERSONALITY AND INTERPERSONAL RELATIONSHIPS

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Online gaming is a relatively new concept, yet due to the millions of followers these games have attracted over the past decade; it is not difficult to deduce that they are not going away any time soon. Individuals use the Internet for many things, including news, email, shopping, instant messaging and entertainment (gaming) (Griffiths, et al., 2003; Yee, 2006a; 2006b). Millions of these same individuals play Massively Multiplayer Online Role-Playing Games (MMORPGs) as their source of entertainment. These players interact socially within the game with one another, many on a daily basis, and spend huge amounts of time doing so. During these long hours, research has shown that many of these players form relationships and some of these relationships lead to real life relationships (Cole & Griffiths, 2007; Yee, 2006b). Many of these individuals consider these online relationships equal to their offline relationships (Ng & Wiemer-Hastings, 2005). It is suggested that these players are introverted and lack social interaction; however, some believe that using the Internet in this manner is equivalent to offline face to face social interaction. Many lose track of the time while playing MMORPGs and when engaging in other online activities, and some of these individuals experience symptoms related to loneliness (Ng & Wiemer-Hastings, 2005). Therefore, previous research suggests there is a relationship between Online Gaming, Personality, and Interpersonal Relationships. This study was designed to examine relationships between personality characteristics and amount of time playing a popular game called World of Warcraft (WoW). Additionally, this study examined how motivations to play the game are related to personality characteristics, preference for online interpersonal interaction, and social anxiety.

A Demographics Questionnaire including age, country of residence, sex, occupation, employment status and other information about their online game playing was used. Additionally,

the M5-50 Personality Inventory (McCord, 2002) was used as a short measure of the participant's personality traits, collected through a fifty item scale which resulted in scores for the five domains of: Neuroticism, Extraversion, Openness to Experience, Conscientiousness, and Agreeableness. The participants also completed the Preference for Online Social Interaction Questionnaire (Caplan, 2003) which is a 4 item measure of the individual's preference for online vs. offline face to face social interaction. The items were summed for a total score with higher scores representing preference for online social interaction. Motivations for Play Questionnaire (Yee, 2006a), which measures activities the participant engages in while online, which MMORPGs they play, the amount of time spent playing the specified MMORPG per week, and activities they are involved in while playing the MMORPG. The scale consisted of 40 questions which participants answered using a five point response scale then the individual items were summed into each of the primary components. Finally, the Interaction Anxiousness Scale (IAS), a measure of social anxiety was completed by the participants. The scale consisted of 15 items which participants answered based on a five point Likert-type scale. Scores were summed and overall higher scores on the scale reflect higher levels of social anxiety.

The study included 381 participants who were recruited from the Internet sites where WoW players frequently post and read messages. The participants were 88% male and 12% female and the range of participants' ages was 18 to 69 years, with a mean of 24.29 years. Participants were actually engaged in playing the MMORPG "World of Warcraft". The median amount of time spent playing WoW per week was 16 to 20 hours.

A small, positive correlation was found between the amount of time spent playing WoW and Neuroticism and a small, negative correlation between of time spent playing WoW and Extraversion. Examination of the relationships between achievement motivation to play and Openness to Experience and Conscientiousness found small, negative correlations between achievement motivation to play and Openness to Experience and Conscientiousness with higher levels of motivation to play associated with lower levels of Openness to Experience and Conscientiousness. An examination of the relationship between social motivation to play, Extraversion, Agreeableness and Openness to Experience found small, positive relationships

between social motivation to play and Extraversion, Agreeableness, and Openness to Experience. The relationship between immersion motivation to play and Extraversion, Conscientiousness, and Openness to Experience was investigated which found small, negative relationships between immersion motivation to play and Extraversion and Conscientiousness; and a small, positive relationship between immersion motivation to play and Openness to Experience. Finally, the relationship between the preference for online social interaction and the interactive anxiousness scale was investigated resulting in a moderate to strong, positive relationship, with higher levels of preference for online social interaction associated with higher levels of interactive anxiousness.

INTRODUCTION

There are millions of people on the Internet checking email, viewing websites, engaging in instant messaging, and playing online games on a daily basis (Griffiths, et al., 2003; Yee, 2006a; 2006b). Massively Multiplayer Online Role-Playing Games (MMORPGs) are played on the Internet by millions people around the world every day. One of the most popular of these games is World of Warcraft (WoW) who as of 2008 boasted 10 million subscribers world wide (Blizzard, 2008). Players create characters which are their in-game avatar and the medium used to interact with the game and the other players. These games take a huge time commitment in order to "level" the characters and the average World of Warcraft player spends approximately 22 hours per week playing the game (Griffiths, et al., 2004; Yee, 2006d).

While playing MMORPGs, the players interact socially with each other and even engage in team activities where many become involved in friendships and even form relationships with each other (Cole & Griffiths, 2007; Yee, 2006b). Many of these players become dependent on each other in the game because there are instances where they need the help of other players to accomplish tasks they would be unable to do alone (Cole & Griffiths, 2007).

While engaging in MMORPGs, players establish relationships with other players and some believe these relationships are equivalent to their offline face to face relationships (Ng & Wiemer-Hastings, 2005). Players spend time in MMORPGs for various reasons; however, Yee (2006a) found three primary components for online gaming motivation: achievement, social, and immersion. Some believe the Internet degrades social relationships and support, and others believe that it enhances them, however, Swickert, Hittner, Harris and Herring (2002) suggest that both can occur. If players enjoy their games and have good experiences while playing, they are more likely to continue playing, regardless of the type of interactions they are experiencing (Choi & Kim, 2004).

Internet addiction is not included in the Diagnostic and Statistical Manual (DSM-IV-TR) of the American Psychiatric Association (2000), even though the symptoms of Internet "addiction" are similar to those of substance addiction and obsession (Ng & Wiemer-Hastings, 2005). Because the term "Internet Addiction" is not recognized, these symptoms have been associated

with the term “Problematic Internet Usage” (Caplan, 2003). Individuals who suffer with these symptoms have a tendency to be lonely, and lose track of time when engaged in online activities such as MMORPGs, and may experience social anxiety.

This study is designed to examine relationships between personality characteristics and amount of time playing a popular game called World of Warcraft. Furthermore, this study will also examine how the motivations to play the game are related to personality characteristics, preference for online interpersonal interaction, and social anxiety.

LITERATURE REVIEW

History of MMORPGs

Before Massively Multiplayer Online Role-Playing Games (MMORPGs) came into existence, text based online games called Multi-User Dungeons (MUDs) were a popular method of engaging in online role-playing activities with small groups. Many of these MUDs are believed to be based upon the pencil, paper and dice game called Dungeons and Dragons (Yee, 2006d). These games are considered precursors to the current MMORPGs played by millions of people around the world.

World of Warcraft (WoW) is a MMORPG created by Blizzard Entertainment, and is the game used for this research. The game debuted in the United States in November of 2004 and has become one of the most popular MMORPGs worldwide since that time. In January 2008, Blizzard Entertainment announced that World of Warcraft had surpassed 10 million subscribers worldwide, which includes approximately 2.5 million customers in North America (Blizzard, 2008).

Within World of Warcraft, players create characters which are their personal avatars within the game. These characters are created by selecting individual attributes from lists of available attributes preset by game designers within the game. The player is able to select one of 10 races (Human, Elf, Troll, Orc, Dwarf, Gnome, etc.), sex, one of nine classes (Warrior, Cleric, Druid, Wizard, Hunter, etc.), which are dependent on selected race, and other physical attributes including skin color, face, hair color, and hair style. Once players create their character, they are able to begin playing the game within parameters set by the game designers. When the player begins playing as their new character, they start out with very few items, abilities, and powers, but as they advance in the game, the character acquires more items, abilities and powers, which help the character advance further in the game. The game designers create a three dimensional world which the player characters use to interact within this three dimensional world and with other player characters (Williams, Ducheneaut, Zhang, Yee, & Nickell, 2006). This environment restricts or enables player activity within the game; however, there are some social behaviors which the players create and the game designers are not able to regulate (Williams, et al., 2006).

Within MMORPGs, players assume the role of their in-game avatar or character and control its actions in the game. The primary difference between MMORPGs and other computer games is that the player is interacting with hundreds or thousands of other players who are playing online, and either directly or indirectly interacts with the other players. Another difference is the virtual world of the MMORPG continues while the player is offline and the other players continue to advance in the game (Yee, 2006d). Griffiths et al. (2004) report that MMORPGs are very competitive, and require enormous amounts of time to developing or "leveling" your character in advancing in the game.

Online Social Interaction

There are several ways in which players interact with others while playing their character within World of Warcraft. The players can play solo (alone), with a group (up to 5 players), or in a raid (up to 40 players). When the players are in a group or raid, all of the players work together toward a common goal. This teamwork allows all the members of the team (group or raid) to advance their characters and assist others in obtaining items which make them stronger individually and collectively. Williams et al. (2006) found that MMORPG spaces have a social impact on the players who interact with each other. While World of Warcraft is a three dimensional world where the players are interacting with each other and the gaming environment, their personality and behavior within the game affect game play and the other players with whom they interact.

