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Massively Multiplayer Online Gamers: Motivations and Risks

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ACCEPTANCE

This dissertation, MASSIVELY MULTIPLAYER ONLINE GAMERS: MOTIVATIONS AND RISKS, by AMANDA MARIE WOLFE, was prepared under the direction of the candidate's Dissertation Advisory Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree Doctor of Philosophy in the College of Education,

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ABSTRACT

MASSIVELY MULTIPLAYER ONLINE GAMERS:
MOTIVATIONS AND RISKS
by
Amanda M. Wolfe

Massively multiplayer online games (MMOGs) are a popular type of online video game. While these games and their players have been studied previously, there is gap in the literature that examines the relationship between one's motivation to play MMOGs and loneliness, depression, and problematic use. For this study, 440 players of *World of Warcraft* (*WoW*), a popular MMOG, completed a demographics questionnaire and four measures, including Williams, Yee, & Caplan's (2008) motivation measure, Peter's & Malesky's (2008) *World of Warcraft*-specific Problematic Usage-Engagement Questionnaire, UCLA's Loneliness scale, and The Depression Anxiety Stress Scales. Results from quantitative analyses suggest that MMO players who are motivated to play for reasons of achievement and immersion are more likely to experience problematic use than those persons who play for social motivations. Loneliness and depression were only positively related with immersion motivated players, and there exists a significant negative relationship between social motivation and depression. These results suggest that gamers who play *WoW* for immersive reasons are the most at-risk in comparison to their peers. Implications for counseling, limitations, and directions for future research are discussed.

MASSIVELY MULTIPLAYER ONLINE GAMERS: MOTIVATIONS AND RISKS

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Amanda M. Wolfe

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ABBREVIATIONS

AOL	America Online
EQ	*EverQuest*
EQ2	*EverQuest 2*
FPS	First Person Shooters
FtF	Face-to-Face
IRL	In Real Life
LAN	Local Area Network
MMO	Massively Multiplayer Online
MMOG	Massively Multiplayer Online Game
MMORPG	Massively Multiplayer Online Role-Playing Game
MUD	Multi-User Dungeons or Multi-User Domains
PC	Personal Computer
PIU	Problematic Internet Use
PvE	Player versus Environment
PvP	Player versus Player
RP	Role-Play
WoW	*World of Warcraft*

CHAPTER 1

MASSIVELY MULTIPLAYER ONLINE GAMES:

VIRTUAL WORLDS WITH REAL EFFECTS

In the United States the Internet has become an integral part of most persons' lives. For the first time since its inception, U.S. households that have home access to the Internet spend as much time online as they do watching TV (Anderson, Reitsma, Sorensen, & Munsell, 2010). The number of households with access to the Internet continues to rise (U.S. Census Bureau, 2009), and it is currently estimated that 74% of U.S. adults go online at some point in their lifetime (Jones & Fox, 2009). It is estimated by 2015, 82% of all households in the U.S. will have access to the Internet (Anderson et al., 2010). While there is a multitude of activities a person can perform on the Internet, the five most common activities among online adults are watching videos, getting job info, sending instant messages, downloading music, and using social networking sites (Jones & Fox, 2009). Playing Internet- based games is the sixth most common online activity for adults who access the World Wide Web with 50% of persons aged 18-32 and 38% of people aged 33-44 logging on to play (2009).

Over half (53%) of adults in the U.S. play some sort of video game, whether on a computer, a gaming console, or a portable gaming device (Lenhart, Jones, & Macgill, 2008), and many games today include some sort of online component. In the U.S., people are more likely to pay to play a video game than to pay to see a movie (Whitney, 2009). While teens aged 12-17 are more likely to play video games than adults, adults are more likely to play video games on a personal computer (PC), and it is through a PC that gamers can connect to the Internet. Lenhart et al. (2008) found that 38% of all adults in

the U.S. and 73% of adult gamers used the computer more than another device, such as a console or portable device, for gaming. Playing games on a computer allows games to capitalize on access to the Internet, which leads to three main types of online computer gaming: stand-alone games, Local Area Networked gaming (LAN), and massively multiplayer online games (MMOGs; Griffiths, Davies, & Chappell, 2003). Stand-alone games are single player games designed so a gamer can play against the computer or choose to go online to play against another opponent. LAN gaming is a type of gaming, rather than a type of game, where users hook their computers together directly or through servers to hold tournaments and compete against one another. Any genre of game that allows for online or multiplayer play can be played through a LAN system, but LAN gaming is currently most often used with First Person Shooters (FPS) games (Jansz & Martens, 2005). MMOGs are the third type of online computer game and the focus of this article.

MMOGs get their name from three additional characteristics, in that they allow for a large number (*massively*) of participants to play simultaneous (*multiplayer*) through a connection to the Internet (*online*). The majority of MMOGs also has a role-playing element (RP), in which players assume alternative roles or characters within a fictional game-world, and these games are also referred to as MMORPGs. MMOGs, one of the fastest growing segments within the online computer industry, stand out as they allow for a rich, detailed game-world combined with the ability to connect thousands of players together in an immersive game community. MMOG's accounted for over a quarter of the $44 billion revenue generated by the video game industry in 2009 (Gamasutra, 2009), and gamers in the United States spend more than players from any other country on

MMOGs (Skelton, 2010). Clearly, the MMOG is a popular choice among U.S. gamers producing a substantial amount of revenue for the game industry and becoming a large part of people's leisure time. As a field that specializes in human behavior, counselors need to be more informed of this choice of online activity and how, for some MMOG players, there are negative consequences to their play and possible problematic use.

History of MMOGs

MMOGs trace their origins back to Multi-User Dungeons or Multi-User Domains (MUDs),[1] online sites where users interacted and played games that were entirely text-based[2] (Barnett & Coulson, 2010; Bartle, 2010; Yee, 2006c). The game play in these early MUDs, typified by dial-up access to early networks, was often goal-oriented (Yee, 2006c). These text-based games became explosively popular when America Online (AOL) first reduced their prices to a monthly subscription fee in 1996 (Bartle, 2010). As the Internet became increasingly accessible and affordable, these online worlds became graphical. One of these new graphics games, *Ultima Online*, significantly changed the MUD world. Released in 1997 as a subscription-based game, *Ultima Online* has been described as "a *world* rather than a *game*" (Bartle, 2010, p. 33). This particular game is recognized as the first MMORPG, as it was persistent and graphical, while containing the online capabilities to support thousands of simultaneous users (Yee, 2006c). The outright success of *Ultima Online* lead to the first fully 3D virtual game-world and MMOG, *EverQuest (EQ)*, which within 6 months became the #1 played MMOG in the West (Bartle, 2010, p. 33).

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[1] The terms MUD, MUSH (Multi-User Shared Habitat), and MUCK (Multi-User Chat Kingdom) are basically interchangeable as the scope of this article is on MMOGs.

[2] By text-based, Bartle (2010) explains "meaning that everything the characters did, saw, heard or otherwise experienced was reported in worlds" (p. 25). This was usually against a black background on the computer screen.

As MUDs were transforming from textual to graphics-based and thus, becoming MMOGs, computer games were beginning to have online components to game-play. Prior to online connectivity, players often linked their computer together through LAN connections. This required all computers and gamers be in the same room, and generally came to be described as LAN-parties. LAN-parties hosted in the homes of gamers continue to a lesser degree today, but some of these events are hosted by game companies and are incredibly popular in the first-person shooter game genre (Jansz & Martens, 2005; Morris, 2003). Two of the reasons for the decline of LAN-parties were the development of *Battle.Net* and the increased speed of connection to the Internet. *Battle.Net* was created by Blizzard, a gaming company who also published *Warcraft* and *Starcraft*, and launched in 1997 with the *Diablo II* game (Morris, 2003). The *Battle.Net* interface allowed players to use their connection to the Internet to connect to other players or opponents all over the world (Cox, 2000). This type of multiplayer interface combined with the increased speed of the Internet revolutionized the gaming industry by enhancing accessibility and providing more appealing graphics.

Though the list of MMOGs released from the early time period (mid-late 1990s) and today is long, "there are two, however, that merit special mention: *Second Life* and *World of Warcraft*" (Bartle, 2010, p. 35). *Second Life* is unique because there is no game play at all, thus not a true MMOG, but instead is solely a virtual world. As this article focuses on MMOGs, *World of Warcraft* (*WoW*) is more critical to the discussion. *WoW*, a Blizzard game, currently boasts 12 million subscribers around the world (Caoili, 2010), and as the most popular subscription-based MMOGs, it is available in eight languages (at the time of this writing) and played in North America, Europe, mainland China, Korea,

Australia, New Zealand, Singapore, Thailand, Malaysia, Indonesia, the Philippines, Chile, Argentina, and the regions of Taiwan, Hong Kong, and Macau (Caoili, 2010).

Characteristics of MMOGs

MMOGs are persistent, immersive game-worlds that use rich, vivid graphics to connect players in play. The persistence of the MMO game-world is important, as it sets MMOGs apart from stand-alone computer games. A persistent game-world is one that exists independent of the users, before they log into the game and after they exit (Yee, 2006a). This independence allows for logged in players to continue to exist, interact, and change the world while other players may be logged off. The game-world has a sense of physicality, in that time, space, and laws of physics are digitally represented (Chan & Vorderer, 2006). Players can then interact through their avatar[3] in-real time, and connect with other users through a combination of text-based communication and voice-over-IP spoken chat (Yee, 2006c). The game play can continue in perpetuity, meaning that there is no final end or finish to the game (Chan & Vorderer, 2006).

Human players are represented in the game-world by a figure, called an avatar, which interacts both with the game environment and with other players, even performing gestures in the game as a type of visual emoting (Griffiths et al., 2003; Steinkuehler & Williams, 2006). In general, players are given significant freedom in the customization of their avatar (or avatars for multiple characters) in a range of identities, genders, or other demographics (Griffiths et al., 2003; Yee, 2006c). Interestingly, there is a common occurrence among gamers of making avatars that are different genders than that of the gamer. Hussain & Griffiths (2008) found of their 119 participants who were all online

[3] Avatars are online representations for the user, and are generally humanoid characters. In MMOGs, the avatars have a range of movements and actions. This is in opposition to the use of avatars on forums and social media sites, which is generally a static picture or image used to represent the poster.

gamers, 54% of males and 68% of females had gender swapped. Furthermore, in addition to the game-play, many MMOGs allow for characters to also perform professions, crafts, or roles in which characters may engage, which affects the avatar appearance (Yee, 2006c).

There are two overall types of play within most MMOGs, player versus player (PvP) and player versus environment (PvE). In PvP play, gamers will battle other gamers in combat that involves the fighting and possible killing of the other character in the gameworld. Whereas in PvE play, gamers battle the environment of the game and complete challenges. As these types of play have different rules, the variant game-worlds are housed on different servers[4]. Gamers make a choice as to which type of game-world they want to play in by logging into a server labeled either PvP or PvE. *WoW*, currently the most popular MMORPG (Caoili, 2010), has servers that host both of these types of game-world, as well as role-playing (RP) servers. RP servers are similar to PvE, but enforce additional rules on character creation and in-game behavior to support the role-play immersive experience (Blizzard, 2011). Currently, PvE game-play is the most common form of game play and PvE servers are often referred to as "normal" servers. PvP-gamers interact often with other gamers and while PvE- gamers can choose to play solo, many MMOGs offer special quests, levels, or areas of the game for players who play in groups, which highlight the core quality that MMOGs are social games by definition.

[4] A "server" is a specialized type of computer that hosts or houses programs. Game servers are typically owned by the company that produced the game, though player-owned servers are possible in some MMOGs.

