Impacts of Playing Massively Multiplayer Online Role-Playing Games (MMORPGs) on Individuals’ Subjective Sense of Feeling Connected with Others

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Impacts of Playing Massively Multiplayer Online Role-Playing Games
(MMORPGs) on Individuals’ Subjective Sense of Feeling Connected with Others

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ABSTRACT

Massively multiplayer online role-playing games (MMORPGs) are a substantial part of the multibillion dollar gaming industry. Millions of people of all ages across the globe engage in game play. With the average gamer logging 26.6 hours a week online instead of engaging in real world activities and responsibilities, this genre has created an international epidemic. In the last ten years the literature on this topic has gained interest and momentum. Researchers continue to explore the innumerable reaches of MMORPGs and how the gamer and their community are affected. The aim of this study was to gain a more comprehensive understanding of how the gamer relates to their world, both virtual and real, on a social level. The participants were gathered online mostly from within one particular MMORPG, Perfect World International. This study surveyed 103 participants with an online questionnaire. They were and given compensation in the form of virtual money. The electronic version of this dissertation is available free at Ohiolink ETD Center, www.ohiolink.edu/etd.
DEDICATION

To my extended family and friends, who have been constant sources of encouragement in my life. To my children who bring my life joy and purpose. To my parents who have provided me with unconditional love, emotional and financial support, resources, and guidance. With special thanks to my wife for her divine patience, unyielding support, and continual sacrifice to support our family through this process.
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I would also like to thank the participants in this study who took time out of their lives to participate in the online questionnaire. Their honesty and efforts allowed this study to occur.

Lastly, I would like to thank my family for their steadfast encouragement and support throughout my life. I am blessed to have been raised and surrounded by some remarkable, intelligent, determined, strong willed, self-driven, and proud people. I aspire to be as successful as my family with the aim to help a lot of people along the way.
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CHAPTER I: INTRODUCTION

Basis for the Study

There is an increasingly large amount of people playing Massively Multiplayer Online Role-Playing Games (MMORPGs) from age 10 and up. There are millions of people playing worldwide resulting in a recent boom in video game playing technology that heavily influences how many people spend their time. Of the millions of gamers who play massively multiplayer online role-playing games (MMORPGs), the average gamer spends 22 hours per week interacting with the virtual world via their avatar(s) (Yee, Bailenson, Urbanek, Chang, & Merget, 2007; Griffiths, Davies, & Chappel, 2003; Yee, 2006a; Yee 2006b). According to this study, the average number of hours a gamer spends gaming online has increased to 26.6 hours per week. This study applies to a wide range of populations in that anyone has the potential to become addicted and fully engulfed in these online worlds. One of the most at risk populations is young adults, especially those who are independent for the first time while away at university.

Vignette

The following scenario reflects a common example of how an average person can become involved in online game play. Mark is a 20-year-old male who is dedicated to the massively multiplayer online role-playing game (MMORPG), Perfect World International. He is a junior in college who discovered the game over the summer. He lives in an apartment with three other students. He does not have a job and is supported by his
parents while away at school. He had a 3.3 grade point average (GPA) in his first two years. He is currently getting Cs and Ds in his classes this semester, and they are getting worse. A typical weekday for Mark consists of waking up at 8:00 a.m. or 9:00 a.m. to log a few hours of game play on his computer before class. He grabs a pop-tart and his computer as he heads to class. There he opens a document for taking notes and the game. He may take a few notes before becoming completely re-immersed in his game. He grabs a burger and fries from a local burger joint on his way back home. Once home, he re-logs on the game and eats while he plays. He may take a short break for a hurried shower around 2:00 p.m. After his shower he has his main gaming session where he plays for 5 hours until 7:30 p.m. He then takes a break to have some cold left over slices of pizza for dinner and watches some T.V. After about a 30 minute dinner break, Mark goes back to his computer. He stays up until 2 or 3 a.m. gaming before eventually crawling into his bed that is covered in dirty clothes. Mark’s room is a disaster. In addition to the dirty clothes scattered all over his room, there are remnants of past snacks and meals. His never opened books for class are buried under piles of dirty dishes.