"MMORPGs are highly socially interactive environments which provide the opportunity to create strong friendships and emotional relationships" (Cole & Griffiths, 2007, p. 575). These MMORPG environments enable the players to engage in activities which allow them to immerse themselves into a three dimensional virtual world where they are able to interact with other players daily (Cole & Griffiths, 2007).

There has been research which suggests that people who play MMORPGs are asocial, suffer from low self esteem and social anxiety, however, Cole and Griffiths (2007) suggest that because of the social interaction and teamwork among MMORPG players, it can be a positive environment rather than a negative one. Findings from Ng and Wiemer-Hastings (2005) confirm

that MMORPG players spend more time and are more satisfied with the social aspects of the virtual online game than they are with their real world life. The average WoW player spends approximately 22 hours per week playing their MMORPG (Yee, 2006b).

MMORPGs have many tasks requiring characters with various skills, which makes the players dependent on each other, and in turn, encourages interaction and teamwork with others to advance or complete the task (Cole & Griffiths, 2007). Approximately two thirds of all WoW players join “guilds” (Yee, 2006b), which are groups of players who share a dedicated chat channel engaging in playful banter with each other regardless of their location in WoW (Steinkuehler & Williams, 2006).

According to Yee (2006b), players are more likely to reveal their “true self” in an online environment than face to face. In addition, players have a personal investment in their character and therefore reveal their personality through this character (Yee, 2006). These players form friendships online which they consider as good as or better than their real life friendships (Yee). Steinkuehler and Williams (2006) found that some players form very deep relationships with other players whom they eventually meet face to face. They also point out several friendships where some players call other players to insure they are safe when they do not show up in the game at their usual time (Steinkuehler & Williams).

Utz (2000) explored virtual friendships and discovered four types of gamers: (1) Role-players, who are those interested in playing “roles” within the game; (2) Gamers, who are interested in adventuring while playing the game; (3) Virtuals, who are interested in meeting people online to chat or find virtual partners, and (4) Skeptics, who refuse to identify themselves with the online groups and play very little each week. Williams et al. (2006) point out that role-players play an entirely different game than other players because they pretend to be the character and communicate as if they were the character, even if the character is of the opposite sex.

There has been limited research into the social environments of Massively Multiplayer Online Role-Playing Games (MMORPGs) and their relationship with face to face and online interpersonal relationships. Recent research shows that MMORPGs are environments that are

socially oriented and are conducive to the formation of positive relationships which may make it easier for players to interact with others in ways they may not be able to in a face to face relationship (Cole & Griffiths, 2007).

Demographic Factors in Online Gaming

Basic player information related to age, gender, marital status, nationality, education level and occupation have been examined. In a study by Griffiths et al. (2004), data revealed that the majority of gamers were male (81%), the median age was 27.9 years, most lived in North America (77%), most were single (55.5%), and most were university students (29% undergraduate and 13% post-graduate). These results suggest that the "typical" player is older, more tech savvy, and more educated than originally believed (Griffiths et al.).

Historically, online games have been more popular with young males than any other demographic group. This demographic appears to be changing as more females over the age of 30 are being attracted to these MMORPG games (Cole & Griffiths, 2007). Some of the factors encouraging more women players are teamwork, social interaction, and exploration of the virtual world (Cole & Griffiths).

Yee (2006d) found that "36% of the respondents who are employed, work in the IT industry and 68% of respondents have table top role-playing game experience" (p. 17), which suggests that many of those who play MMORPGs share the same interests, which is one explanation of why these players find it so easy to find similarities of interests with others who play MMORPGs.

Problematic Usage

While Internet addiction is not currently included in the Diagnostic and Statistical Manual (DSM-IV-TR) as a diagnosis (American Psychiatric Association, 2000), a definition of Internet addiction was derived from the DSM-IV-TR criteria for addiction and obsession (Ng & Wiemer-Hastings, 2005). Ng and Wiemer-Hastings found that early research revealed that the most common computer users were introverted males, but current research found that middle-aged females are actually more likely to suffer from Internet addiction. Kraut, et al. (1998) found that

"use of the Internet can be both highly entertaining and useful, but if it causes too much disengagement from real life, it can also be harmful" (pp. 1030).

One of the primary issues raised in regard to Internet addiction was the question "Does Internet Addiction Exist?" There is some evidence that there is a correlation between the amount of time spent on the Internet and symptoms of addiction and obsession. However, since there is no diagnostic criterion in the DSM-IV-TR directly related to Internet and online gaming, it can be argued that there is no such thing as Internet or online gaming addiction. The addictive properties of technological addiction appear to be the same as those of behavioral addiction, i.e., mood modification, salience, tolerance, withdrawal, conflict and relapse (Griffiths, 2000).

The British Broadcasting Corporation (BBC) reports that South Korea is the most wired country in the world and symptoms of Internet addiction are problems the country now has to address (BBC News, 2002). One young man died after playing computer games for 86 hours straight, only taking a break for a cigarette or to use the restroom (BBC News). Some of the symptoms include preoccupation with the game, loss of self control, and nervousness when not online (BBC News). According to Ng and Wiemer-Hastings (2005), MMORPGs are called "heroin ware" by many players because of the addictive properties of the games.

According to Peters and Malesky (2008) some individuals who play MMORPGs engage in the activity so often that it interferes with their lives. One reason these individuals spend so much time playing MMORPGs is because it allows them to avoid face-to-face social interaction and allow them to form relationships. Additionally, these individuals are able to form these relationships in a "safe" environment and may form closer relationships to their online friends than the ones they have in real life. This research found 4 of the 5 factors of personality were significantly correlated with problematic usage which may imply a connection between personality and problematic usage (Peters & Malesky, 2008).

McKenna, Greene, and Gleason (2002) believe that those who are lonely are "somewhat more likely to feel that they can better express their real selves with others on the Internet than they can with those they know offline" (p. 28). According to Ng and Wiemer-Hastings (2005), people who are lonely are more likely to become absorbed in online activities whether it is chat

rooms, gambling, MMORPGs, email or shopping. One of the main attractions to MMORPGs is that users have the ability to play their game while interacting in a virtual world with other players (Ng & Weimer-Hastings, 2005). This interaction includes social and competitive aspects allowing the player to advance without the repetitive and sometimes boring aspects of your traditional video game (Ng & Weimer-Hastings). Caplan (2003) found that loneliness and social anxiety play important roles in the development of problematic Internet usage and depression does not. Because game playing is enjoyable, it may not have negative effects associated with online social interaction.

Those who establish relationships with others online, consider those relationships equivalent to their offline face to face relationships, become immersed in those relationships, tend to withdraw from their offline relationships and spend more time engaging in online activities (Ng & Wiemer-Hastings, 2005). This type of activity results in the person losing control of the actual amount of time they are spending on the Internet. When the player tries to reduce the amount of time they spend on the Internet, they experience feelings of addiction and obsession (Ng & Wiemer-Hastings, 2005).

Many people use the Internet to fulfill needs that they are unable to obtain in their real world lives because of social anxiety. This social anxiety may be temporarily relieved by interacting with others through online environments (Lo, Wang & Fang, 2005). Players who are labeled as “Internet addicts” attempt to escape from their real lives by forming close feelings for strangers and yet, continue to experience higher levels of loneliness and depression (Lo, et al.).

In June of 2006, BBC News reported that the first European computer addiction clinic opened in the Netherlands to help people addicted to computer games, including online games (BBC News, 2006). The special clinic opened because they had so many individuals seeking help with addictive symptoms related to MMORPGs (BBC News, 2006).

Motivation for playing MMORPGs

Research has suggested that the appeal of MMORPGs varies from player to player. Players can choose their own preferred method of interaction with other players, which in turn motivates them to play the game. Many researchers believe that players choose to play online

games for the same basic reasons (Yee, 2006a). It has also been suggested that there are relationships between motivation to play, deviant behavior and negative consequences for these players (Yee, 2006a). However, according to Yee, players engage in these games for different reasons and the game may have different meanings for each player. Yee found three primary motivation components and ten motivation subcomponents through factor analysis of a 40 item set of questions.

The three primary motivational components that Yee (2006a) found were achievement, social, and immersion. The achievement component consists of motivation for advancement of character, game mechanics and in-game competition. Social motivation consists of socializing or helping others in the game, forming lasting relationships with others, and teamwork through group efforts. Immersion consists of discovery of new things in the game environment, role-playing through creating a background for your character, customization of your character's appearance, and escapism which allows the player to avoid real life and become immersed into the virtual world (Yee, 2006a).