Social Groups

A player can interact with other players in several ways. As previously discussed, players can engage in game combat with one another on PvP servers. Additionally, players can join up with other players in groups to complete challenges in the game. Some of these groups are formed through established in-game or out-of-game friendships, sometimes referred to as a party, and some groups are formed among characters that may not know each other and will only be members of the group for that gaming session, referred to as pick-up groups (PUGs). The most organized gaming group structure is a guild.

Guilds are important in game play, as they allow large numbers of players to connect together to achieve goals. Guilds are organized by the type of goal members attempt to achieve, such as PvP guilds, RP guilds, social guilds and raid guilds. PvP and RP guilds facilitate that type of play among members, where social guilds are ones where social interactions are primary and game goals are secondary. Raiding guilds facilitate members joining large teams and schedule in-game events against game challenges. These in-game events are referred to as "raids" and depending on the ability of the guild to organize its members successfully against game challenges, raid guilds can be fairly prestigious and elite. Williams et al. (2006) found that 60% of their sample, a census collected over a month in *World of Warcraft*, belonged to purely social guilds and 35% belonged to raiding guilds. Guilds can vary in size and the general rule is smaller guilds are more social and as guilds grow in size, they focus more on play goals as social activities become impractical (2006, p. 346).

Players in a Social Game

To enhance cooperative or combative play gamers must be able to communicate with one another, and this is accomplished in several ways through the game. Gamers can type text which appears on-screen, similar to a chat room, which occurs in real time during game-play. Gamers can also send text-based messages privately to players or emails, or discuss topics while not playing the game on Internet-based discussion forums. Finally, gamers can use voice-over-IP technology to speak and hear one another in real time (Griffiths et al., 2003). Voice-over IP technology has become commonplace in computer gaming, and allow gamers to speak to each other as if they were in the same room. Being able to communicate in real time adds to the social experience within the game.

The relationships gamers form, either in guilds or in the vast game-world, become important to players. While many gamers play with other gamers they have never met, some play with real-life friends and family members. Williams et al. (2006) found that 75% of the small guilds they examined in *WoW* were founded by groups of real-life friends and/or family. Male and female players have reported sharing personal thoughts and secrets in their relationships with other players, information some of which they never told their in-real life (IRL) friends (Cole & Griffiths, 2007; Yee, 2006a). Furthermore, results from recent studies have found that nearly 40% of adult male players and over 53% of adult female players considered their relationships with online friends to be comparable or better to their IRL friends (Cole & Griffiths, 2007; Yee, 2006a). Williams et al. (2006) states "Players were keenly aware of the benefits and costs of starting, maintaining, and ending friendships formed through *WoW*" (p. 351). The

majority of the sample (70%) chatted regularly with their guild-mates[5], and in Williams et al.'s (2006) findings, it was common for gamers to consider guild-mates as both similar to their real-life relationships and relative strangers at the same time. In some cases, the friendship built online lead to meeting IRL (Cole & Griffiths, 2007).

MMOGs are social games, where gamers build relationships to other gamers and to groups within the game, and gamers share a sense of community. Having a sense of community can be defined as having four major qualities; membership, influence, integration and fulfillment of needs, and a shared emotional connection (McMillan & Chavis, 1986). Membership is a feeling of belonging, which is a sense that you are valued or important to a group (Hagerty, Lynch-Sauer, Patusky, Bouwserna, & Collier, 1992). Influence is a member's sense of making a difference, or mattering, to the other members and to the group as a whole. Further, a member believes their needs will be met by the group and that members believe they share similar experiences (McMillian & Chavis, 1986). McMillian (1996) later added having a sense of trust to the definition of sense of community.

Sense of community generally refers to neighborhoods or to face-to-face (FtF) groups, but recently the concept has been applied to virtual communities. Sense of virtual community is similar to sense of community in that it shares a concept of membership and belonging as well as a sense of influence (Blanchard, 2007; Koh & Kim, 2003). Koh & Kim (2003) connected the concepts of immersion to sense of virtual community due to virtual members' tendency to act with total involvement, or having a state of flow. This change sets the definition of sense of virtual community apart from sense of community and defines sense of virtual community as having three qualities;

[5] The term "regularly" was not defined by the authors.

membership, defined as a sense of belonging, a feeling that one can influence other members, and immersion, in that members experience a state of flow while navigating the virtual community (p. 77).

Research has started finding the concepts of sense of virtual community within MMOGs. Longman, O'Connor & Obst (2009) found the *WoW* gamers did report having a sense of belonging, as measured by the belonging subscale of the Interpersonal Support Evaluation List, and that this sense of belonging was significantly affected by a gamers' length of time playing. Further, the study found that *WoW* gamers reported deriving social support from the game, particularly social companionship, and that higher level of involvement in the game and a longer history of playing were also associated with higher levels of reported in-game social support.

MMO Gamer Characteristics

Williams (2003) qualitatively examined news magazines from 1970-2000 for mentions of video games (119 articles) and found that in the media, video games were typically depicted by the following: (1) advertised to and associated with males more than females; (2) associated with male children, specifically high-school age and younger; and (3) linked with health risks and social isolation, which has contributed to the stereotype that online gamers are male teenagers who are overweight and socially isolated. Consistent with the images in the media, the gender distribution of MMOG players has been shown in the literature to be consistently skewed towards male players with over 70% of most samples reporting as male (see Bessiere, Seay & Kiesler, 2007; Cole & Griffiths, 2007; Griffiths et al., 2003; Griffiths, Davis & Chappell, 2004; Williams et al., 2008; Yee, 2006c). Interestingly, in Williams et al. (2008) sample of

7,000 *EverQuest 2* (*EQ2*) players, female players played slightly more hours than males per week. However, children and teens do not dominate MMOGs, as findings have consistently supported that the majority of players are adults (see Cole & Griffiths, 2007; Griffiths et al., 2003; Griffiths et al., 2004).

Yee (2006c) collected data from 30,000 MMOG players over four years and found that only a quarter of players are teenagers and the average age was 26.57 years old. An even older median was found by Williams et al. (2008), in which their sample of 7,000 of *EQ2* players had a median age of 31.16. Also, older gamers may play more often than younger gamers. In Williams et al. (2008) hours played per week of *EQ2* steadily increased with age, but this was not true of Yee's (2006c) sample of general MMOG players. However, when looking at video games overall, almost a third of gamers 65 or older report playing every day or almost every day, compared to only 20% of younger players who play every day (Lenhert et al., 2008).

A high level of time investment appears to be typical for MMOG players, with most studies showing an average playing time between 20-25 hours per week (Cole & Griffiths, 2007; Griffiths et al., 2003; Williams et al., 2008; Yee, 2006c). Hussain & Griffiths' (2008) study was an exception to this trend, showing a lower average of 17.46 hours per week in their 119 MMOG players. This level of game play is unique to MMOGs, as adult players (18-32) of video games have recently been shown to play an average of 9.73 hours per week (Wack & Tantleff-Dunn, 2009). Furthermore, Smyth (2007) assigned gamers to one of four types of games (arcade, solo console, solo PC, and MMORPG) and found that members of the MMORPG group reported playing significantly more hours than persons in any other video game group.

While the average play time is similar to that of a part-time job, there is a subgroup of gamers who spend as many hours playing MMOGs as would be typical of a full-time job. Approximately 10% of samples show gamers playing 40 hours or more each week on MMOGs (Cole & Griffiths, 2007; Griffiths et al., 2003; Longman et al., 2009; Williams et al., 2008; Yee, 2006c). Cole & Griffiths (2007) even found 3.6% of their sample of MMOG players (N = 912) reported playing 60 hours or more a week. To accommodate this significant time commitment, gamers play MMOGs most days of the week and for long sessions. Hussain & Griffiths (2008) examined these gaming sessions and found that almost half of their sample of MMOG players (N = 119) played 3.5 hours every gaming session and that 80% played between 4 and 10 sessions a week. Clearly, MMOGs can become an activity to which players devote a significant amount of their time.

While there is evidence of prevalence and duration of MMOG play, the current body of literature on MMOG players lacks adequate explanation of how players are introduced to these games. Yee's (2006a) found that female players were most often (26.9%; n = 420) introduced to the game by a romantic partner, compared to only 1% of male players (p. 316); however, the author does not report anything further to how male players commence playing. Cole & Griffiths (2007) found that 26.3% of their overall sample (N = 912) played with family and real-life friends, and female players were more likely than male players to play with both; however, it is not clear from the article if the females in this study were introduced to the game by these family and friends with which they play.

Gamer Quality of Life

In the media representations Williams (2003) examined, video gaming was associated with health risks and social isolation. As MMO gaming seems to become a significant activity in the lives of players, it is crucial to examine the quality of life that gamers experience to better understand if there are indeed physical and mental health risks. Furthermore, for counselors, it is critical to examine gamers' mental health, their relationships, and their sense of self.

The primary factor used to assess physical health in the literature on MMOG players has been Body Mass Index (BMI). Wack & Tantleff-Dunn (2009) studied 172 video game players and found an average BMI of 24.33 and no correlation between the frequency of play and BMI. Williams et al. (2008) found the average BMI for MMO gamers in their sample of 7,000 *EQ2* players was 25.19. The normal range for BMI for adults is between 18.5 and 24.9, with under 18.5 being underweight and 25 and over being overweight (CDC, 2011). Thus, the BMI for video gamers is in the normal range, and the MMOG-specific BMI is barely considered overweight. Both of these BMIs are healthier compared to the U.S. national average of 28 (Ogden, Fryar, Carroll, & Flegal, 2004). However, there are other measures of health. Williams et al. (2008) also found that *EQ2* gamers reported their health as "good" or better on a 4-point scale ($M = 1.92$, $SD = 0.74$), and the average amount of vigorous exercise MMO gamers perform is between one and two times a week (p. 1005). In 2005, almost 40% of adults in the U.S. engaged in no leisure-time physical activity and only 30% of adults engaged in regular leisure-time physical activity (Barnes, 2010). These results show that MMO gamers engage in healthy exercise more often than the national average. In contrast to these

finding, Smyth (2007) found that the MMORPG group self-reported significantly worse overall health and sleep quality in comparison to arcade, solo console, and solo PC gamers.

In spite of the slightly healthier BMI, MMOG players have been found to have lower mental health functioning than the general population. Williams et al. (2008) found that *EQ2* players reported history of depression more frequently than members of the general U.S. population, particularly female players (36.52% of female players compared to 23% as the female national average). Williams et al. (2008) also found that 5.6% *EQ2* players in their sample reported a history of substance dependence, which is slightly higher than the general public (4.8%).

There are mixed results when examining anxiety in MMOG players. Williams et al. (2008) found 16.6% of *EQ2* players reported a history of diagnosis of anxiety disorders, which is significantly lower than national average (18.1%). Longman et al. (2009) studied 206 *WoW* gamers and found that gamers who played 45 or more hours per week had higher total scores on The Depression Anxiety Stress Scales (DASS)-21 than gamers who played less than 45 hours per week. However, the study did not report the sub-scores for depression and anxiety, only the total score, so it is unclear if players scored higher on either factor. It is unknown if these results are due to playing MMOs or if these games attract players who already exhibit these symptoms.

As these games are social games, there has been some research on users' sense of social support. In addition to the studies discussed in the previous section on relationships built in the game, Longman et al. (2009) found that players who played regularly with both friends and guild-mates, and communicated with players outside of

the game reported significantly higher levels of in-game social support. That study also found that the longer a gamer had been playing, the stronger their sense of belonging. Smyth (2007) found that players who were randomly assigned to the MMOG group reported greater enjoyment of the game, greater interest in wanting to continue to play, and a greater degree of new online friendships. Cole & Griffiths (2007) found that some of the players in their sample reported feeling "more themselves" when playing, and that the number of hours per week spend gaming was greater for those players. Cole & Griffith suggest that the virtual social worlds in MMOGs "may allow players to express themselves in ways they may not feel comfortable doing in real life" (2007, p. 583).