Mark now has very little contact with people in the physical world. He has lost connection with his high school friends who are off at other colleges. Any friendships that he has at his university are starting to fade. He has denied so many invitations to socialize with his friends that they have stopped trying and now assume that he prefers to be alone. Some
speculate that he is now involved in a relationship because they never see him. They would be right if they guessed that his relationship was with his computer, the internet, or this game, instead of with a co-ed. He also has limited contact with his family. His conversations are more hurried and less frequent.

Although Mark’s situation is dramatic, it is not the worst case scenario. Some players will wake up, play 14 hours straight, and go to sleep. Many players neglect bodily needs. They may have poor hygiene, malnutrition, lack of exercise, and sleep deprivation. The actual worst case scenario has happened several times. In these cases, people have played for so many hours that they developed deep vein thrombosis (a blood clot) which lead to a heart attack resulting in death (Murano, 2009). At least seven of these severe cases are known to have occurred around the world (Murano, 2009; Lam, 2010; TestCountry Articles, 2013).

**Background and Rationale of the Study**

The rationale for this study consists of three parts. First, there is a need to better understand the problem for those who detach from their real world lives and responsibilities. Second, it is important to identify and understand the process by which many gamers may decline in their interpersonal functioning. Third, it is imperative to learn the possible warning signs of overt internet gaming addiction.

In gathering information on this topic, this study collected and generated data to educate professionals about the clinical components of
online gaming. This is an epidemic in modern society. With millions of people playing worldwide, it is very likely that more and more people will be referred to clinicians to either help overcome some problem(s) that have stemmed from their increased game play or the game play itself (Tanner, 2007).

This study also aims to broaden the understanding of the addiction component of online gaming. In addition to alcohol, drug use, compulsive gambling, hording, and over eating, people may need to enter programs that are aware of and address internet and online gaming addictions. Online gaming addiction is most similar to internet addiction which is in turn most similar to a compulsive gambling addiction (Young, 1998). The literature covering online gaming addiction is sparse. This dissertation seeks to increase recognition of the problem and inspire treatment options.

Parsons (2005) found that less than 1 percent of Massively Multiplayer Online Role-Playing Game players have sought professional help for addiction. One reason is that gamers would not know to seek treatment. They may not see their game play as a problem. If they do seek help, they may be misdiagnosed or incorrectly referred for services. Many mental health clinicians misdiagnose internet and gaming addictions as depression, obsessive-compulsive disorder, or impulse control disorder (Parsons, 2005). With this failure to accurately diagnose, people may not receive proper treatment or address the main problem.
A significant amount of internet gamers and addicts are ages twelve to twenty-one. This study offers explanations to teachers and counselors of potential reasons why students’ work may be suffering and lacking. Unfocused students may be tired and fail to complete their assignments because of lengthy hours logged in the games the night before. They may be distracted by their fantasies of game play while in class. This may present itself as inattention, lack of focus, or disinterest.

Unfortunately, children and adolescents are not the only group immersed in intense game play. Anyone from any age bracket and any line of work can become heavily immersed in these virtual worlds. Just as teachers, parents, and counselors may recognize the symptoms of excessive internet use, employers and coworkers can also notice the same symptoms in their colleagues.

It is important to note that some of the population is positively affected and may report an increase in life satisfaction as well as social fulfillment (Krotoski, 2004; Cole & Griffiths, 2007; Yee, 2007; Jordan, 2009; Lukavska, 2012; McGonigal, 2011). Krotoski (2004) suggests that playing massively multiplayer online role-playing games (MMORPGs) helps develop and strengthen interpersonal skills such as group interaction, involvement, and flexibility that result in significant relationships and friendships. Krotoski (2004) also proposes that MMORPGs bolster personal empowerment. Teamwork is an area that is heavily included in MMORPGs. Teamwork enhances collaboration, cooperation, and satisfaction at playing
an important role in a larger effort (McGonigal, 2011). Gamers may also have a desire and means of developing meaningful long-term relationships with others through their online interactions (Krotoski, 2004; Cole & Griffiths, 2007; Yee, 2007; Lukavska, 2012).