MMORPGs encourage players to work together in groups to accomplish tasks which require them to learn strategies, and then apply these strategies to master the task. This type of group interaction results in the players forming significant friendships which may develop into real life relationships and friendships (Cole & Griffiths, 2007). For many players, these games are so demanding that they feel like they have a second job and spend an average of 22 hours per week playing (Yee, 2006c). According to Yee, players have to deal with similar tasks as they do in their jobs, such as crises, management of other players and time constraints. Many players report the game becoming "too much like work" or "becoming a chore" and complain about having to dedicate 6 or more hours each night to the game (Yee, 2006c).

Research shows that people who have enjoyable experiences while playing online games are more likely to continue to play the game, regardless of whether these enjoyable experiences are derived from interaction with the game itself or through social interaction with other players (Choi & Kim, 2004). Additionally, there are features of these online games which

increase the likelihood that players will achieve enjoyable experiences in the game and therefore increase their perceived satisfaction from social interaction (Choi & Kim).

In one study, the motivation, relationships, problematic usage and emotional investment of 30,000 MMORPG players were examined (Yee, 2006d). The study found that males are motivated more by achievement and manipulation and females are motivated more by relationship formation and immersion in a fantasy world (Yee, 2006d).

Comparison of Online vs. Face-to-Face Relationships

There are differing views regarding social relationships and support, and Internet usage. Some believe that the Internet degrades social relationships and support, and yet, others believe that it enhances them. However, it is suggested that it does not have to be one or the other, but rather both (Swickert et al. 2002).

Parks and Roberts (1998) compared the development of personal relationships online and offline of individuals who played Multi-user Dimensions, Object Oriented game (MOOs). MOOs are text based role-playing games that are similar to MUDs, and are precursors to MMORPGs like WoW. Parks and Roberts found that personal relationships are formed online and of their respondents, approximately 94% reportedly formed an online relationship, and many had formed multiple online relationships. Close friendships were the most commonly formed relationships followed by romantic relationships (Parks & Roberts). They also found that most of the relationships formed online were with individuals of the opposite sex, which is opposite of offline relationships where same sex relationships are most common over an individual's lifetime (Parks & Roberts).

These online environments provide a place for men and women to interact socially on a regular basis without the normal social constraints they face in offline relationships, and their friends, spouses and families may be unaware of the extent and importance of these relationships (Parks & Roberts, 1998). Another finding is that the individuals who are involved in these online relationships feel safe in disclosing information with others in the online environment because they have control of the information being exchanged and can give as much or as little as they wish. Also, individuals seem to find it easier to engage in intimate conversations online

and these online relationships are often very intense and the individuals disclose a large amount of information, which allows them to develop closer relationships in less time than in an offline face to face relationship (Parks & Roberts, 1998).

Of the online relationships formed by the individuals reporting in Parks and Roberts (1998) study, over 90% used other methods (phone, email, instant messaging) of communication, nearly one third had met the other person face-to-face, and 60% of the individuals who formed romantic relationships met their partner face to face. One respondent in the Parks and Roberts study commented that “MOO friendships are real friendships because they’re with real people” (p.535). This comment sums up what many individuals who develop online relationships feel toward their online friends.

A positive relationship appears to exist between amount of online game usage and social anxiety (Lo et al., 2005). Research suggests that even though online gaming can relieve social anxiety, these feelings are temporary and do not improve real life face to face relationships. In addition, Lo et al. believe that players who spend more time nurturing online relationships do so at the expense of their real life relationships, and found that more time players spent playing online games, the less satisfying their personal real life relationships were to them when compared to those who played less or not at all.

Findings by Griffiths, et al., (2004) suggest that individuals who engage in online role playing games are not introverted because approximately three quarters of those who play are doing so with their real life friends and family. Many players who have real life friends who are dispersed in different places connect with each other within WoW and socialize while they play together (Williams et al., 2006). Steinkuehler and Williams (2006) found that each player brings their experience and background into the relationships they form inside these MMORPGs, which create social networks where many players connect and give each other emotional support. These relationships have the ability to expand the players’ horizons by exposing them to differing world views and help them to develop stronger relationships with those within these social networks. Steinkuehler and Williams also found that these networks were very broad; however, they also found that there were both weak and strong relationships within these networks. Within

WoW, players are able to experience a wide range of social experiences that allow them to establish relationships ranging from impersonal to deep personal relationships and extending beyond the game into their real life (Williams et al., 2006).

Morahan-Martin and Schumacher (2003) examined loneliness and social uses of the Internet and found that lonely individuals use the Internet for different reasons than non-lonely individuals. Moreover, they found that lonely individuals prefer online social contact vs. offline because they feel more like themselves, share intimate secrets, are friendlier, and enjoy role-playing more than other individuals (Morahan-Martin & Schumacher, 2003). Another finding by Morahan-Martin and Schumacher was that lonely individuals report a preference for online friends over offline friends because they have more fun and their online friends understand them better than their face to face friends. These individuals are more likely to go online when they are depressed or need emotional support and use the Internet as a means for relaxation, immersion and avoidance of real life issues (Morahan-Martin & Schumacher). Because there is greater anonymity with online relationships, lonely individuals are less inhibited and are able to interact with others while not worrying about status, prestige, class, or attractiveness and tend to discuss more intimate information with their online friends than offline (face-to-face) friends (Morahan-Martin & Schumacher).

Kraut et al. (1998) examined the social and psychological impact of the Internet using a longitudinal study of individuals during their first two years using the Internet. They found individuals who used the Internet more than others, had less social interaction with their friends and family, and were at higher risk of loneliness and depression (Kraut, et al.). These findings suggest that the Internet is related to negative effects on the individual's social involvement and therefore their psychological well being.

Scott, Mottarella and Lavooy, (2006) examined intimacy levels of online versus offline relationships and found that online relationships, regardless of increased self disclosure, did not have more intimacy than offline face to face relationships. If the individual experienced difficulty in their offline relationships, they also experienced similar difficulty in their online relationships.

However, the authors did note that there while there was intimacy in online relationships, this intimacy was just not statistically greater than the intimacy of offline face to face relationships.

Matsuba (2006) found that most of their respondents were not looking for an online relationship; however, out of those who did develop online friendships, they reported that their face to face friendships were deeper. They also examined differences between online friendships and offline face to face friendships based on 11 relationship qualities and found offline face to face relationships were rated higher than online relationships.

Personality and Internet Usage

There are two historical approaches to the development of the Five Factor Model (FFM): (1) the lexical hypothesis; and (2) the personality questionnaire approach (McCrae & John, 1990). The lexical hypothesis holds that any personality trait or characteristic that is relevant to our existence must be referenced in our language. Therefore, by studying a language and decoding these terms, we can find a comprehensive list of personality traits, and are able to discover the primary dimensions of personality. The FFM originated from studies of natural language trait terms which were taken from a dictionary. Personality questionnaires used various scales to measure personality. Most of these were derived from personality theory or for specific applications and different researchers used different instruments, based on their own research. While personality theories are diverse, the scales show a considerable amount of redundancy.

Because the five factors are found across different cultures, it is suggested that human nature may play a part (Costa & McCrae, 1992). However, people act differently based on their social environments; therefore, the five factors may represent alternative ways that people respond to their environment. These factors have been found in adults, college age students and in young children (Costa & McCrae, 1992). The five factors by order of importance are (E) Extraversion, (A) Agreeableness, (C) Conscientiousness, (N) Neuroticism and (O) Openness to Experience (McCrae & John, 1990). Through factor analysis, researchers have found that “E” is the key factor in the variations of individual differences. Extraversion is described by the dimensions or facets of friendliness (warmth), gregariousness, assertiveness, activity level, excitement-seeking and cheerfulness. Agreeableness is described by trust, morality, altruism,

cooperation, modesty and sympathy. This factor involves the more humane aspects of our culture and it is seen as one of the classic dimensions of character (McCrae & John,1990). Conscientiousness is described by self-efficacy (competence), orderliness, dutifulness, achievement-striving, self-discipline and cautiousness (deliberation). Some believe that “C” is what controls our impulsive behaviors (McCrae & John). Neuroticism is described by the dimensions or facets of anxiety, anger, depression, self-consciousness, immoderation (impulsivity) and vulnerability. “N represents the individual differences in the tendency to experience distress” (McCrae & John, pp. 195) and the way we deal with distress. Openness to Experience is described as imagination (fantasy), artistic interests (aesthetics), emotionality (feelings), adventurousness (actions), intellect (ideas) and liberalism (values). According to McCrae and John, this factor has a positive correlation with intelligence (IQ). Each person’s personality has been defined using these five factors and their facets (McCrae & John, 1990).

There are several criticisms of the FFM according to McCrae and John (1990). Many argue that five factors are not sufficient to summarize all of the individual differences in personality, because there are too few factors. Another criticism is that because these ratings are self reports, they are biased because the individual may not want the researcher to know their inner selves.