However, Smyth (2007) also found the players in the MMOG group reported the game interfered with their real-life friends more frequently than the other groups (arcade, console, and stand-alone PC). About a fifth of gamers in Cole & Griffith's (2007) study believed MMOG play had a negative effect on relationships with people with whom they do not play the game. Longman et al. (2009) also found that high users reported less social support and less sense of belonging when offline compared to low users. In addition to problematic relationships outside of the game, some players experience problems within the game. Cole & Griffith (2007) found 2.6% of their sample believed MMOG play had a negative effect on their relationship with people with whom they do play.

There also seems to be some positive skill acquisition learned through MMOGs. Yee (2006c) found that a strong proportion of MMO gamers reported that their leadership skills had improved in their real lives in conflict mediation, group motivation, persuasion, and their comfort level with leadership. These gamers attributed these increases in

leaderships to their experiences of leadership in the games, such as in guilds. Frank, Sanbou, & Terashima (2006) assigned participants to play a MMOG and found significant improvements in participants typing skill, online communication skills, and knowledge of the Internet, particularly by those who started with the least amount of experience with the Internet.

Related to leadership, there have been some recent results regarding expertise and mentorship in MMOGs. Huffaker et al. (2009) examined 1,475 *EQ2* players over a 5-day period and found that players who are considered experts by other players (due to achievements and experience points) are sought after by other players for their expertise, and that those who accumulate a lot of achievements are more likely to both receive messages in the game and initiate new conversations. Huffaker et al. (2009) also found that lower-level players seek out advice from higher-level players even if they are strangers. Ahmad et al. (2010) found evidence of mentoring behaviors among *EQ2* players and that in-game mentors displayed different motivations for mentorship, such as helping friends, helping guild-mates, and receiving additional rewards and achievement in the game. It is unknown if the experience of being an in-game mentor translates to mentorship skills IRL, however.

Motivations for Play

Another critical area in the characteristic of MMO gamers is their motivations for play. The social aspects of these games and their unique interpersonal qualities have already been discussed, so we turn to psychological motivations for play. Bartle (1996) put forth a four type model for players based on their motivations for playing in virtual worlds. These four types consisted of Achievers, Socialisers, Explorers, and Killers.

Achievers are motivated by accomplishments within the game, such as gathering points and completing goals. Socialisers are motivated by interpersonal aspects and getting to know other players. Explorers are motivated to explore the game-world and are most interested in figuring out how the game works. Finally, Killers are most interested in imposing their character on other players, possibly in combat. In addition to outlining these four categories of player motivations, Bartle (1996) also described how each of these four player types might interact with one another (see Table 1). Bartle's (1996) model is widely cited in spite of the fact that it was not based on empirical data, but instead on the author's vast, significant experience creating and managing MUDs (Yee, 2006a).

Table 1

Bartle (1996) Interaction Summary

	Achievers	Socialisers	Explorers	Killers
Achievers	cooperation or competition	boring	eccentric or poor player	necessary, but frustrating
Socialisers	provide things to talk about in-game	enjoy sharing with them	need to be more social	really dislike
Explorers	unimportant	unimportant	enjoy sharing with them	necessary, but frustrating
Killers	natural prey	pushovers	cooperation or avoid	ignore

Note. This table summarizes how the four types of Bartle's (1996) player taxonomy were described to interaction with each other. This table does not appear in Bartle's work.

Yee's (2006a) examined responses to open-ended questions and generated a measure based on Bartle's typology. Using the new measure, he then collected responses from 6,675 MMOG players. Five factors emerged as significant motivating factors for play; Achievement, Relationship, Manipulation, Immersion, and Escapism. The first three mapped onto Bartle's (1996) types – Achievers, Socialisers, and Killers. Yee (2006a) added to the description of Achievers that they are motivated to be powerful within the game-world. Also, Killers were renamed Manipulation to highlight their motivation to use other players for gain within the game. Interestingly, Yee (2006a) found that interest in game mechanics and exploring the game-world was not a significant factor, so the data did not support an Explorer motivation. Instead two new factors emerged – immersion and escapism. Immersion described players who enjoy spending time developing their characters, being someone else, and being within another world, whereas Escapism focused on players who used the MMOGs to avoid real-life stress.

Yee (2006a) further analyzed this data and found significant differences around gender and motivation, as well as, around hours played and motivation. Players who identified as male were more likely to score high on Achievement and Manipulation as motivating factors, whereas players who identified as female were more likely to score high on Relationship, Immersion, and Escapism. Relationship and Escapism correlated with hours played for gamers of both genders (2006a).

Yee (2006b) retested his motivation measure on 3,000 additional MMOG players. He found that there were three main motivation components (Achievement, Social, and Immersion), each of which had 3-4 subcomponents, and the three main components

accounted for 55% of the overall variance within his sample. Manipulation, again renamed to competition, became a subcomponent under Achievement, along with advancement and mechanics. Escapism became a subcomponent under Immersion, along with discovery, role-playing, and customization. Finally, the Social motivation component was rounded out with socializing, relationship, and teamwork subcomponents. Again, players who identified as male scored higher on the Achievement main component. Interestingly, players who identified as female scored higher on the relationship subcomponent, but there was no gender difference in regards to the socializing subcomponent, highlighting again that the core social feature of these games is of interest to all players (2006b).

Williams et al. (2008) successfully replicated this new organization of motivations in their sample of 7,000 *EQ2* players, finding that the three main factors accounted for 60% of the variance. Interestingly, Williams et al. (2008) found that Achievement and Social motivations predicted an increase in the number of hours per week played, whereas, surprisingly, Immersion had a negative relationship, predicting a decrease in the number of hours per week played.

Problematic Use

While terms like "compulsive" and "addiction" have been applied to the use of the Internet, in this article the term "problematic" will be used to describe online gaming that causes difficulty for users. The reason for this decision is twofold. First, "addiction" generally refers to behavior that has been operationally defined into criteria for a diagnosis. No such diagnosis exists for computer behavior, particularly for online gaming. Second, while some MMOG players will experience no negative effects and

instead, experience significant positive effects (Charlton, 2002; Longman et al., 2009; Yee, 2006c), some players will experience problems resulting from their online gaming activity. Thus, the use of the term "problematic" will be used to describe gamers of interest.

In regards to general Internet use, it has been theorized that individuals who suffer from psychosocial distress, particularly social anxiety, and who lack self-presentation skills are more likely to develop a preference for online social interaction, due to perceptions that those interactions will be less threatening than FtF interactions, and this preference puts those persons at higher risk of general problematic Internet use (Caplan, 2003, 2005, 2007; Morahan-Martin & Schumacher, 2000). Problematic Internet use (PIU) has been described as "a multidimensional syndrome that consists of cognitive, emotional, and behavioral symptoms that result in difficulties with managing one's offline life (Caplan, Williams, & Yee, 2009), and consists of use of the Internet in general. Caplan, Williams, &Yee (2009) tested this model of PIU in MMO gamers (N = 4,278 *EQ2* players) and found that the psychosocial predictors of PIU were "loneliness, introversion, aggression, addiction, and depression" with loneliness being "the single most influential predictor" (p. 1318). While this study examined PIU in MMOG players, problematic use of MMOGs is an entirely different phenomenon as PIU refers to general Internet use, and MMOGs are a specific activity which uses the Internet in-game play.

Problematic MMOG Use

To explore the possibility of problematic MMOG behaviors, Griffiths (2010) gave specific examples for each of the six core components of addiction in relationship to online gaming and highlighted two case studies of MMO gamers. These six components

were salience, mood modification (changed from euphoria), tolerance, withdrawal symptoms, conflict and relapse (Griffiths, 2005), and are based upon the early work of Brown (1991, 1993, as cited in Charlton, 2002). Specific to MMOGs, salience is when online gaming becomes a highly important activity in a player's life and they become preoccupied thinking about the game (Griffiths, 2010). Mood modification occurs when players report positive changes in mood when playing, such as using it for coping, feeling tranquilized or feeling aroused. Tolerance is the process where a player need to game more to achieve the mood modification effect they previously enjoyed at less frequent play. Withdrawal symptoms are any unpleasant effects that occur when a player cannot game. Conflict occurs when the gaming negatively affects interpersonal relationships, other activities, and the players themselves. Finally, relapse is the tendency to return to the game after attempting to reduce play (2010).

In spite of the lack of a single agreed upon set of criteria for problematic MMOG use, MMO-gamers as a community have accepted the term of "addiction" to label their behaviors and the behaviors of others in the community (Chappell, Eatough, Davies, & Griffiths, 2006; Hussain & Griffiths, 2009a; Yee, 2006c). The most surprising finding in Yee's (2006c) survey was "50% of respondents (n = 3166) considered themselves addicted to an MMORPG in a direct 'yes'/'no' question" (p. 22). No published study has examined the community's standards for their use of the term, and thus, we must continue to narrow down the academic and clinical definitions of problematic MMOG use. In the meantime, research has started to outline some of the features association with problematic, or excessive, MMOG playing.

Hussain & Griffiths (2009b) surveyed 119 MMO gamers and put gamers who played 35 hours or more a week in the excessive category. Excessive gaming was correlated with higher psychological and behavioral dependence scores on an adapted version of the Exercise Addiction Inventory (gaming swapped for exercise, p. 567). In regards to mood modification, Wack & Tantleff-Dunn (2009) found that almost half of their participants of video game players reported they played when bored, about 35% played to relieve stress, and just over 15% played when lonely. Hussain & Griffith's (2009a; 2009b) studies found similar numbers in their sample of MMOG players, where nearly a third agreed or strongly agreed that MMOG playing changed their mood. It is unclear in the literature if a tolerance is experienced in relation to this mood modification in MMOG playing. Withdrawal is signaled by unpleasant effects when a gamer is no longer playing at previous frequency. Yee (2006c) found that 15% of respondents became angry or irritable if unable to play and 30% continue to play even when they are not enjoying it. Several *EQ* gamers in Chappell et al. (2006) study used language like "withdrawal pains" to describe their experiences when trying to cut down, which they also labeled as trying to "wean myself off" and going "cold turkey" (p. 211).

Consequences are another core component, and some of the negative consequences to physical and mental health have been previously discussed in this article. Additionally, Yee (2006c) found 18% of MMO gaming participants agreed that their game play had created academic, health, financial or relationship problems. Chappell et al. (2006) conducted a phenomenological study on 12 *EQ* gamers, and found that "Many of the accounts detailed not only neglect of self and others but also the use of deception to hide the extent of their playing" (p. 210). However, Griffiths et al. (2004)

found that among their 540 *EQ* players, almost half (48.4%) reported that they sacrificed either nothing or just another hobby to play the game. Other responses included sacrificing sleep (18.1%), work/school (9.6%), socializing with a partner or family (10%; p. 483).

Finally, relapse is a phenomenon that has not been well described in the MMOG literature. Chappell et al. (2006) found that some of the interviewees had resumed playing *EQ* after a period of giving it up and that some used the language of relapse to describe this, but no study specifically focuses on relapse experience of MMOG players. Chappell et al. (2006) found that all six of Griffiths (2005) core components were described by participants and that while most of the 12 gamers interviewed alluded to the components, none of them mentioned all of them in their accounts. Additionally, some of the interviewees also mentioned the experience of cravings, but the authors did not go into detail about this aspect. These findings taken with the previous studies suggest that some gamers do develop a possible problematic relationship with these games.