Unfortunately, a large portion of the research shows that a majority of the population has a decline in their social well-being, which is explored in more detail in the review of literature (Smyth, 2007; Achab et al., 2011; Utz, Jonas, & Tonkens, 2012). While there are both costs and benefits that come with gaming, the degree to which people can be negatively affected appears to supersede the possible positives. For example, a reported increase in online friends compared to a loss of existing long term real life friends.

*Selection of Genre Rationale*

Fantasy based massively multiplayer role-playing games was selected for this study because of its incredible recent success and growth. It offers an escape from the world as we know it into a fantasy-filled world with immediate gratification and satisfaction. As gamers become increasingly immersed in the online world, various aspects of their real world begin to deteriorate. There is likely a balance that occurs between the two. It is expected that the more gamers seek gratification and self-worth in the online world, the more their real world lives deteriorate. One specific area of deterioration is social connection in the real world.
This world of massively multiplayer online role-playing games is now a global phenomenon. It is important for the well-being of the entire international gaming community that this genre is researched and understood. At the time of selection of the topic for this paper, there was a serious gap in the literature that addressed online gaming and social ramifications. In the last few years, the research has begun to follow the boom in online gaming and how it affects people psychologically. The goal of this paper was to incorporate that research, expand upon it, and include an exploration of the social realm of gamers.

**Purpose and Aim of the Study**

This study investigated the impact of time spent playing Massively Multiplayer Online Role-Playing Games (MMORPGs) on people’s subjective sense of feeling connected with others. The purpose of this study was to understand the problems and experiences of those who spend more time in their virtual life than real life so that necessary interventions can be developed. The study looked specifically at social relationships, both in game and in real life. There have been numerous cases where people have lost marriages, all previous friendships, and even their own children while immersed in intensive online game play. While children are affected, this particular study only looked at adults. One important distinction to keep in mind between these online games and other games is the lack of a pause button: In contrast to many other computer and console games, there is no
way of stopping the game while playing. The virtual world continues to move forward in time, just as the real world does.

This study investigated various components related to the games themselves and how they impact the people who play them. It exposed the methods that each of these games instills in order to keep people engaged in them. If it were easy to walk away from playing, the associated problems would not be verging on a worldwide epidemic, if not already there. The risk factors of these games to people’s daily lives was also a crucial component here.

Research Approach

This study investigated the relationship between the time spent playing massively multiplayer online role-playing games and interpersonal functioning. It hypothesized that the more time and energy people spend while becoming immersed in MMORPGs, the more their interpersonal functioning may suffer. This could be reflected in less time engaging socially with others, hindrances on close relationships, regression in social skills, increase in feelings of loneliness, or a lowered attention span. To fully understand and explore these issues and hypotheses, this study first conducted a thorough review of the literature. After reviewing the literature and determining a need for further investigation, this study utilized three assessment scales; Compulsive Internet Use Scale (CIUS), Video game Addiction Test (VAT), and UCLA Loneliness Scale; in addition to an
additional demographic and variable data questionnaire. The participants were recruited from within the actual online games by an avatar, controlled by the author. The avatar was positioned in a high traffic area and ask in a public chat box for participants.