Amiel and Sargent (2004) examined Internet use motives and how they differed based on the individual’s self reported personality type. They found that individuals who were high on extraversion preferred face to face human contact versus online contact using the Internet, they were less likely to use the Internet for news, and preferred using the Internet as a tool for research and music downloading. Additionally, individuals who were high on psychoticism preferred to engage in socially deviant behaviors such as viewing pornography and nudity, making use of file sharing over music sharing services, were less likely to utilize the Internet for “fun,” and were more likely to use the Internet as a method of passing time (Amiel & Sargent). Finally, those individuals who scored high on neuroticism used the Internet as a tool to help them feel like they belonged to a group when they felt lonely, however they did not engage in communication related activities or discussion groups (Amiel & Sargent; Sargent, 2007). These

findings suggest that there is a connection between personality type, Internet use motives, and the types of activities each personality type is likely to engage in while on the Internet.

In another study by Hamburger and Ben-Artzi (2000), an exploratory factor analysis of Internet services and their relation to extraversion and neuroticism was conducted. They found three basic factors identifying Internet usage: (1) social services (chat, email, and discussion forums); (2) information services (news, research, and educational); and (3) leisure services (games, pornography and music). They also discovered gender differences in how personality type was related to the types of Internet services the individual engages in. For females, extraversion was negatively related and neuroticism positively related to social services usage. For men, extraversion was positively related to leisure services usage and neuroticism was negatively related to information services usage (Hamburger & Ben-Artzi).

According to Hamburger and Ben-Artzi (2000), the Internet provides a place where neurotic, lonely women can safely engage in discussions with other people which, in turn, reduces their feelings of emotional loneliness. They suggest that because women have higher levels of self-consciousness than men, they are more attentive to their need for emotional support and therefore use the Internet to access the social services that are beneficial to them. While the Internet may provide social support for those who are lonely, the individual must realize this support is needed and that the Internet can be a resource for relieving their feelings of loneliness. In order to understand the positive relationship between extraversion and leisure services among men, it is important to realize that surfing of sex sites and random surfing are included in these leisure services activities and that sex sites are tailored for men (Hamburger & Ben-Artzi, 2000).

Swickert et al. (2002) examined Internet usage, the five factor model of personality, and perceived social support in a group of approximately 200 college students. Computer activities for this study were divided into three primary factors: (1) Technical (bulletin board, chat room, and MUD); (2) Information Exchange (email and information access); and (3) Leisure (online games and instant messaging). There was no significant relationship found between perceived availability of social support and Internet use, however, they did find a small positive relationship

between leisure and social support which suggests that those who report higher leisure usage of the Internet also perceived increased social support from those activities.

Neuroticism and information exchange and neuroticism and leisure usage both had marginally significant negative relationships which suggest that individuals high in neuroticism are less likely to engage in information exchange and leisure activities on the Internet. Individuals high in neuroticism and technical use of the Internet were also found to report the lowest perceived social support. However, these individuals, while at risk for lower perceived social support, may actually engage in technical use of the Internet in search of support (Swickert et al. 2002). Agreeableness and leisure usage had significant positive relationships, suggesting that those high in agreeableness and leisure usage of the Internet perceived higher social support, which the authors believe is the result of an increased number of positive interactions while engaging in these activities (Swickert, et al.).

Ebeling-White, Frank, and Lester (2007) examined shyness, Internet use and personality among college students and found a correlation between shyness and neuroticism, introversion, and lack of satisfaction from social interaction. They also found a relationship between shyness and problematic usage due to spending too much time online and spending a significant amount of time thinking about the Internet when not online (Ebling-White et al.). The authors suggest that the Internet is a place where shy individuals can go to alleviate feelings of loneliness and obtain social support.

Sargent (2007) examined Internet usage motives. In one study, statistically significant relationships between personality, Internet use, and motives of use were revealed (Sargent). Sargent found four factors representing four motives of Internet use: (1) *Entertainment* which consists of meeting new people, online games, and music downloads; (2) *Convenience* which consists of avoiding face to face contact, and accessing friends; (3) *Interpersonal/Communication Utility* which consists of messaging, scheduling/time differences, and limiting length of conversations; and (4) *Social Utility* which consists of experimenting with social roles, anonymous activities, and interpersonal contacts. The research found that those who were high in neuroticism used the Internet as a way to “belong” those high in extraversion used the Internet in instrumental

and goal oriented fashions, and those with high psychoticism scores used the Internet in more deviant and defiant manners (Amiel & Sargent, 2004; Sargent, 2007).

People use self-presentation as a way to construct their personal identity and show this "ideal self" to the world (Morahan-Martin & Schumacher, 2003). This "ideal self" can be whatever the player would like for it to be when playing WoW, and allows them to be whoever they wish to portray as their "ideal self" because WoW offers a variety of character identities (e.g., class, race, gender), the player can be whatever character they wish to be, and are even able to change their identity by gender swapping to play a character that is the opposite of their true gender (Griffiths & Davies, 2002). Individuals with interpersonal relationships which become a burden or are no longer beneficial, have the ability to create a new identity and discard the previous ones and never interact in those previous relationships again (Lo et al., 2005). Cole and Griffiths (2007) found that online gaming is an outlet where players are able to "express themselves in ways they may not feel comfortable doing in real life because of their appearance, gender, sexuality, and/or age" (p. 575).

Summary of Online Gaming, Relationships and Personality

Online gaming is a relatively new concept, yet due to the millions of followers these games have attracted over the past decade; it is not difficult to deduce that they are not going away any time soon. Individuals use the Internet for many things, including news, email, shopping, instant messaging and entertainment (gaming). Millions of these same individuals play MMORPGs as their source of entertainment. These players interact socially within the game with one another, many on a daily basis, and spend huge amounts of time doing so. During these long hours, research has shown that many of these players form online relationships, and some of these relationships lead to real life relationships. Many of these individuals consider these online relationships equal to their offline relationships. It is suggested that these players are introverted and lack social interaction; however, some believe that using the Internet in this manner is equivalent to offline face to face social interaction. Many lose track of the time while playing MMORPGs and when engaging in other online activities, and some of these individuals

experience symptoms related to loneliness. Therefore, previous research suggests there is a relationship between online gaming, personality, and interpersonal relationships.

STATEMENT OF THE PROBLEM

Previous research has suggested that an individual's personality characteristics are related to their motives for usage of the Internet and gender also plays a role in affecting usage choices (Amiel & Sargent, 2004; Hamburger & Ben-Artzi, 2000; Swickert et al., 2002). For example, Neuroticism and Extraversion have been related to Internet usage motives, suggesting that those who are more neurotic and are introverted tend to spend more time using the Internet for social interactions. Motivations to play MMORPGs may be different from motives to use the Internet in general and exploring this relationship may lead to areas of future research. These games are classified as "Entertainment" and because of this classification they may be attractive to individuals for the sole purpose of entertainment which may be the source of their motivation to play the games. However, other motives may also exist.

Previous research has demonstrated that individuals spend huge amounts of time interacting with each other in these MMORPGs (Griffiths & Davies, 2003; Yee, 2006c). Further, the amount of time spent playing these MMORPGs is related to formation of online relationships and in some cases, these are preferred over face-to-face offline relationships (Morahan-Martin & Schumacher, 2003). These three dimensional virtual worlds allow the individuals to immerse themselves into the game and interact with their online friends on a daily basis (Cole & Griffiths, 2007). Because there is more anonymity with online relationships, lonely individuals are less inhibited and are able to interact with others without having to worry about the usual social aspect, and these individuals discuss more intimate personal information than they would in a face-to-face relationship (Morahan-Martin & Schumacher, 2003).

While there is research that suggests individuals who play MMORPGs are asocial, suffer from low self-esteem and social anxiety, it has also been suggested that because of the social interaction and teamwork involved among MMORPG players, online games can provide a positive environment (Cole & Griffiths, 2007). It is also suggested that the Internet is a place where shy individuals can go to alleviate feelings of loneliness and obtain social support (Ebling-White, et al., 2007; Hamburger & Ben-Artzi, 2000). Additional research suggests that those who

are lonely, depressed or need emotional support use the Internet as a place to go for relaxation, immersion and avoidance of real life issues (Morahan-Martin & Schumacher, 2003).

Although previous research has examined Internet use motives, personality and motivations to play MMORPGs, the purpose of this study is to explore and determine the type of relationships that exist between personality traits, motivations for playing online games, online vs. offline social interaction preferences and social anxiety. The following hypotheses were tested:

Hypotheses

Hypothesis 1. The amount of time playing WoW is positively related to Neuroticism.

Hypothesis 2. The amount of time playing WoW is negatively related to Extraversion.

Hypothesis 3. The achievement motivation to play MMORPGs will be positively related to the personality characteristics of Openness to Experience and Conscientiousness.

Hypothesis 4. The social motivation to play MMORPGs will be positively related to Extraversion, Agreeableness, and Openness to Experience.

Hypothesis 5. The immersion motivation to play will be negatively related to Extraversion and Conscientiousness, and positively related to Openness to experience.

Hypothesis 6. The preference for online social interaction in WoW players will be positively related to social anxiety.