Immersion, Time-Loss and High Engagement

There are three phenomena that have been linked to MMO gaming, which are not described in Griffith's (2005) core components, specifically immersion and escapism, time-loss, and high engagement. One of the core motivations for playing MMOGs is Immersion, which Yee (2006b) described as having a discovery, a role-playing, a customization, and an escapism component. However, the literature on immersion and escapism is inconclusive. Williams et al. (2008) found that the Immersion motivation as described by Yee (2009b) was linked to less gameplay time, with all four subcomponents negatively correlated with game play time. Further, that study found that the

Achievement motivation and social time component on the Social motivation factor were correlated with increased playtime. Related to problematic use, Yee (2006b) found that the best predictors of a high score on Young's (1998) measure of general Internet addiction for MMOG players (N = 3,000) were, in order, the escapism motivation subcomponent ($p < 0.001$), hours of play per week, and the advancement subcomponent. The link between escapism and immersion with gameplay time is unclear, though escapism seems to be linked to PIU when defined as general Internet addiction.

Interestingly, Koh & Kim (2003) noted that one of the core concepts of a sense of virtual community was immersion. Furthermore, that study showed that immersion was influenced by the enjoyability of the activity and that off-line activities did not affect one's sense of immersion (2003, p. 86). Possibly in line with this finding, Hussain & Griffiths (2009b) found that 59% of their sample of gamers (N = 119) reported that they did not play to escape their day-to-day life.

Related to the concept of immersion, some gamers experience a sense of time-loss, where they play longer than intended or lose track of the movement of time. In Hussain & Griffiths (2009a), a third of gamers (n = 22) experienced a sense of detachment from real life and a more than a third (n = 25) played longer than intended and experienced time-loss, sometimes so much so that gamers set alarms to remind them of the movement of real time. These numbers are lower in comparison to other types of video games (console, stand alone, computer, etc.). Wood, Griffiths, & Parke (2007) found that 99% of their sample of video game players (N = 280) reported some time-loss, with almost half of the sample responding that it was frequent and a third reporting it occurred all the time. Hussain & Griffiths (2009b) also found that MMO gamers who

identified as male in their sample were more likely than those who identified as female to play longer than intended (39% versus 9%), which is different Wood et al. (2007) findings of no gender differences among general video gamers.

Charlton (2002) surveyed 404 students and developed a three factor model (engagement, addiction, and comfort). High engagement was assessed by the Computer Apathy Anxiety Scale and was defined as one end of a spectrum "where individuals spend a great deal of time in computing activities, without deleterious effects" (2002, p. 332). The other end of the spectrum was very low engagement, or apathy, where one is not spending time in computing activities or does not care about the activity. These three factors explained 43% of the overall variance with 28% coming from the engagement factor and 11% from the addiction factor (2002). Interestingly, cognitive salience, euphoria, and tolerance loaded on the engagement factor and not on the addiction factor, which included withdrawal, relapse and reinstatement, conflict, and behavioral salience. Charlton (2002) suggested that these factors could be thought of in terms of a developmental model where "before reaching addiction, one progresses through a stage of high engagement at which there are no major negative consequences" (p. 339).

Extending this model to MMO gaming, Charlton and Danforth (2007) surveyed 442 players of the MMOG *Asheron's Call*. The authors were able to support the same model for MMO gaming as they did for general computing behavior, in that "the study supported the idea that the criteria of tolerance, euphoria and cognitive salience are of limited use in the classification of people as behaviorally addicted to computing behaviors" (2007, p. 1542). A nuance of this study was that euphoria was a very weak factor, and the authors agreed with Griffiths' model discussed above that mood

modification would be better term for experience specific to MMO playing because it highlights the immersive experience (2007). Peters and Malesky (2008) adapted the *Asheron's Call* specific survey used in Charlton and Danforth (2007) for use with *WoW* gamers, and found that using this measure, problematic use was positively correlated with hours playing per week and negatively correlated with extroversion. Peters and Malesky (2008) state "because extraversion is only weakly negatively correlated, it is probable that the individuals desire at least some amount of social contact" (p. 482), a description that pairs nicely with the previous literature on loneliness and social anxiety in PIU (Caplan, 2002, 2007; Ceyhan & Ceyhan, 2008; Morahan-Martin & Schumacher, 2000). In summary, mental health professionals and future researchers should be aware of the distinction between high engagement and problematic use, as it may be a distinction unique to computer behaviors.

Implications for Counseling

Information on MMOGs and people who play them is important in order to have a more nuanced perspective of the role and impact of online gaming in people's lives. It is possible that a MMOG player may come to counseling displaying problematic use of this type of game. It may not be realistic to have clients fully unplug from the Internet or disconnect from their computers given the prevalence of both these items in day-to-day life, so a harm-reduction type treatment model may be best. Gamers who are attempting to cut-down or end their use of these games may experience triggers while using the computer or the Internet for other purposes, and counselors will need to address this potential in session. Clients may also need strategies for reducing the experience of time loss, a phenomenon which may lead to other negative consequences such as missing

work or appointments. Wood et al. (2007) found that almost half of their sample of video gamers (N = 280) used some strategy, such as having a clock, setting an alarm, getting someone else to interrupt them, setting goals within the game, using physical reminders (such as tiredness or hunger), listening to music, or taking breaks. Other strategies for reducing use may be gleaned from the literature on Internet addiction or other process-oriented, behavioral addictions.

Young (2009) warns counselors to be aware of the possible problem of online gaming and not to overlook it because the phenomenon is new. Young goes on to list the following a potential warning signs for problematic MMO gaming: preoccupation with the game, lying or hiding game use, loss of interest in other activities and social experiences, defensiveness and anger, continuing use despite consequences, and using the game for escapism (2009). While Young (2009) suggests that parents and children set limits on game time and take breaks by engaging in other activities. These tips can be used with adults as well.

As these games are most often played by adults, counselors need to pay attention to the impact of these games on players' relationships. While many small guilds are started by real-life friends and family, counselors need to assess if gamers are playing with their IRL friends and family or if those relationships are being neglected. The term "WoW widow" is used in the MMO gaming community to refer to non-playing partners of gamers, particularly those who play excessively. There are several online support communities for partners of gamers, such as Gaming Sucks! (http://www.gamingsucks.com/), forums on Livejournal.com, and Yahoo! Groups (for a good description of the experience of a *WoW* widow, see Randazza, 2007). At the same

time as managing balance with real-life relationships, it is critical that counselors be aware of the social aspects of these games and to be sensitive to the relationships players have built within the game and if players are using these games for a social purpose.

There are also online resources developed by the gaming community for gamers who are struggling with their usage. Counselors need to be informed of these sites for their own use and as resources for clients. The first site is WikiHow, a website that seeks to be an online how-to manual on a variety of topics, which has a page on how to overcome an MMORPG Addiction (http://www.wikihow.com/Overcome-an-MMORPG-Addiction). The second is Online Gamers Anonymous (OLG-Anon), which is a 12-step program for online gamers developed within the community and based on the traditional Alcoholics Anonymous 12-step programs (http://www.olganon.org/).

Finally, if a MMOG player comes to counseling with problematic use, that player's motivation for playing the MMOG is highly important to assess as it has direct implications on the possible course of counseling. If a counselor was able to assess that the motivation for MMOG playing was located under Yee (2006b)'s Achievement factor, then the counselor could work with the client to find other activities to substitute this motivation, or need. If the client was motivated to play by Social means, then, after addressing possible social anxiety, other social outlets could be attempted through counseling. Finally, if the client was motivated by immersion, other activities that produced a feeling of discovery or role-play could be substituted, or if escapism was the main motivating factor, perhaps the focus of counseling should be addressing the client's day-to-day stressors and coping resources.

Directions for Future Research

Future research is needed to develop clear criteria for the phenomenon of problematic use of MMOGs. Future studies should seek to gather in-group descriptions of the behaviors they label as addictive or problematic, so that the professional community can be better informed of community opinions and possible MMOG-specific issues. Furthermore, there is very little data on potential triggers that may cause increased use or a relapse after a period of non-use. Hussain & Griffiths (2009a) reported that when asked, the 14 gamers who identified as being addicted listed social interaction, competition and in-game tasks as potential triggers, but no explanation or details were given in the article to further describe these terms. Also to better inform potential treatment, future studies need to examine factors that contribute to increased and decreased use. Finally, there is also a need for future research on player motivations, particularly linking motivations to risk for problematic use and other negative factors. Further work in the area of motivation and problematic use is critical, not only because it builds a stronger and more nuanced understanding of the population, but it directly relates to counseling as described in the previous section.

In regards to MMOG players themselves, there are also several areas for study. First, there is clearly a group of gamers who play MMOGs more than a full-time job, upwards of 40 or more hours per week. Future studies need to examine these high-frequency players to see how psychological health looks at this level of play and to better describe populations of high-frequency use. Also, there is a lack of research on the contextual factors that influence commencement of MMOG play and future studies could examine how players get introduced to the games.

In regards to gender, while the typical MMOG player is male, there is not enough literature on the minority of female players. Yee (2006a) found that female players were older than male players, and Williams et al. (2008) found that female players played slightly more hours than males per week. Future research needs to investigate these trends, either supporting them or contradicting them, and then delve into the psychology of female players. Also, none of the published studies have reported a percentage of players who identify as transgender, possibly because no study has allowed for that response option. Future studies that choose to gather demographic data should allow for "transgender" as an option for gender on their surveys, so the literature can begin to build some evidence of the play of transgender persons. To highlight this need, Griffiths et al. (2004) had 1.8% of their sample (N = 540) and Cole & Griffiths (2007) had 1% of their sample (N = 912) enter no response to the gender question. It would be interesting to know if those no responses were transgender gamers.

Furthermore, it has been shown that typical MMOG players are adults, but further research needs to focus on older players, as video game players over 65 years old play almost every day. There is no published data specifically on MMOG players of this age, and while some studies found that time spent playing MMOGs increased with age (Williams et al., 2008), this finding has been contradicted (Yee, 2006c). Age-group focused research needs to shift from children and adolescents to older gamers to better understanding the motivations and psychosocial functioning of this segment of players.

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CHAPTER 2

MASSIVELY MULTIPLAYER ONLINE GAMERS: MOTIVATIONS AND RISKS

The Internet is an integral tool in most people's daily routines, with approximately 74% of U.S. adults going online at some point in their lifetime (Jones & Fox, 2009). The Internet has become a primary portal for numerous activities, including accessing information, conducting financial transactions, purchasing of goods and services, and even locating potential dating partners. Many adults in the United States play video games and these behaviors are also increasingly likely to be carried out through one's personal computer (PC; Jones & Fox, 2009; Lenhard, Jones, & Macgill, 2008). The fastest growing category of online gaming is massively multiplayer online games (MMOGs). So named for their ability to connect a large number (*massively*) of players together (*multiplayer*) simultaneously in a persistent game world on the Internet (*online*), MMOGs accounted for nearly a quarter of the video game industry's revenue in 2009 (Gamusutra, 2009).

MMOGs and Their Players

MMOGs operate independent of the users' interactions, exist after a player has quit the game, and continue in perpetuity with no ending point (Chan & Vorderer, 2006). Players interact with each other through messages, chatting over the Internet, and communicating via avatars, their in-game characters (Griffiths, Davies, & Chappell, 2003; Yee, 2006c). By using these forms of interaction, players build and maintain relationships, accomplish in-game tasks with other persons, and join large groups called guilds. Players may play with friends, family members (Williams et al., 2006), and/or

with other players they know only through the game (Cole & Griffiths, 2007; Yee, 2006a). These online relationships have been described as similar to "real-life" (Williams et al., 2006), and occasionally, these relationships have led to face-to-face meetings outside the virtual online world (Cole & Griffiths, 2007).

The typical MMOG gamer identifies as an adult male (Bessiere, Seay & Kiesler, 2007; Cole & Griffiths, 2007; Griffiths, Davies & Chappell, 2004; Griffiths et al., 2003; Williams, Yee, & Caplan, 2008; Yee, 2006c). In two studies of MMOG users with the largest number of participants, the average age ranged from 26 to 31 years (Williams et al., 2008; Yee, 2006c). Furthermore, the average MMOG user spends a significant amount of time playing these games, averaging between 20 to 25 hours per week (Cole & Griffiths, 2007; Griffiths et al., 2003; Williams et al., 2008; Yee, 2006c), which is significantly higher than the typical video game player who averages under 10 hours per week (Smyth, 2007; Wack & Tantleff-Dunn, 2009). Results from multiple research studies have consistently uncovered a small subgroup of MMOG players who game 40 hours or more per week (Cole & Griffiths, 2007; Griffiths et al., 2003; Longman, O'Connor & Obst, 2009; Williams et al., 2008; Yee, 2006c). MMOG players seem to experience both positive and negative consequences resulting from their online game play. Leadership skill development and mentorship experience (Ahmad et al., 2010; Yee, 2006c) have been identified as positive outcomes, while relationship interference with non-players (e.g. family, dating relationships) has been determined to be associated with greater hours devoted to MMOG play (Cole & Griffiths, 2007; Smyth, 2007).

MMOG Motivations

In order to understand the contextual factors that influence the initiation and continuation of online gaming, it is important to consider the motivating factors that influence a player's in-game involvement. Investigating facilitators to this specific type of online video game is particularly critical given the prevalence of users who spend significant time playing these games. Drawing on Bartle's (1996) four-type motivation model, Yee (2006a) examined open-ended responses from 6,675 MMOG players and found the following five types of motivation for play: Achievement, Relationship, Manipulation, Immersion, and Escapism. Yee (2006b) retested his typology on 3,000 additional MMOG players, and truncated his findings from five to three primary components (Achievement, Social, and Immersion). These three motivations were supported further by up to four secondary components (see Table 2).

Manipulation was renamed "competition" and included under Achievement along with advancement and an interest in game mechanics. Relationship loaded as a secondary component within a larger Social motivation, which also included teamwork and socializing with other players. Finally, escapism loaded on the Immersion factor along with discovery, avatar customization, and role play. Williams et al. (2008) confirmed Yee's three-component classification model when he and his colleagues found that over 60% of the variance in motivation among their sample (N=7,000) were accounted for by these Achievement, Social, and Immersion scales.

Table 2.

Yee (2006) Motivations for Play

Achievement	Social	Immersion
Advancement	Socializing	Discovery
Mechanics	Relationship	Role-Playing
Competition	Teamwork	Customization
		Escapisms

Note. This table summarizes the three motivation categories for playing MMOGs and the factors that load onto each type.

Problematic MMOG Use and High Engagement

While there are no current established criteria for problematic MMOG use, there has recently been an increase in research examining the influences on and outcomes associated with extended in-game play. Griffiths (2010), while drawing on the work of Brown (1991; 1993, as cited in Griffiths, 2005) highlighted the facilitative influence of salience, defined as how much one thinks about the game (cognitive) or how important the game becomes in their life (behavioral). Other researchers have identified the following outcomes associated with longer time spent playing online video games: (a) modification of one's mood (Hussain & Griffiths 2009a; 2009b; Wack & Tantleff-Dunn, 2009); (b) tolerance; (c) withdrawal symptoms when unable to game (Chappell, Eatough, Davies, & Griffiths, 2006; Yee, 2006c); (d) continuing to game despite consequences (Chappell et al., 2006, Griffiths et al., 2004; Yee, 2006c); and (e) relapses when attempting to cut-down or discontinue use (Chappell et al., 2006). Chappell et al. (2006) examined the qualitative accounts of 12 gamers and found that the majority of participants mentioned at least some of these core concepts of addiction. Interestingly, these core concepts of addiction seem to lie differently in persons with problematic use of MMOGs, in that three of these core concepts may not be related to problematic use at all. Charlton (2002) found that cognitive salience, mood modification and tolerance are more related to engagement, or spending a great deal of time on the computer without negative consequences, instead of problematic use. Charlton and Danforth (2007) tested this model on a sample of MMOG gamers and confirmed this split of core concepts between engagement and addiction. Given these findings, problematic MMOG use could be defined as when game-playing becomes behaviorally salient in a player's life and players

experience withdrawal symptoms, consequences, and relapse. Currently, there is no published literature on the possible link between problematic use, motivation, and loneliness, which has been frequently studied in relation to online activities.

Loneliness

Loneliness has been defined "as an unpleasant and distressing subjective experience that arises from a qualitative or quantitative deficiency in a person's relationships" (Bernardon, Babb, Hakim-Larson & Gragg, 2011, p. 40). Feelings of loneliness may result from an unfulfilled wanting to have friends, a schism between actual and desired social status, and a deficiency of affective bonding (Lemmens, Valkenburg & Peter, 2011). Loneliness has been linked to depression (Cacioppo, Hughes, Waite, Hawkley & Thisted, 2006; Hagerty & Williams, 1999; Wei, Russell, & Zakalik, 2005), impaired sleep (Cacioppo, Hawkley, Berntson, et al., 2002; Cacioppo, Hawkley, Crawford, et al., 2002), suicidal ideation and/or behaviors (Stravynski & Boyer, 2001; Wiktorsson, Runeson, Skoog, Ostling & Waern, 2010), decreased physical activity in adults over 50 years of age (Hawkley, Thisted & Cacioppo, 2009), social anxiety in girls (Stednitz & Epkins, 2006), and less reasons for living among gay men, lesbians, and bisexual persons (Westefeld, Maples, Buford & Taylor, 2001).

Loneliness has been a frequent construct studied in Internet research. Kim, LaRose, & Peng (2009) surveyed 635 college students and found a relationship between negative life outcomes and loneliness, suggesting that consequences from problematic Internet use (PIU) may lead individuals to feel more lonely. Further, they discovered a potential cycle where loneliness acerbated problematic Internet use. While playing MMOGs was one of the included online activities, the majority of the sample (74.8%) did

not list this form of gaming as one of their top three favorite online activities, which may suggest a low number of MMO gamers in the sample. Interestingly, the group of participants whose favorite online activity was downloading was most at risk for threats to well-being (consequences, loneliness, etc.), which may suggest a link between continued loneliness and non-social Internet activities. Ceyhan & Ceyhan (2008) studied 559 Turkish students, and found that loneliness, depression, and computer self-efficacy significantly predicted PIU, with loneliness being the strongest predictive variable. Among MMOG users, Caplan, Williams & Yee (2009) found that the predictors of PIU were loneliness, introversion, aggression, addiction, and depression, and that loneliness was "the single most influential predictor" (p. 1318). It is important to note that these studies deal with problematic Internet use and not problematic MMOG play, so it is unknown the full role loneliness may play in MMO gaming.

Findings from various research studies that have examined online chatting and loneliness remains inconclusive. These findings are important as online chatting and communication through electronic messaging is a strong element of the social game play in MMOs. Hu (2009) randomly assigned 234 college students to one of five conditions (face-to-face communication, instant message chatting, watching videos, writing assignments, and doing nothing), measuring loneliness before and 10 minutes after each condition, and found that loneliness increased only after online chatting. Contradictory, Shaw & Gant (2002) had 40 participants engage in five chat sessions with anonymous partners, and found that after Internet chatting ended, loneliness decreased, while perceived social support and self-esteem increased.

Among the broad category of video gamers, Wack & Tantleff-Dunn (2009) found that just over 15% of participants played when feeling lonely. Lemmens et al. (2011) found a direct relationship between levels of social competence and self-esteem with levels of loneliness, which predicted pathological video gaming in 543 Dutch adolescents (ages 11-17). In contrast, among Liu and Peng's (2009) examination of MMO gamers, it was found that participants (N = 288) reported low levels of loneliness overall, but the sample also had a low number of MMO gamers who experienced problematic use. Longman et al. (2009) found that MMO gamers reported a sense of belonging in the game, which was affected by the length of time one played, and that MMO gamers reported a sense of social support as a consequence of their online gaming activity. Similar to Kim and colleagues' (2009) findings, Longman et al. (2009) discovered that social support and sense of belonging were directly related to length of time spent in MMOG play. Whereas the affective construct of loneliness has been frequently studied in relation to use of the Internet, there exists less research around other affective states, such as depression.

Depression

Depression refers to "a mood state, a syndrome or a disorder" (Parker, Wilhelm & Asghari, 1997, p. 10). Depressive symptoms range in severity and are labeled mild, minor, sub-threshold, or subclinical depending on the study or source (Morgan & Jorm, 1998; Rowe & Rapaport, 2006) and include irritability, self-criticism, being tired, lacking motivation, feeling low, and tearfulness (Parker et al., 1997) for at least two weeks. In the general public, depressed mood has been linked to developing more serious depression and major depressive disorder (Chen, Easton, Gallo, Nestadt, & Crum, 2000; Cuijpers, &

Smit, 2004; Rapaport et al., 2002), suicidal ideation and/or behaviors (Johnson, Weissman, & Klerman, 1992; Meeks, Vahia, Lavretsky, Kulkarni & Jeste, 2011), work absences and unemployment (Johnson et al., 1992; Lerner & Henke, 2008), increased disability and greater healthcare utilization in adults over 55 (Meeks et al., 2011), and with school suspension in adolescents with persistent symptoms (Rushton, Forcier, & Schectman, 2002).

Due to the scant empirical attention devoted to specific psychological constructs related to online gaming, there exist few studies that have examined depression without examining the impact of loneliness. Thus, several of the studies described in the aforementioned section on loneliness also include the construct of depression in their investigation of video game players. Weaver et al. (2009) found that depression was higher among female video-gamers (n = 110) in comparison to female non-gamers (n = 177), yet no significant differences between male video gamers and male non-gamers were discovered. Russoniello, O'Brien, and Parks (2009) found that casual video game play improved mood, affected alpha brain waves, and decreased self-reports of depression and tension. Shaw & Grant (2002) found that, in addition to a decrease in loneliness, chatting with an anonymous partner also decreased depression. Huang et al. (2009) found that the development of PIU occurred more frequently in Chinese students with depression (n = 141) than those students who did not report depression (n = 3,355). Ceyhan & Ceyhan (2008) found that after loneliness, depression was the second largest factor to predict PIU. Peng & Liu (2010) found that dependency on online gaming was associated with depression. Caplan et al. (2009) found that one of the predictors of PIU was depression, which 22% of their sample of 4278 MMO players stated a diagnostic

history of this mood disorder. Again, these studies examine problematic use of gaming in general or of the Internet and not problematic use among MMOG players.

Among MMO gamers, Williams et al. (2008) results support Caplan's (2009) findings that in a sample of *EverQuest 2* players, a popular MMOG, participants were more likely to report a history of depression than the general public. The relationship between MMOG play and depression was especially strong among female players, which is consistent with findings from Weaver et al. (2009). Conversely, Liu & Peng (2009) found that MMOG players reported low levels of depression, as measured by the Center for Epidemiological Studies Depression Scale. In Longman et al.'s (2009) study of gamers of today's most popular MMOG, *World of Warcraft* (*WoW*), those who played 45 or more hours per week had higher total scores on The Depression Anxiety Stress Scales (DASS)-21 than gamers who played less, though separate scores for depression and anxiety were not reported. Currently, there exists no published study examining the relationship between depression and a gamer's motivation for playing MMOGs.

The purpose of this study was to gain further information about the relationship between a person's motivations for playing massively multiplayer online games (MMOGs) and potential problematic use, loneliness, and depression. Understanding this relationship is critical to the counseling field as a client's motivations may have a direct implication on the possible course of counseling, particularly seeking substitute activities that fulfill the same motivation or need. Although there is literature examining the constructs of loneliness and depression in MMOG players, there has not been a published study examining these two constructs in relation with motivations for play and

problematic use of MMOs. Thus, in this study, the following three research questions were examined:

(R1) What is the relationship between various motivations for playing MMOs (achievement, social, and immersion) and problematic MMOG use, loneliness, and depression?