METHOD

Participants

The study included 381 participants who were recruited from the Internet sites http://forums.worldofwarcraft.com and http://www.mmo-champion.com/forum/ where WoW players frequently post and read messages. The participants were 88% male (n = 334) and 12% female (n = 47). The distribution of participant race was .3% Alaskan Native (n = 1), .5% American Indian (n = 2), 3.4% Asian (n = 13), .3% Black or African American (n = 1), 4.5% Hispanic/Latino (n = 17), .5% Native Hawaiian (n = 2), .3% Other Pacific Islander (1), and 90.3% White/Caucasian (n = 344). See Appendix A for State or Country of Residence information.

The range of participants' ages was 18 to 69 years, with a mean of 24.29 and a standard deviation of 6.94. The sample included 52.2% Single (n = 199), 32% Unmarried (n = 122), 14.7% Married (n = 56), and 1% Divorced (n = 4) participants. Participant educational level was comprised of 7.1% with Some High School (n = 27), 15.2% with a High School Diploma (n = 58), 33.3% with Some College (n = 127), 5.2% with an Associate's Degree (n = 20), 27% with a Bachelor's Degree (n = 103), 7.3% with a Master's Degree (n = 28), and 4.7% with a Doctoral Degree (n = 18).

The employment status of participants was 11.3% Employed Part Time (n = 43), 33.6% Employed Full Time (n = 128), 13.6% Unemployed (n = 52), 4.5% Student Part Time (n = 17), and 37% Student Full Time (n = 141). When asked if their game character was a member of a guild, 93.7% reported Yes (n = 357) and 6.3% reported No (n = 24). Participants were asked to report the sex of their character with 33.9% being Female characters (n = 129) and 66.1% being Male characters (n = 252). Of Female participants, 95.7% reported playing Female characters (n = 45) and 4.3% reported playing Male characters (n = 2). Among Male participants, 25.1% reported playing Female characters (n = 84) while 74.9% reported playing Male characters (n = 250). Participation was voluntary and all participants were actually engaged in playing the MMORPG "World of Warcraft". The median amount of time spent playing WoW per week was 16 to 20 hours (See Table 1).

Table 1

Time Spent Playing WoW Per Week

	Frequency	Percent
Less than 5 hours	20	5.2
5 to 11 hours	45	11.8
11 to 15 hours	53	13.9
16 to 20 hours	81	21.3
21 to 25 hours	56	14.7
26 to 30 hours	39	10.2
31 to 35 hours	22	5.8
36 to 40 hours	18	4.7
Greater than 40 hours	47	12.3

Measures

Demographics Questionnaire included age, country of residence, sex, occupation, employment status and other information about their online game playing. The time spent playing WoW per week was an ordinal variable (See Appendix B).

M5-50 Personality Inventory (McCord, 2002) is a short measure of the participant's personality traits, collected through a 50 item scale. The items were scored on a 5 point Likert-type scale ranging from 1 = Inaccurate to 5 = Accurate. Each of the 5 factors has 10 items which were summed to arrive at a total factor score for each of the five domains. The five domains measured are Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. Previous research has reported sufficient validity on the domains of Neuroticism, Extraversion, Conscientiousness, Agreeableness, and Openness to Experience (Kelly, Mims, & McCord, 2003; Kitt, Wegener, & McCord, 2003; Owings, Ulrich, & McCord, 2004; Payne, Shelton, Bradley & McCord, 2004; Rosnov, Pickup, & McCord, 2003). (See Appendix C). This research also supports sufficient reliabilities on these domains with Cronbach alphas (α) for Neuroticism (α = .87), Extraversion (α = .89), Conscientiousness (α = .85), Agreeableness (α = .75), and Openness to Experience (α = .73).

Preference for Online Social Interaction Questionnaire (Caplan, 2003) is a 4 item measure of the individual's preference for online vs. offline face to face social interaction. The participants answered the 4 items on a 5 point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The items were summed for a total score with higher scores representing preference for online social interaction. Research shows good internal reliability of .80 on the scale (Caplan, 2007) and the reliability in this study was Cronbach α = .84. (See Appendix D.)

Motivations for Play Questionnaire (Yee, 2006a) was designed to specifically measure the motivation to play and activities the participant engages in while online, which MMORPGs they play, the amount of time spent playing the specified MMORPG per week, and the activities they are involved in while playing the MMORPG (including raiding with other players, chatting, relationships, friendships, and more). The scale consists of 40 questions which participants answered using a 5 point response scale. Individual items were summed into each of the primary components: Achievement motivation to play, Social motivation to play, and Immersion Motivation to play. The overall score for each of the primary components was used to predict the individual's motivation to play online games. Higher scores on the components represent increased motivation for play while lower scores represent lower motivation to play. Factor analysis has revealed three components (Achievement, Social, and Immersion) with 10 subcomponents. Yee (2006a) found that the scale has good internal reliability of .70 or above on each of the three primary components. The scale was also found to be a reliable predictor of problematic usage of online gaming (Yee, 2006a). The reliability in this study for Achievement (Cronbach α = .87), Social (Cronbach α = .67), and Immersion (Cronbach α = .83). (See Appendix E.)

The Interaction Anxiousness Scale (IAS) was designed to measure social anxiety (Leary, 1983). The scale consists of fifteen items which participants answered based on a 5 point Likert-type scale ranging from 1 = not at all characteristic of me to 5 = extremely characteristic of me. Research shows the scale has a high test-retest and high internal reliability of .8 or higher (Leary & Kowalski, 1993) with the reliability in this study as Cronbach α = .89. Scores are summed after some items are reversed and overall higher scores on the scale reflect higher levels of social anxiety. (See Appendix F.)

Procedure

Links to the online survey were included in posts which were made on the message board sites http://forums.worldofwarcraft.com and http://www.mmo-champion.com/forum/ where online gamers frequently read and make posts. When the participant clicked on the link or entered it into their web browser, the participants were directed to a web page where they read the consent form and had the option to consent or not participate (See Appendix G). If they consented, they were taken to the survey; if they did not consent, they were directed to a page thanking them for their time. Once the participants consented, they were informed that if they decided at any time during the survey that they did not want to participate, they could close the web browser and their data would not be used. Participation was voluntary for all who wished to participate and the participants were assured that their responses would be anonymous. To protect the integrity of the study while collecting data, email addresses were collected from the participants after completion of the survey, and a debriefing form as well as the results of the study was sent to the participants after completion. To insure anonymity, the site where the participants entered their email address and the survey site were separate.

In an effort to garner interest in completing the online survey, participants were given the option to be entered in a drawing good for a 2 month game card. A drawing was held including all participants who entered in the drawing. The winner was chosen using a random number generator that is commonly used within WoW. The winner was notified through email and was given the game card information needed to obtain 2 free months of WoW play.

RESULTS

The means and standard deviations are listed below for Openness to Experience, Conscientiousness, Extraversion, Agreeableness, Neuroticism, Interaction Anxiousness Scale, Preference for Online Social Interaction, Achievement Motivation to Play, Social Motivation to Play, and Immersion Motivation to Play variables (See Table 2).

Table 2

Variable Means and Standard Deviations

	M	*SD*
Openness to Experience	38.39	6.16
Conscientiousness	29.05	6.92
Extraversion	31.98	8.61
Agreeableness	32.13	5.64
Neuroticism	23.9	8.13
Interaction Anxiousness Scale	40.73	12.59
Preference for Online Social Interaction	10.17	4.23
Achievement Motivation to Play	40.32	9.12
Social Motivation to Play	36.05	5.46
Immersion Motivation to Play	25.93	6.44

Note. N=407. Openness=M5-50 Openness to Experience Factor; Conscientiousness=M5-50 Conscientiousness Factor; Extraversion=M5-50 Extraversion Factor; Agreeableness=M5-50 Agreeableness Factor; Neuroticism=M5-50 Neuroticism Factor; IAS=Interaction Anxiousness Scale; POSI=Preference for Online Social Interaction Scale; Achievement=Achievement Motivation to Play; Social=Social Motivation to Play; Immersion=Immersion Motivation to Play.
*p<.01, **p<.05.

The relationship between the amount of time spent playing WoW and neuroticism (as measured by the M5-50 Personality Inventory) was examined using the Spearman's rank order correlation coefficient. There was a small, positive correlation between the two variables [rho = .22, p< .000], with higher levels of time spent playing WoW associated with higher levels of Neuroticism supporting Hypothesis 1 (See Table 3).

Table 3

Spearman correlations between Time spent playing WoW and Personality Variables.

Personality Variables	Time spent playing
Openness to Experience	-.12*
Conscientiousness	-.23**
Extraversion	-.16**
Agreeableness	-.10*
Neuroticism	.22**

*$p < .05$, **$p < .01$.

Next, the relationship between the amount of time spent playing WoW and Extraversion (as measured by the M5-50 Personality Inventory) was investigated using Spearman's rank order correlation coefficient. There was a small, negative correlation between the two variables [rho = -.16, p< .002], with higher levels of time spent playing WoW per week associated with lower levels of Extraversion supporting Hypothesis 2 (See Table 3).

The relationships between achievement motivation to play (as measured by the Motivations for Play Questionnaire), and Openness to Experience and Conscientiousness (as measured by the M5-50 Personality Inventory) was investigated using Pearson correlation coefficients. There were small, negative correlations between achievement motivation to play (as measured by the Motivations for Play Questionnaire), and Openness to Experience [r = -.22, p< .000], and Conscientiousness [r = -.22, p< .000] with higher levels of motivation to play associated with lower levels of Openness to Experience and Conscientiousness. These results did not support Hypothesis 3 as positive correlations were predicted (See Table 4).

Table 4

Pearson Intercorrelations Between Motivation to Play, IAS, POSI and M5 Factor Variables

Measures	2	3	4	5	6	7	8	9	10
1. Achievement	.19**	.27**	.27**	.49**	-.22**	-.22**	-.14**	-.33**	.26**
2. Social		.26**	-.13*	.11*	.28**	.22**	.26**	.18**	-.12*
3. Immersion			.23**	.34**	.17**	-.11*	-.10*	-.06	.25**
4. IAS				.58**	-.24**	-.37**	-.76**	-.21**	.57**
5. POSI					-.13*	-.25**	-.53**	-.18**	.40**
6. Openness						.22**	.32**	.22**	-.12*
7. Conscientiousness							.40**	.25**	-.41**
8. Extraversion								.19**	-.48**
9. Agreeableness									-.44**
10. Neuroticism									

Note. N=407. *p<.01, **p<.05.

The relationships between social motivation to play (as measured by the Motivations for Play Questionnaire), Extraversion, Agreeableness and Openness to Experience (as measured by the M5-50 Personality Inventory) was investigated using Pearson correlation coefficients. There were small, positive relationships between social motivation to play and Extraversion [r = .26, p< .000], Agreeableness [r = .18 p< .002], and Openness to Experience [r = .28, p<.000], with higher levels of social motivation to play associated with higher levels of Extraversion, Agreeableness and Openness to Experience. These results did support Hypothesis 4 (See Table 4).

The relationships between immersion motivation to play (as measured by the Motivations for Play Questionnaire) and Extraversion, Conscientiousness, and Openness to Experience (as measured by the M5-50 Personality Inventory) was investigated using Pearson correlation coefficients. There were small, negative relationships between immersion motivation to play and Extraversion [r = -.10, p< .05] and Conscientiousness [r = -.11, p< .05]; and a small, positive relationship between immersion motivation to play and Openness to Experience [r = .17, p< .01],

with higher levels of motivation to play associated with lower levels of Extraversion and Conscientiousness and with higher levels of Openness to Experience. These results supported Hypothesis 5 (See Table 4).

Finally, the relationship between the preference for online social interaction and the interaction anxiousness scale was investigated using the Pearson correlation coefficient. There was a moderate to strong, positive relationship between the variables [$r = .58$, $p < .01$], with higher levels of preference for online social interaction associated with higher levels of interactive anxiousness. This result strongly supported Hypothesis 6 (See Table 4).

DISCUSSION

The current study was designed to examine relationships between the amount of time spent playing the online World of Warcraft (WoW) game and personality characteristics, motivations to play the game, preference for online social interaction, and social anxiety. Previous research has examined Internet usage motives, personality and motivations to play MMORPGs. The purpose of this study was to explore and determine the type of relationships that exist between personality traits, motivations for playing online games, online vs. offline social interaction preferences and social anxiety. The median amount of time spent playing WoW was 16-20 hours a week comparable to previous research (Yee, 2006c).

Results from this research suggest that the greater the amount of time spent playing World of Warcraft, is related to higher levels of neuroticism. While this relationship is weak, it suggests that for some players, amount of time spent playing the game is related to higher levels of anxiety, anger, depression, self-consciousness, and vulnerability (McCrae & John, 1990). Previous research supports increased time playing online games to these behaviors (BBC, 2002). This research also suggests that those who are considered to be “Internet addicts” form close feelings for strangers yet continue to experience higher levels of depression (Lo, Want & Fang, 2005), which supports the current findings.

Additionally, these results suggest that greater amounts of time playing World of Warcraft are related to lower levels of extraversion. This relationship is also weak, and yet it does suggest that those who spend more time playing the game, are less likely to be friendly, assertive and are less active (McCrae & John, 1990). Previous research by Amiel and Sargent (2004) found that individuals with higher levels of extraversion preferred face to face versus online contact using the Internet which supports current results. Those who spend more time engaging in online activities were found to withdraw from their offline relationships and spent more time engaging in online activities (Ng & Wiemer-Hastings, 2005). This study thus supports the suggestion that increased time playing online games is related to being less extroverted. It is logical to believe that the more time you spend in the online gaming environment, the more you would prefer that type of interaction with others and therefore be lower in extraversion.

The current study's results also suggest that a higher level of achievement motivation to play is negatively related to openness to experience and conscientiousness. The relationships were weak, which suggests that this is not true of all players; however, it suggests that players who experience a higher degree of achievement motivation to play the game are also less likely to be imaginative, adventurous, achievement-striving, and competent (McCrae & John, 1990). Previous research indicates that achievement motivation to play consists of motivation for advancement of character, game mechanics and in-game competition (Yee, 2006a). Logically, you would think that if a player is more motivated to achieve in the game, they would also be more adventurous and achievement-striving; however, the current research findings does not support this hypothesis

The results indicate that a higher degree of a player's social motivation toward playing the game is related to higher levels of extraversion, agreeableness, and openness to experience. These relationships are weak, yet they suggest that players who have more social motivation to play the game tend to be more friendly, seek excitement, are cooperative, modest, altruistic, imaginative and adventurous (McCrae & John, 1990). Previous research indicates that social motivation to play consists of socializing or helping others in the game, forming lasting relationships with others, and teamwork through group efforts, supporting the current findings (Yee, 2006a).

Results suggest that a higher level of immersion motivation to play is related to lower levels of extraversion and conscientiousness and yet, related to higher levels of openness to experience. All of these relationships are weak, which suggests that not all players experience this, but it does suggest that some players with higher levels of immersion into the game, are less likely to be friendly, excitement seeking, assertive, competent, achievement-striving and cautious, and are more likely to be adventurous and imaginative (McCrae & John, 1990). According to previous research by Yee (2006a), immersion motivation to play consists of discovering new things in the game environment, role-playing with your character, customization of your character's appearance, and escapism which allows the player to avoid real life and become immersed into the virtual world which supports current findings.

Finally, these results imply that players with higher levels of preference for online social interaction also experience higher levels of social interaction anxiousness. This was a strong relationship which suggests that players who prefer online social interaction tend to be more socially anxious in an interpersonal situation. Previous research supports MMORPGs as being socially oriented environments that are conducive to online relationship formation that makes it easier for players to interact with others online in ways they would not be able to in face to face situations (Cole & Griffiths, 2007; Lo et al., 2005). Additionally, previous research indicates that players are more likely to reveal their true personality through their play character and form friendships online which they consider equivalent or better than their face to face relationships (Yee, 2006b). Research by Lo (2005) supports that social anxiety may be temporarily relieved by interaction with others through an online environment supporting the current findings

Limitations and Future Directions

One of the limitations of this study was not being able to control who participated in the online survey. The participants need to be trusted to complete the questionnaires with fidelity and validity via an online administration. The consent form specifically indicated that participants had to be over 18 years of age; however, many participants were under the age of 18 (n = 26) and therefore had to be excluded from the data. The second limitation involves the fact that the amount of hours spent playing World of Warcraft was a rank ordered range of hours played instead of exact hours played, thus creating an ordinal variable. The use of this ordinal variable restricted the range of values and thus reducing the amount of variance accounted for in the other variables. The correlational analyses would have been more accurate if the exact number of hours played had been used. The last significant limitation of this research involved finding message boards from which participants could be recruited. Posts made on several message boards with links to the survey were deleted by message board administrators without explanation. It would be beneficial to use private guild message boards as opposed to open forums that are run by game developers in order to control for this issue.

Future research should consider a replication of this study plus additional studies examining personality/individual difference variables related to a desire to play these online

games. There are many MMORPGs similar to World of Warcraft and there are more games being released on a regular basis. This is an area of research that needs further investigation to better understand what types of players are drawn to these games and what makes them continue to play once they begin.

Conclusion

These results suggest that the more time an individual spends playing WoW, the more likely they are to have higher levels of neuroticism and lower levels of extraversion. Higher levels of achievement motivation were related to lower levels of openness to experience and conscientiousness while higher levels of social motivation to play was related to higher levels of extraversion, agreeableness, and openness to experience. An increased level of immersion motivation to play was related to lower levels of extraversion and conscientiousness and higher levels of openness. These results also suggest that those who prefer online social interaction also experience higher levels of interpersonal social anxiety. Limitations of the current research include: not being able to control who participated in the online survey; the variable for hours played was collected using a rank ordered range of values as opposed to exact hours; and the fact that it was difficult to find online message boards on which to post links for the survey where the posts would not be deleted. Finally, future research should continue to examine personality/individual difference variables related to desire to play online games.