(H1) Problematic use and depression will be related to the achievement and immersion motivating factors but not to the social motivating factor.

(H2) Loneliness will be related to the immersion but not to achievement and social motivating factors.

(R2) How are the constructs in hypothesis 1 related to select socio-demographic variables (such as age and gender)?

(H3) Age will be have a positive relationship with the social motivation factor, in that as participants get older they are more likely motivated to play for social reasons.

(H4) Gender will not be strongly related to any of the motivating factors.

(R3) What is the relationship between self-identification of addiction to MMO games and motivating factor to play?

(H5) Participants who self-report as addicted will associate most often with the achievement motivating factor and least often with the social motivating factor.

(R4) Among motivators for play, loneliness, and depression, what is the primary predictor of problematic use of MMOGs in *WoW* players?

(H6) Loneliness will be the strongest predictor of problematic use of MMOGs, followed by depression, the achievement motivation factor, and finally the immersion motivation factor.

Methods

Self-identified players of the game *World of Warcraft*, currently the most popular MMOG with over 12 million subscribers around the world (Blizzard, 2011; Caoili, 2010), were included in this study. Web-based advertisements were posted to electronic message boards and forums catering to players of MMOGs or *WoW* specifically, such as the forums at Battle.Net.com, MMO-champion.com, TankSpot.com, and WoWDungeon.com, as well as communities on Facebook.com and Livejournal.com. Inclusionary criteria to participate in this study included the following: 1) be at least 18 years of age; 2) read English; 3) have played *WoW* for at least three months; 4) and reside currently in the U.S. All forum rules regarding posting were followed. Advertisements briefly described the study's inclusionary criteria and included a direct link to the survey instruments. The survey made use of SSL encryption to protect participants' data from being accessed from the outside and all data was stored on a password and firewall-protected computer. To compensate participants for their time, ten $20 Amazon.com gift cards were purchased and raffled off to ten random participants.

Participants

Of the 636 participants who started the survey, 20 were excluded for being under 18 years of age and 45 were excluded for being outside of the U.S. Further, 131 surveys were excluded for not completing more than two measurements. Of the remaining 440 useable surveys, 219 (49.8%) identified as male, 206 (46.8%) identified as female, and 14

(3.2%) identified as transgender. The nearly 50/50 ratio of males to females approximately reflects the demographics of the U.S. However, the typical gender ratio of MMOG players is closer to 70/30, skewed to a majority of males. A 50/50 ratio was specifically sought to protect against statistical errors when examining analysis of gender effects and represents a concentrated effort to recruit a large number of female *WoW* gamers.

Participants' ages ranged from 18 to 66, with a mean of 28.26 (*SD* = 7.97). A summary of the gender breakdown of the demographics of this sample appears in table 3. The majority of the sample identified as heterosexual (74.5%), 66 (15%) identified as bisexual, 20 (4.5%) identified as lesbian/gay, and 22 (5%) wrote in other sexual orientations (such as pansexual, asexual, etc.). The majority of the sample reported being in a committed relationship (59.5%) and another 33 participants (7.5%) reported being in a non-committed/dating relationship. There was no statistically significant difference between men and women on age, relationship status, or education level, but there was a significant difference on employment status where men (*M* = .71, *SD* = .47) were more likely to be employed than women (*M* = .60, *SD* = .43; *t*(423) = 2.46, *p* = 0.014

Table 3.

Demographics by Gender (binary)

	Male	Female	*t* value
N	219	206	
Age			
M	27.47	28.88	-1.84
SD	8.52	7.18	
Race & Ethnicity			
M	1.19	1.40	1.7
SD	1.11	1.43	
Sample Makeup			
White/Caucasian	79.5 %	85.0 %	
Black/African-American	0 %	0.5 %	
Hispanic/Latina/ Latino	3.2 %	1.9 %	
Asian/South Asian	3.7 %	1.5 %	
Native American	0.5 %	1.9 %	
Biracial/Multi-ethnic	1.8 %	2.9 %	
Other Response	0 %	2.0 %	
Education			
M	2.58	2.83	1.84
SD	1.39	1.36	
Sample Makeup			
High School diploma	16.0 %	7.3 %	
Some college	37.9 %	36.4 %	
College degree	27.4 %	37.4 %	
Beyond college	11.4 %	13.1 %	
Employment			
M	4.49	4.41	2.46*
SD	2.50	2.45	
Sample Makeup			
Employed (self, for wages, etc.)	69.4 %	59.7 %	
Not Employed (disability, looking for work, etc.)	29.7 %	40.3 %	

Note: *p<.05.

As this study specifically focused on player behavior and motivations, participants were asked about the highest achievement level they had earned with their characters. *WoW* starts everyone at level 0 and players work up to the maximum level of 85. The average level of participant's characters was 83.8 (*SD* = 7.26), and levels ranged from 4 to 85 with the vast majority of characters at the cap of 85 (92.5%). The majority of the sample reported playing MMOGs between 10 and 30 hours per week. Exactly 10% of the total sample reported playing over 40 hours each week, which is consistent with previously reported findings (Cole & Griffiths, 2007; Griffiths et al., 2003; Longman et al., 2009; Williams et al., 2008, Yee, 2006c).

Measures

Participants completed a brief demographics questionnaire created for this study, which included standard demographic questions, as well as, hours played per week, self-report of addiction, highest level character, and other game-based questions. To understand answers to the self-report of addiction question, participants were given four answer choices, specifically, "Yes, currently," "In the past, but not now," "No, I have never considered myself addicted, but others tell me I am," and "No, I have never considered myself addicted." The other three components of the study included the Williams et al. (2008) motivation inventory, Peters & Malesky's (2008) *World of Warcraft*–specific Problematic Usage-Engagement Questionnaire, UCLA's Loneliness scale, and the Depression Anxiety Stress Scale (DASS-21). The entire assessment is included in the Appendix.

Williams et al.'s motivation measure.

The Williams et al. (2008) 10-item motivation scale was used to assess a participant's motivation for playing *WoW*. The scale, which is based on Yee's (2006b) 39-item MMOG motivation measure, only assesses for three main motivation factors. Participants answered each of the 10-items using a 5-point Likert scale. A higher score on any of the factors indicates a particular motivation for play in that person, and high scores are possible on each factor within the same person. The Cronbach's alphas for this sample were as follows: achievement (.62), social (.83), and immersion (.65), values consistent with results from other research (Williams et al., 2008).

Problematic usage-high engagement.

The Peters & Malesky (2008) *World of Warcraft*-specific version of Charlton & Danforth's (2007) Problematic Usage-Engagement Questionnaire was used to assess for potential problematic use in participants while controlling for high engagement. Participants responded to the 27-items using a 7-point Likert scale, and a high score on the items associated with high engagement indicate a player who is highly involved with the game, as opposed to a high score on the items associated with problematic use, which indicate a player who is experiencing problematic use of MMOGs. In the original format, Charlton and Danforth (2007) found that the two factors (problematic use and engagement) accounted for 32% of the variance with 25% accounted by problematic use and 7% accounted by engagement. The two scales showed high internal reliability, specifically, Chronbach's alpha of .80 for the Problematic Use factors/scale and .82 for the Engagement factors/scale.

UCLA loneliness scale.

The University of California, Los Angeles (UCLA) Loneliness scale was selected to assess levels of loneliness within the sample of MMO gamers. This scale has been used routinely in the MMOG literature and has high internal consistency and test-retest correlations (Russell, 1996). The scale is a self-report measure where participants rate each of the 20 items on a 4 point scale (1-4; never to always) as often they feel that item applies to them, with higher scores on the measure indicating a greater degree of loneliness (no cutoff score). Cronbach's alphas for this assessment instrument have ranged from .89 to .94 across various population samples (students, nurses, teachers, elderly; Russell, 1996). The Chronbach's alpha for this sample was .94.

The DASS-21.

The Depression Anxiety Stress Scales was selected to assess depression in the sample of MMO gamers. The DASS 21 has also been previously used in the MMOG literature and has a high internal consistency for the short format (Henry & Crawford, 2005). The DASS-21 is a self-report scale containing three scales measuring depression, anxiety, and stress. Participants rated each of the 21 items on a 4 point scale (0-3; "does not apply" to "applies very much") as to how much the item applied to themselves over the past week. Only the depression scale was used for this study, and a score of 10 points or higher indicate elevated depression ranging from mild (10-13), moderate (14-20), severe (21-27), and extremely severe (28+). The Cronbach's alpha for this sample was .91, which is consistent with other studies (Henry & Crawford, 2005).

Results

To address research question 1, a correlation was conducted using the three motivation factors, the total depression score, the total loneliness score, and the problematic use score. The results show a significant positive relationship between the achievement and immersion motivating factors and problematic use ($r(440) = .20$, $p < .001$; $r(440) = .11$, $p < .05$), between the immersion motivating factor and depression and loneliness ($r(440) = .11$, $p < .05$; $r(440) = .16$, $p < .001$), and a significant negative relationship between the social motivating factor and loneliness ($r(440) = -0.17$, $p < .001$). These results indicate that players who are motivated by immersion are most at risk for loneliness, depression, and problematic use. Further, they indicate that players motivated by achievement are at risk for problematic use and players motivated for social reasons are less lonely than other players. This partially supports Hypothesis 1 and completely supports Hypothesis 2. The details of this correlation are summarized in table 4.

Table 4.

Summary of Correlations between Motivating Factors, Depression, Loneliness, and Problematic Use

	1	2	3	4	5	6
1. Achievement	---	.14**	-.09	-.03	-.08	.20***
2. Social	.14**	---	.17***	-.09	-.17***	.06
3. Immersion	-.09	.17***	---	.11*	.16***	.11*
4. Depression	-.03	.06	.11*	---	.69***	.23***
5. Loneliness	-.08	-.17***	.16***	.69***	---	.34***
6. Problematic Use	.20***	.06	.11*	.23***	.34***	---

Note. $N = 440$. * $p < .05$. ** $p < .01$. *** $p < .001$.

To examine how relationships are affected by socio-demographic variables (R2), several statistical analyses were conducted. First, a correlation was performed using the three motivation factors, age, hours of the MMOGs played per week, and participants' self-report of addiction. Results show a significant negative relationship between the achievement and social factors with age ($r(440) = -.21$, $p < .001$; $r(440) = -.21$, $p < .001$), a significant positive relationship between those two factors with hours played per week ($r(440) = .17$, $p < .001$; $r(440) = .13$, $p < .01$) and with self-report of addiction ($r(440) = .20$, $p < .001$, $r(440) = .14$, $p < .01$). These relationships indicate that younger players tend to be motivated by achievement and social factors, tend to play more each week, and are more likely to consider themselves addicted. Thus, Hypothesis 3 is not supported. The details of this correlation are summarized in table 5.

Table 5.

Summary of Correlations between Motivating Factors, Age, Hours Played per Week, and Self-Reported Addiction

	Age	Hrs/Week	Addiction
1. Achievement	-.21***	.173***	.20***
2. Social	-.21***	.13**	.14**
3. Immersion	-.02	.03	.06

Note. $N = 440$. * $p < .05$, ** $p < .01$, *** $p < .001$.

In an effort to understand the effects of age on motivation for playing, the sample was separated into age categories, using the categories used in Williams et al. (2008). With these categories, a MANOVA was conducted and the results showed that the main effect for age was significant, $\lambda = .88$, $p < .001$, $\eta^2 = .04$, and the interaction of age on all three motivations were significant. However, neither the Bonferroini's nor the Tukey LSD post hoc test supported the significance of this finding. This may be due to the correlation between the motivation scales.