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APPENDICES

Appendix A: State/Country of Residence

	Frequency	Percent
Alabama	1	0.3
Arkansas	4	1
Arizona	7	1.8
California	29	7.6
Colorado	10	2.6
Connecticut	1	0.3
Delaware	2	0.5
Florida	10	2.6
Georgia	5	1.3
Hawaii	1	0.3
Iowa	2	0.5
Idaho	2	0.5
Illinois	5	1.3
Indiana	6	1.6
Kansas	2	0.5
Kentucky	4	1
Louisiana	3	0.8
Massachusetts	10	2.6
Maryland	4	1
Maine	1	0.3
Michigan	7	1.8
Minnesota	4	1
Missouri	6	1.6
Montana	1	0.3
North Carolina	6	1.6
North Dakota	1	0.3

Appendix A: State/Country of Residence (continued)

	Frequency	Percent
New Hampshire	2	0.5
New Jersey	10	2.6
New Mexico	2	0.5
Nevada	1	0.3
New York	7	1.8
Ohio	9	2.4
Oklahoma	2	0.5
Oregon	5	1.3
Pennsylvania	7	1.8
Puerto Rico	1	0.3
Rhode Island	2	0.5
South Carolina	4	1
Tennessee	2	0.5
Texas	16	4.2
Utah	3	0.8
Virginia	5	1.3
Vermont	1	0.3
Washington	9	2.4
Wisconsin	1	0.3
West Virginia	1	0.3
Australia	11	2.9
United Kingdom	29	7.6

Appendix A: State/Country of Residence (continued)

	Frequency	Percent
Japan	2	0.5
Holland	2	0.5
Portugal	2	0.5
Poland	3	0.8
Hungary	1	0.3
Germany	11	2.9
Bulgaria	1	0.3
Italy	2	0.5
Netherlands	12	3.1
Denmark	8	2.1
Belgium	3	0.8
Finland	4	1
Argentina	1	0.3
Canada	25	6.6
Switzerland	1	0.3
Spain	4	1
Sweden	10	2.6
Croatia	2	0.5
Venezuela	2	0.5
Scotland	1	0.3
Turkey	3	0.8
Jordan	1	0.3

Appendix A: State/Country of Residence (continued)

	Frequency	Percent
Serbia	1	0.3
Russia	2	0.5
Norway	1	0.3
United Arab Emirates	1	0.3
Austria	2	0.5
France	2	0.5

Appendix B

Demographic Form

Age on Last Birthday _____

Sex _____ Female
_____ Male

Race _____

State _____ If outside U.S., Country _____

Marital Status _____ Single
_____ Unmarried but in a relationship
_____ Married
_____ Divorced

Educational level _____ Some High School
_____ High School Diploma
_____ Some College
_____ Associate's Degree
_____ Bachelor's Degree
_____ Master's Degree
_____ Doctoral Degree

Occupation _____

Employment Status _____ Employed part time
_____ Employed full time
_____ Unemployed
_____ Student part time
_____ Student full time

Amount of time spent playing World of Warcraft per week in hours: (Select one.)
_____ Less than 5 hours
_____ 5 to 10 hours
_____ 11 to 15 hours
_____ 16 to 20 hours
_____ 21 to 25 hours
_____ 26 to 30 hours
_____ 31 to 35 hours
_____ 36 to 40 hours
_____ Greater than 40 hours

Is your character a member of a guild? _____ Yes _____ No

Character Sex _____ Female
_____ Male

Have you ever engaged in the sale or purchase of "virtual" World of Warcraft items or characters?
_____ Yes _____ No

If yes, approximately how much money (in U.S. dollars) have you spent or made engaging in this practice? _____

Appendix C: *M5-50 Questionnaire (M5-50)*

		Inaccurate	Moderately Inaccurate	Neither	Moderately Accurate	Accurate
1	Has a vivid imagination	O	O	O	O	O
2	Believes in the importance of art	O	O	O	O	O
3	Seldom feels blue	O	O	O	O	O
4	Has a sharp tongue	O	O	O	O	O
5	Is not interested in abstract ideas	O	O	O	O	O
6	Finds it difficult to get down to work	O	O	O	O	O
7	Panics easily	O	O	O	O	O
8	Tends to vote for liberal political candidates	O	O	O	O	O
9	Is not easily bothered by things	O	O	O	O	O
10	Makes friends easily	O	O	O	O	O
11	Often feels blue	O	O	O	O	O
12	Gets chores done right away	O	O	O	O	O
13	Suspects hidden motives in others	O	O	O	O	O
14	Rarely gets irritated	O	O	O	O	O
15	Does not like art	O	O	O	O	O
16	Dislike own self	O	O	O	O	O
17	Keeps in the background	O	O	O	O	O
18	Does just enough work to get by	O	O	O	O	O
19	Is always prepared	O	O	O	O	O
20	Tends to vote for conservative political candidates	O	O	O	O	O
21	Feels comfortable with self	O	O	O	O	O
22	Avoids philosophical discussions	O	O	O	O	O
23	Wastes their time	O	O	O	O	O
24	Believes that others have good intentions	O	O	O	O	O
25	Is very pleased with self	O	O	O	O	O
26	Has little to say	O	O	O	O	O
27	Feels comfortable around other people	O	O	O	O	O
28	Is often down in the dumps	O	O	O	O	O
29	Does not enjoy going to art museums	O	O	O	O	O
30	Has frequent mood swings	O	O	O	O	O
31	Does not like to draw attention to self	O	O	O	O	O
32	Insults people	O	O	O	O	O
33	Has a good word for everyone	O	O	O	O	O
34	Gets back at others	O	O	O	O	O
35	Carries out plans	O	O	O	O	O
36	Would describe their experiences as somewhat dull	O	O	O	O	O
37	Carries the conversation to a higher level	O	O	O	O	O
38	Doesn't see things through	O	O	O	O	O
39	Is skilled in handling social situations	O	O	O	O	O
40	Respects others	O	O	O	O	O
41	Pays attention to details	O	O	O	O	O
42	Is the life of the party	O	O	O	O	O
43	Enjoys hearing new ideas	O	O	O	O	O
44	Accepts people as they are	O	O	O	O	O

45	Doesn't talk a lot	O	O	O	O	O
46	Cuts others to pieces	O	O	O	O	O
47	Makes plans and stick to them	O	O	O	O	O
48	Knows how to captivate people	O	O	O	O	O
49	Makes people feel at ease	O	O	O	O	O
50	Shirks their duties	O	O	O	O	O

Appendix D

Preference for Online Social Interaction Questionnaire (POSI)

1. I am more confident socializing online than I am offline.

Strongly Disagree				Strongly Agree
1	2	3	4	5

2. I feel safer relating to other people online rather than face-to-face.

Strongly Disagree				Strongly Agree
1	2	3	4	5

3. I prefer communicating with other people online rather than face-to-face.

Strongly Disagree				Strongly Agree
1	2	3	4	5

4. Meeting and talking with people is better when done online rather than in face-to-face situations.

Strongly Disagree				Strongly Agree
1	2	3	4	5

Appendix E

Motivations for Play Questionnaire

1) How interested are you in the precise numbers and percentages underlying the game mechanics? (ie., chance of dodging an attack, the math comparing dual-wield to two-handed weapons, etc.)

_____ Not Interested At All
_____ Slightly Interested
_____ Somewhat Interested
_____ Very Interested
_____ Extremely Interested

2) How important is it to you that your character is as optimized as possible for their profession / role?

_____ Not Important At All
_____ Slightly Important
_____ Somewhat Important
_____ Very Important
_____ Extremely Important

3) How often do you use a character builder or a template to plan out your character's advancement at an early level?

_____ Never
_____ Seldom
_____ Sometimes
_____ Often
_____ Always

4) Would you rather be grouped or soloing?

_____ Much Rather Group
_____ Rather Group
_____ In-Between
_____ Rather Solo
_____ Much Rather Solo

5) How important is it to you that your character can solo well?

_____ Not Important At All
_____ Slightly Important
_____ Somewhat Important
_____ Very Important
_____ Extremely Important

6) How much do you enjoy working with others in a group?