There were an insufficient number of transgender participants to run a MANOVA examining motivating factors by the three gender categories. Instead, a series of t-test were conducted to assess the effect of gender as a binary variable (male, female) on motivation (R2). The results indicate that binary gender does not have an effect on the social motivating factor, but does have an effect on achievement ($t(423) = 6.76$, $p < .001$) and on immersion ($t(423) = -5.49$, $p < .001$) with men ($M = 8.16$, $SD = 2.62$) being more likely to play for achievement reasons and women ($M = 7.81$, $SD = 3.50$) being more likely to play for immersion reasons. These findings about men are consistent with previous studies (Williams et al., 2008; Yee, 2006b). However, these results contradict Yee (2006b) findings that women were more like to play for social motivations. Hypothesis 4 is also not supported by these results.

As the previously described correlations showed a significant positive relationship between self-report of addiction and both the social motivation factor and the achievement faction, a series of t-tests were conduction to further examine that relationship (R3). The first t-test confirmed that players who are motivated by achievement were more likely to self-report addiction ($t(468) = 2.63$, $p < .01$), though the

tests for the social and immersion factors were not statistically significant. In comparing motivations for play and players who marked either no addiction or a history of addiction, both socially motivated players ($t(360) = 2.20$, $p < .05$) and achievement motivated players ($t(360) = 3.71$, $p < .001$) were more likely to report a history of addiction. In comparing motivations for play and players who reported that others labeled them as addicted, only the players who game for social motivations were significantly more likely to report others labeling them as addicted ($t(259) = 2.73$, $p < .01$). Statistical tests on players who are motivated by immersion did not result in significant differences between groups based on self-report of addiction. These findings partially support Hypothesis 5.

Finally, to test predictability of problematic use (R4), an initial standard linear regression analyses was conducted, which indicated that the overall model, including 5 independent variables (three motivating factors, loneliness, and depression) significantly predicted problematic use of *WoW* in this sample, $F(5, 434) = 18.76$, $p < .001$. A modest effect size was found for the mode, $R^2 = .18$ (adjusted $R^2 = .17$), indicating that just under a fifth of all the variance in problematic use scores was accounted for by the variables above. To better refine the model, a step-wise linear regression was conducted. The model which accounted for the most variance included only three independent variable (loneliness, achievement and social motivations), $F(3,436) = 30.75$, $p < .001$, $R^2 = .18$ (adjusted $R^2 = .17$). As the elimination of immersion and depression as variables in the model did not dramatically reduce the R^2 of the model, it can be assumed they are not useful for predicting problematic use in this sample. Consistent with previous studies on problematic Internet use (Ceyhan & Ceyhan, 2008) and on problematic Internet use in

MMO gamers (Caplan, Williams & Yee, 2009), loneliness accounted for the greatest amount of variance in problematic *WoW* use, $F(1, 438) = 56.11$, $p < .001$, $R^2 = .11$ (adjusted $R^2 = .11$). These results only partially support Hypothesis 6.

Table 6.

Summary of Stepwise Regression Analysis for Variables Predicting Problematic Use

Step and Variable	B	SE B	β	R	R^2	Adj. R^2
Step 1						
Loneliness	.35	.05	.34**	.34	.11	.11
Step 2						
Loneliness	.37	.05	.35**	.41	.17	.16
Achievement	1.07	.20	.23**			
Step 3						
Loneliness	.39	.05	.37**	.42	.18	.17
Achievement	1.02	.20	.22**			
Social	.35	.17	.09*			

Note: Adj. = adjusted. * $p < .05$. ** $p < .001$.

Discussion

The purpose of this study was to examine the relationships among a gamer's motivations to play, loneliness, depression, and problematic use. At the time of this study, no published research exists examining the relationship between these variables. While the results did not support all the components of hypotheses 1-2, the results did support that gamers who are motivated to play for achievement (advancement, mechanics, competition) and immersion (discovery, role-play, customization, escapism) are more likely to experience problematic use than those who play for social (relationships, socializing, teamwork) motivations. Further, depression and loneliness, as measured by self-reports, were only positively correlated with immersion motivated players, meaning the more you are motivated to play for reasons of immersion, the more likely you are to be more lonely and more depressed than your fellow MMO gamers. While the correlation between achievement and the depression and loneliness score was not significant, it was a negative relationship, as was the relationship between social motivation and depression. These results suggest that gamers who play *WoW* for immersive reasons are the most at-risk in comparison to their peers as they are at-risk for problematic use, depression, and loneliness, whereas achievement motivated players are at-risk only for problematic use.

These findings are of critical importance to mental health professionals working with MMOG players. Knowing the reason a client is motivated to play, given these results, may lead a clinician to perform follow-up assessments, such as problematic use, loneliness, and/or depression measures. It is possible that these motivations could also direct the course of counseling. If it is determined that a client plays for immersive

reasons to the point of having problems with his or her use, and wishes to cut down or quit the game, then a goal in counseling may be finding other avenues that successfully fulfill this motivation, such as activities that produce a feeling of discovery or addressing any day-to-day stressors that may be contributing to the desire to escape.

The findings on socially motivated gamers are also important. The more likely a gamer is motivated for social reasons, the less likely they report loneliness. The scores on the social motivation measure can range from 0 to 12. If we look at players who scored between 6 and 12 on the social motivation scale (n = 312), which would indicate they play more so for social reasons, their average score on the UCLA loneliness measure was 41.78 (SD = 11.22). This average score is very close to the average score for non-clinical populations of students and nurses reported with the development of the measure (Russell, 1996). Often video gamers are stereotyped as socially isolated individuals (Williams, 2003) and though there is great conflict in the literature, some studies point to online activities as either raising loneliness or being insufficient supplements for offline interactions (Kraut et al., 1998; Moody, 2003; Weiser, 2001; Xenos, 2011). In contrast to these studies, by examining one's motivations for playing, there is a protective element to socially motivated play. Based on the results of this study, mental health professionals should not assume that participating in this type of online gaming is antithetical to a fulfilling social life. In cases of isolation or shyness, these games may even be an alternative social outlet for clients.

Also concerning loneliness, this factor was the strongest predictor of problematic use. Previous studies had examined the predictive nature of loneliness on pathological video gaming (Lemmens et al., 2011) and problematic Internet use in students (Ceyhan &

Ceyhan, 2008) and in MMOG players (Caplan et al., 2009). This study continues the predictive quality of loneliness into problematic MMOG use. Interestingly, unlike other studies examining the predictive nature of depression on problematic internet use (Caplan et al., 2009; Ceyhan & Ceyhan, 20098), depression was not a significant predictor of problematic MMOG use.

It is important to note, particularly for mental health workers, that greater levels of denial may exist with users who report immersive motivations for their play, and so the wrong players may see themselves as addicted to these games. The more a gamer is motivated by immersion, the more likely they are to report loneliness, depression, and problematic use. However, no significant correlation was found between self-report of addiction and the immersion motivation, meaning that immersively motivated players were not more likely to report addiction when asked directly. The gamers who were more likely to self-report addiction were those that played more frequently, socially motivated players, and achievement motivated players.

If players who are motivated by immersion are more likely to have problematic use and less likely to self-report, then this combination may suggest three problems. The first possible explanation is a lack of insight into one's problematic use, which would mean mental health professionals would need to use other measurements in therapy to assess their clients and possibly conduct psychoeducation on qualities of addiction and problematic use. Related to denial, immersive players could be experiencing dissociation. Dissociative experiences would interfere with a player's ability to fully describe their involvement with the game and may interfere with memory. A final possible explanation could be confusion over what constitutes problematic use in gamers

themselves. Players who are only highly engaged with the game, and thus, play frequently during the week may believe themselves to be addicted incorrectly. Since the field has significant conflict over problematic use and addiction to video games, it would make sense for the players themselves to be confused. Until there is a better picture of how player define addiction to these games, it will be unclear as to why the players least likely to have problematic use are more likely to self-report addiction.

Finally, this study was able to gather data from players of *WoW* who identify as transgender. While there were not enough participants in this category to include in the statistical tests describe above on the effect of gender, these players represented 3.2% of the total sample. Approximately, 0.3% of the population of the Unite States identifies as transgender (Gates, 2011). Given that this identity status is highly stigmatized, all population estimates are truly estimates. As transgender gamers have not been a population of study, it is unknown how similar they are to other gamers. It is possible that the high prevalence of transgender persons in this sample is due to the ability of the Internet to allow transgender gamers to organize freely and have the space to work on their collective identity (Shapiro, 2004), to give space to transgender gamers to escape stressors of stigma and discrimination from the real world, or because the game itself allows for more freedom of gender expression than the real world. Further, the nonresponse rate to the gender demographic item in this sample is a marketed decrease in non-response when compared to other published studies (1.0%, Cole & Griffiths, 2007; 1.8%; Griffiths et al., 2004). This shows the existence of MMO gamers who identify as transgender, and opens up the need for future research on this subsection of MMO gamers.

Limitations

There are several limitations to the current study. First, this study advertised itself through Internet forums and websites, so all participants had to be members of one of the various forums to have seen an ad or have heard of the study from other members. Attempts to post in the official forums run by the manufactures of the game, Blizzard, were made, but the company changed their policy and deleted such advertisements. Not all players of *World of Warcraft* visit online forums, particularly unofficial forums, which limits the generalizability of these results. Further, participants who view these advertisements voluntarily agree to participate, so, in effect, the sample is self-selected, which may have impacted the results. However, the vast majority of the literature on online gamers is based on self-selected samples. It is important to note that the researcher of this study is not an MMO-gamer and played *WoW* only for this study. This means she did not earn the same level of achievement nor of community involvement as other researchers who are also members of the MMOG community.

Also, none of the published literature on MMOG players, their motivations, or their problematic use has included a validity scale to check for the truthfulness of the participants. This study did not include one either, as it was not the norm of the body of research and as a scale-specific measure to assess "faking good" or "faking bad" does not exist. It would be useful and prudent for such measures to be developed, particularly for the problematic use scales in existence, so that these self-reported results can be seen with more confidence.

The gender distribution of the sample is both a benefit and a limitation in this study. Instead of a pseudo-random sampling procedure, this study sought more of a

stratified sample reflective of the gender distribution of the U.S. (50/50) and not of the games themselves (70/30). While no significant difference between the binary genders were found for several constructs, this gender distribution may explain why this study results contradict previously published literature.

Additionally, there is the lack of an agreed upon problematic use measure for online gamers. The Peters & Malesky (2008) *World of Warcraft*-specific questionnaire was chosen for two main reasons. First, it was already worded for and tested on a sample of *WoW* players. Second, and more importantly, it drew on the work of Charlton & Danforth (2007) and Charlton (2002) by separating out factors more related to problematic use from factors more related to an high engagement without consequences of the game. This separation is theoretically sound given what we know of behavioral addictions (Griffiths, 2010; Brown, 1991; 1993, as cited in Griffiths, 2005), but without agreement within the field on what constitutes problematic use of these types of games, the generalizability of the results of this study is limited.

Finally, it is of critical importance not to generalize these findings to other types of online games or to gaming in general. This study examined a specific type of gaming leisure experience (MMOGs), and the results of this study and the published literature suggest that these games are unique and that players of these games are different than players of general video games. Mental health professionals need to be aware that there are many types of gaming experiences and talk to their clients about their range of possible leisure activities. Also, *World of Warcraft* is a mature social game, meaning that it has been an active gaming community for over seven years at the time of writing. This may explain why some of the results of this study contradict previously published

literature collected when the game was newer. This may be an important consideration for replication.