_____ Not At All
_____ A Little
_____ Some
_____ A Lot
_____ A Great Deal

7) How important is it to you to be well-known in the game?
_____ Not Important At All
_____ Slightly Important
_____ Somewhat Important
_____ Very Important
_____ Extremely Important

8) How much time do you spend customizing your character during character creation?
_____ Not At All
_____ A Little
_____ Some
_____ A Lot
_____ A Great Deal

9) How important is it to you that your character's armor / outfit matches in color and style?
_____ Not Important At All
_____ Slightly Important
_____ Somewhat Important
_____ Very Important
_____ Extremely Important

10) How important is it to you that your character looks different from other characters?
_____ Not Important At All
_____ Slightly Important
_____ Somewhat Important
_____ Very Important
_____ Extremely Important

11) How much do you enjoy exploring the world just for the sake of exploring it?
_____ Not At All
_____ A Little
_____ Some
_____ A Lot
_____ A Great Deal

12) How much do you enjoy finding quests, NPCs or locations that most people do not know about?
_____ Not At All
_____ A Little
_____ Some
_____ A Lot
_____ A Great Deal

13) How much do you enjoy collecting distinctive objects or clothing that have no functional value in the game?
_____ Not At All
_____ A Little
_____ Some
_____ A Lot
_____ A Great Deal

How much do you enjoy doing the following things in the game? (10 Questions)

1) Helping other players.
_____ Not Enjoyable At All
_____ Slightly Enjoyable
_____ Moderately Enjoyable
_____ Very Enjoyable
_____ Tremendously Enjoyable

2) Getting to know other players.
_____ Not Enjoyable At All
_____ Slightly Enjoyable
_____ Moderately Enjoyable
_____ Very Enjoyable
_____ Tremendously Enjoyable

3) Chatting with other players.
_____ Not Enjoyable At All
_____ Slightly Enjoyable
_____ Moderately Enjoyable
_____ Very Enjoyable
_____ Tremendously Enjoyable

4) Competing with other players.
_____ Not Enjoyable At All
_____ Slightly Enjoyable
_____ Moderately Enjoyable
_____ Very Enjoyable
_____ Tremendously Enjoyable

5) Dominating/killing other players.
_____ Not Enjoyable At All
_____ Slightly Enjoyable
_____ Moderately Enjoyable
_____ Very Enjoyable
_____ Tremendously Enjoyable

6) Exploring every map or zone in the world.
_____ Not Enjoyable At All
_____ Slightly Enjoyable
_____ Moderately Enjoyable
_____ Very Enjoyable
_____ Tremendously Enjoyable

7) Being part of a friendly, casual guild.
_____ Not Enjoyable At All
_____ Slightly Enjoyable
_____ Moderately Enjoyable
_____ Very Enjoyable
_____ Tremendously Enjoyable

8) Being part of a serious, raid/loot-oriented guild.
_____ Not Enjoyable At All
_____ Slightly Enjoyable
_____ Moderately Enjoyable
_____ Very Enjoyable
_____ Tremendously Enjoyable

9) Trying out new roles and personalities with your characters.
_____ Not Enjoyable At All
_____ Slightly Enjoyable
_____ Moderately Enjoyable
_____ Very Enjoyable
_____ Tremendously Enjoyable

10) Doing things that annoy other players.
_____ Not Enjoyable At All
_____ Slightly Enjoyable
_____ Moderately Enjoyable
_____ Very Enjoyable
_____ Tremendously Enjoyable

How important are the following things to you in the game? (8 Questions)

1) Leveling up your character as fast as possible.
_____ Not Important At All
_____ Slightly Important
_____ Moderately Important
_____ Very Important
_____ Tremendously Important

2) Acquiring rare items that most players will never have.
_____ Not Important At All
_____ Slightly Important
_____ Moderately Important
_____ Very Important
_____ Tremendously Important

3) Becoming powerful.
_____ Not Important At All
_____ Slightly Important
_____ Moderately Important
_____ Very Important
_____ Tremendously Important

4) Accumulating resources, items or money.
_____ Not Important At All
_____ Slightly Important
_____ Moderately Important
_____ Very Important
_____ Tremendously Important

5) Knowing as much about the game mechanics and rules as possible.
_____ Not Important At All
_____ Slightly Important
_____ Moderately Important
_____ Very Important
_____ Tremendously Important

6) Having a self-sufficient character.
_____ Not Important At All
_____ Slightly Important
_____ Moderately Important
_____ Very Important
_____ Tremendously Important

7) Being immersed in a fantasy world.
_____ Not Important At All
_____ Slightly Important
_____ Moderately Important
_____ Very Important
_____ Tremendously Important

8) Escaping from the real world.
_____ Not Important At All
_____ Slightly Important
_____ Moderately Important
_____ Very Important
_____ Tremendously Important

How often do you do the following things in the game? (8 Questions)

1) How often do you find yourself having meaningful conversations with other players?
_____ Never
_____ Seldom
_____ Sometimes
_____ Often
_____ Always

2) How often do you talk to your online friends about your personal issues?
_____ Never
_____ Seldom
_____ Sometimes
_____ Often
_____ Always

3) How often have your online friends offered you support when you had a real life problem?
_____ Never
_____ Seldom
_____ Sometimes
_____ Often
_____ Always

4) How often do you make up stories and histories for your characters?

_____ Never
_____ Seldom
_____ Sometimes
_____ Often
_____ Always

5) How often do you role-play your character?

_____ Never
_____ Seldom
_____ Sometimes
_____ Often
_____ Always

6) How often do you play so you can avoid thinking about some of your real-life problems or worries?

_____ Never
_____ Seldom
_____ Sometimes
_____ Often
_____ Always

7) How often do you play to relax from the day's work?

_____ Never
_____ Seldom
_____ Sometimes
_____ Often
_____ Always

8) How often do you purposefully try to provoke or irritate other players?

_____ Never
_____ Seldom
_____ Sometimes
_____ Often
_____ Always

Appendix F

Interaction Anxiousness Scale (IAS)

Answer each question by entering the number representing the best possible answer for you.

1. I often feel nervous even in casual get-togethers.

Not at all Characteristic of me				Extremely Characteristic of me
1	2	3	4	5

2. I usually feel uncomfortable when I am in a group of people I don't know.

Not at all Characteristic of me				Extremely Characteristic of me
1	2	3	4	5

3. I am usually at ease when speaking to a member of the opposite sex.

Not at all Characteristic of me				Extremely Characteristic of me
1	2	3	4	5

4. I get nervous when I must talk to a teacher or boss.

Not at all Characteristic of me				Extremely Characteristic of me
1	2	3	4	5

5. Parties often make me feel anxious and uncomfortable.

Not at all Characteristic of me				Extremely Characteristic of me
1	2	3	4	5

6. I am probably less shy in social interactions than most people.

Not at all Characteristic of me				Extremely Characteristic of me
1	2	3	4	5

7. I sometimes feel tense when talking to people of my own sex if I do not know them very well.

Not at all Characteristic of me				Extremely Characteristic of me
1	2	3	4	5

8. I would be nervous if I was being interviewed for a job.

Not at all Characteristic of me				Extremely Characteristic of me
1	2	3	4	5

9. I wish I had more confidence in social situations.

Not at all Characteristic of me				Extremely Characteristic of me
1	2	3	4	5

10. I seldom feel anxious in social situations.

Not at all Characteristic of me				Extremely Characteristic of me
1	2	3	4	5

11. I general, I am a shy person.

Not at all Characteristic of me				Extremely Characteristic of me
1	2	3	4	5

12. I often feel nervous when talking to an attractive member of the opposite sex.

Not at all Characteristic of me				Extremely Characteristic of me
1	2	3	4	5

13. I often feel nervous when calling someone I do not know very well on the telephone.

Not at all Characteristic of me				Extremely Characteristic of me
1	2	3	4	5

14. I get nervous when I speak to someone in a position of authority.

Not at all Characteristic of me				Extremely Characteristic of me
1	2	3	4	5

15. I usually feel relaxed around other people, even people who are quite different from myself.

Not at all Characteristic of me				Extremely Characteristic of me
1	2	3	4	5

Appendix G

Informed Consent Form

What is the purpose of this research?

To explore various individual factors associated with online game playing.

What will be expected of me?

You will be asked to answer various questions on a brief questionnaire.

How long will the research take?

It will take approximately 20 minutes to complete the online questionnaire.

Will my answers be anonymous?

Yes. Your name will not be used at all in this research. Your name will not be attached to the data in any way, and the researcher will not know how you answered the questions.

Can I withdraw from the study if I decide to?

Absolutely. You can withdraw from the research at any time by closing your web browser and your answers will not be used.

Is there any harm that I might experience from taking part in the study?

No. There is no foreseeable harm to the participants.

How will I benefit from taking part in the research?

You will obtain the satisfaction of knowing that you participated in a study that will shed light on why individuals play online games.

Who should I contact if I have questions or concerns about the research?

Contact Stephanie Stiles, Researcher at slstiles2@catamount.wcu.edu or Dr. Millicent Abel, Faculty Advisor at the Department of Psychology, Western Carolina University, Cullowhee, NC 28723 (828) 227-3369. You can also contact the Western Carolina University Institutional Review Board Chair at (828) 227-3177.

_____ Click here if you are **Female** and consent to participate

_____ Click here if you are **Male** and consent to participate

_____ Click here if you **DO NOT** wish to proceed