Implications for Future Research

This study specifically recruited female gamers to achieve a sample reflecting the demographic makeup of the U.S. This outpouring of interest from female gamers was overwhelming and for a time during recruitment, male players had to be specifically targeted to achieve an equitable ratio. This is important for future researchers as previous studies have often highlighted the overwhelming frequencies of male gamers, while it is possible to recruit enough female players to have an equitable sample. However, the body of literature on just female gamers is scant. Past studies have shown female gamers to play more than male gamers (Williams et al., 2008) and are older than male gamers (Yee, 2006a). The t-tests run on both of these variables did not reveal significant results. While this study was able to make other useful contributions to that literature, particularly concerning motivations for play, future studies need to examine female gamers as an entity themselves.

Also regarding gender, this study was able to gather data proving the existence of MMO gamers who identify as transgender. Future studies need to allow for a "transgender" option on their demographics to better capture data on these players. Additionally, studies specifically targeted on transgender gamers need to be conducted, so that a better understanding of the motivations, gaming behaviors, and outcomes can be fostered.

The most mature gamer in this sample was 66 and eight players (1.7%) were 50 years old or older. There is a conflict in the literature regarding the correlation between

age and time gaming. Williams et al. (2008) found that time playing MMOGs increased with age, but Yee (2006c) did not. A significant correlation between age (continuous or categorical) and hours per week played nor days per week played could be found in this sample. As mature gamers represented a small percentage of this study and due to the conflict in the literature, future studies should focus on mature players to better understanding the motivations, play behavior, and potential risk factors for this segment of players.

Finally, as the literature on problematic use of these games grows, there are two critical areas for study. First, information on how players commence MMOG play and are introduced to these games are important areas of empirical need. Previous studies show that female gamers are more likely to be introduced to the game by a romantic partner (Yee, 2006a), but a full picture of the contextual factors that introduce potential players to the games has not been established. Second, results from this study indicate that individuals are able to decrease their use of the game over time. A better understanding of the contextual and personal factors related to successful attempts to decreased use would be very helpful in providing solutions to those struggling with their game play. Data on relapse and unsuccessful attempts to decrease use could also be helpful to understanding the mechanics of problematic use associated with this type of online gaming.

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APPENDIX A
Demographics Questionnaire

Age: _____ Race / Ethnicity: _____

Gender: □ Male □ Female □ Transgender □ Other: _____

Sexuality: □ Heterosexual □ Lesbian/Gay
□ Bisexual □ Questioning □ Other: _____

Relationship Status:
- □ In a committed relationship as we define it and currently living with partner(s)
- □ In a committed relationship as we define it but do not live with partner(s)
- □ Dating/non-committed relationships
- □ Widow/er
- □ Not currently in a relationship with another person
- □ Other: _____

Highest Level of Education completed:
- □ Less than high school diploma
- □ High school diploma
- □ Some college
- □ College degree
- □ Professional or technical school degree
- □ Postgraduate work
- □ Post graduate degree/s (examples M.A., M.S., Ed.S., Ph.D., etc.)
- □ Other: _____

Employment Status: Are you currently…? (check all that apply)
- □ Employed for wages
- □ Self-employed
- □ Not employed and looking for employment
- □ Not employed and not looking for employment
- □ Homemaker
- □ Retired
- □ Student
- □ Other: _____

Approximately how many hours do you play MMOGs per week?:
- □ less than 2 hours
- □ between 2-5 hours
- □ between 5-10 hours
- □ between 10-20 hours
- □ between 20-30 hours
- □ between 30-40 hours
- □ between 40-50 hours
- □ between 50-60 hours
- □ more than 60 hours

How long does a typical MMO gaming session last for you?:

□ less than 30 minutes
□ between 30 minutes to 1 hour
□ between 1 hour – 2 hours
□ between 2-4 hours
□ between 4-6 hours
□ more than 6 hours

How many days a week do you typically play MMOGs?:

□ I do not play regularly
□ 1 days/week
□ 2 days/week
□ 3 days/week
□ 4 days/week
□ 5 days/week
□ 6 days/week
□ I play for some period of time every day

How were you introduced to *World of Warcraft*? (check all that apply):

□ I played *Warcraft* or *Starcraft*
□ I played another MMOG
□ IRL friends
□ IRL boyfriend/girlfriend/relationship partner
□ Online friends
□ Family members
□ Other – please specify: _____
□ Beta-testing
□ Saw it in the store
□ Free-trial
□ Commercials for the game (web, TV, radio, magazine, etc.)

Have you ever tried to cut down how much you play World of Warcraft?:

□ Yes, I have and I was successful
□ Yes, I have, but I was unsuccessful
□ No, I have never attempted to cut down how much I play *WoW*

Do you consider yourself to be addicted to *World of Warcraft*?:

□ Yes, currently
□ In the past, but not now
□ No, I have never considered myself addicted
□ No, I have never considered myself addicted, but others tell me I am
□ Other: _____

Motivation Inventory
(Williams, Yee, Caplan, 2008)

Instructions. The following statements describe the things that are important to them when playing *World of Warcraft.* For each statement, please rate how important that statement is to you when playing *WoW*.

Here is an example:

Being part of team.

If it is very important that you feel like you are part of a team when playing *World of Warcraft*, you would check 5 "extremely important;" if you do not think being part of a team is important at all when playing *World of Warcraft*, you would check 1 "not important at all."

Not Important at all	Slightly Important	Somewhat Important	Very Important	Extremely Important
1	2	3	4	5

1.	Leveling, acquiring great items and gear, and becoming powerful	1	2	3	4	5
2.	Figuring out the game mechanics, planning my character's development and optimizing my character	1	2	3	4	5
3.	Competing with other players in terms of combat, crafting ability, or the economy.	1	2	3	4	5
4.	Chatting with and getting to know other players	1	2	3	4	5
5.	Developing deep and meaningful relationships with other players	1	2	3	4	5
6.	Being part of a team	1	2	3	4	5
7.	Exploring the world and knowing things (stories, locations of NPCs, etc) that most other players don't know about.	1	2	3	4	5
8.	Role-playing and having interesting background stories for your character	1	2	3	4	5

9. Customizing your characters to make them look distinctive, stylish, and unique	1	2	3	4	5
10. Escaping from the real world and leaving behind some real-life problems and worries	1	2	3	4	5

World of Warcraft–specific Problematic Usage-Engagement Questionnaire
Peters & Malesky (2008)

Using the scale below, rate the following statements with the response that best fits how you feel about *World of Warcraft* (27 questions).

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

1.	I try to make my *World of Warcraft* play sessions last as long as possible	1	2	3	4	5	6	7
2.	When I am not playing *World of Warcraft*, I often feel agitated	1	2	3	4	5	6	7
3.	I often experience a buzz of excitement while playing *World of Warcraft*	1	2	3	4	5	6	7
4.	I think that I am addicted to *World of Warcraft*	1	2	3	4	5	6	7
5.	I tend to want to spend increasing amounts of time playing *World of Warcraft*	1	2	3	4	5	6	7
6.	*World of Warcraft* is unimportant in my life	1	2	3	4	5	6	7
7.	I would hate to go without playing *World of Warcraft* for more than a few days	1	2	3	4	5	6	7
8.	When I see *World of Warcraft*, I feel drawn toward it	1	2	3	4	5	6	7
9.	I rarely think about playing *World of Warcraft* when I am not using a computer	1	2	3	4	5	6	7
10.	I sometimes neglect important things because of an interest in *World of Warcraft*	1	2	3	4	5	6	7
11.	I feel happy at the thought of playing *World of Warcraft*	1	2	3	4	5	6	7
12.	My social life has sometimes suffered because of my playing *World of Warcraft*	1	2	3	4	5	6	7

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

13. Arguments have sometimes arisen at home because of the time I spend on *World of Warcraft*	1	2	3	4	5	6	7
14. It is important to me to be good at *World of Warcraft*	1	2	3	4	5	6	7
15. It would not matter to me if I never played *World of Warcraft* again	1	2	3	4	5	6	7
16. Playing *World of Warcraft* has sometimes interfered with my work	1	2	3	4	5	6	7
17. I often fail to get enough sleep because of playing *World of Warcraft*	1	2	3	4	5	6	7
18. I am sometimes late for engagements because I am playing *World of Warcraft*	1	2	3	4	5	6	7
19. I feel a sense of power when I am playing *World of Warcraft*	1	2	3	4	5	6	7
20. I never miss meals because of playing *World of Warcraft*	1	2	3	4	5	6	7
21. I pay little attention when people talk about *World of Warcraft*	1	2	3	4	5	6	7
22. I like the challenge that learning to play *World of Warcraft* presents	1	2	3	4	5	6	7
23. I spend little of my spare time playing *World of Warcraft*	1	2	3	4	5	6	7
24. I have made unsuccessful attempts to reduce the time I spend playing *World of Warcraft*	1	2	3	4	5	6	7
25. I have never used *World of Warcraft* as an escape from socializing	1	2	3	4	5	6	7
26. I often feel that I spend more money than I can afford on *World of Warcraft*	1	2	3	4	5	6	7
27. The less I have to do with *World of Warcraft*, the better	1	2	3	4	5	6	7

UCLA's Loneliness Scale

Instructions: The following statements describe how people sometimes feel. For each statement, please indicate how often you feel the way described by writing a number in the space provided.

Here is an example:

How often do you feel happy?

If you never felt happy, you would respond by circling 1 "never"; if you always feel happy, you would respond by circling 4 "always".

NEVER RARELY SOMETIMES ALWAYS
1 2 3 4

1. How often do you feel that you are "in tune" with the people around you?	1	2	3	4
2. How often do you feel that you lack companionship?	1	2	3	4
3. How often do you feel that there is no one you can turn to?	1	2	3	4
4. How often do you feel alone?	1	2	3	4
5. How often do you feel part of a group of friends?	1	2	3	4
6. How often do you feel that you have a lot in common with the people around you?	1	2	3	4
7. How often do you feel that you are no longer close to anyone?	1	2	3	4
8. How often do you feel that your interests and ideas are not shared by those around you?	1	2	3	4
9. How often do you feel outgoing and friendly?	1	2	3	4
10. How often do you feel close to people?	1	2	3	4
11. How often do you feel left out?	1	2	3	4
12. How often do you feel that your relationships with others are not meaningful?	1	2	3	4
13. How often do you feel that no one really knows you well?	1	2	3	4
14. How often do you feel isolated from others?	1	2	3	4
15. How often do you feel you can find companionship when you want it?	1	2	3	4
16. How often do you feel that there are people who really understand you?	1	2	3	4
17. How often do you feel shy?	1	2	3	4
18. How often do you feel that people are around you but not with you?	1	2	3	4
19. How often do you feel that there are people you can talk to?	1	2	3	4
20. How often do you feel that there are people you can turn to?	1	2	3	4

The DASS-21

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1. I found it hard to wind down	0	1	2	3
2. I was aware of dryness of my mouth	0	1	2	3
3. I couldn't seem to experience any positive feeling at all	0	1	2	3
4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5. I found it difficult to work up the initiative to do things	0	1	2	3
6. I tended to over-react to situations	0	1	2	3
7. I experienced trembling (e.g., in the hands)	0	1	2	3
8. I felt that I was using a lot of nervous energy	0	1	2	3
9. I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10. I felt that I had nothing to look forward to	0	1	2	3
11. I found myself getting agitated	0	1	2	3
12. I found it difficult to relax	0	1	2	3
13. I felt down-hearted and blue	0	1	2	3
14. I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15. I felt I was close to panic	0	1	2	3
16. I was unable to become enthusiastic about anything	0	1	2	3
17. I felt I wasn't worth much as a person	0	1	2	3
18. I felt that I was rather touchy	0	1	2	3
19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat	0	1	2	3
20. I felt scared without any good reason	0	1	2	3
21. I felt that life was meaningless	0	1	2	3