Researcher Perspective

It is important to discuss why the author chose this topic and how his thoughts and opinions may influence its process and outcome. Prior to deciding a dissertation topic, the author had only ever played Massively Multiplayer Online (MMO) games, which were not as massive then as they are now. This included Blizzard Entertainment’s strategy games of Warcraft and StarCraft, as well as their role-playing game (RPG), Diablo. The author recognized that these games that he loved to play in adolescence and young adulthood were the next wave of gaming as he began to see their popularity rising. These new, Massively Multiplayer Online Role Playing Games (MMORPGs) were the next technological advancement of the gaming world. However, there a noticeable problem emerged as the hours allocated for game play was drawn from otherwise allocated time (work, family, social, sleep, eating, exercise). The author’s observation was that as some gamers became fully immersed in these games, various components of their life would suffer. The crossover from leisure gaming to real life disruptions was of a unique nature. People began blurring worlds and many preferred their fictional online worlds to their real physical ones (Young, 1998;
Dedmon, 2003). This of course was not new in concept, but the magnitude in which it affected people combined with the millions of users was cause for serious concern (Young, 1998; Dedmon, 2003; Axelsson & Regan, 2006; Bink & Smahel, 2011).

To fully understand this world, the author chose to immerse himself in it. He went beyond a simple, surface investigation of what the online games look like from the inside. Prior to, during, and after his three-year experience as an MMORPG gamer, he investigated other games such as: World of Warcraft, Forsaken World, Second Life, and Allods Online. After exploring several MMORPGs, he chose Perfect World International to be his primary focus. The appeal of this particular game was twofold. First, it was free. Second, it offered all of the same content as its leading competitors with high quality graphics and numerous options within the game (quests, guilds/factions, events, game chat, guild wars, leveling up system, etc.)

The author joined factions (guilds) and even became leader of two. He made friends, a few of which he still maintains contact via a social networking site. He engaged in almost every aspect that the game offered. The author found it fun and enjoyable. He also found it distracting at times and would have to pull back to remind himself that the primary focus was research. There were weeks where he would spend more than 30 hours gaming online. He was not however, isolated, lonely, or lacking social connections. He married his wife and they had their first child while in the three year course of gaming. After the birth of his child and the start of his
first predoctoral internship, he *unplugged*, and stopped playing. Throughout the process of gaming, the author developed a very thorough understanding of the ins and outs of MMORPGs as well as how they maintain the attention and participation of the gamers who play them.

**Definition of Terms**

A *Massively Multiplayer Online Role-Playing Game (MMORPG)* is a type of video game which allows for thousands of people to be concurrently playing in the same virtual world at the same time as each other. They are connected through the internet and can be logged online through a computer or gaming console.

Webster’s Online Dictionary (2006) describes *social relations*, saying they can refer to a multitude of social interactions, regulated by social norms, between two or more people, with each having a social position and performing a social role. In sociological hierarchy, social relation is more advanced than behavior, action, social behavior, social action, social contact and social interaction. Social relations form the basis of concepts such as social organization, social structure, social movement and social system.

The term, social relations, at its core focuses on how people engage with one another on a social platform. Social relations also extend beyond how one interacts with other people to encompass how those interactions relate to their social environment.
“Addiction is a persistent, compulsive dependence on a behavior or substance” (Farflex, 2013). Some researchers identify two distinctive types of addiction; substance addictions (such as drug, alcohol, and smoking) and process addiction (such as gambling, stealing, eating, or sexual) (Farflex, 2013). Addiction is also identified by tolerance to the behavior or substance and withdrawal in its absence (Smahel, Blinka, & Ledabyl, 2008; Bli


Internet addiction is a specific type of addiction where one’s use of the internet impairs their daily functioning. Many people use the internet in excess, but this specific type of addiction mimics qualities of other addictions such as substances and gambling.

Online gaming addiction is an addiction that falls under the umbrella of internet addiction. This specific type of addiction typically relates to any type of video game with an online component. This is not to be confused with gaming addiction, which suggests an addiction to any type of game that one could encounter. Online gaming addiction, rather suggests that the addiction must involve some type of game (i.e. role-playing, first-person shooter, strategy, or puzzle) and an online feature. The literature typically relates this addiction to games that have an online social feature.

For someone to be identified as having an online gaming addiction, they would exhibit some of the following behaviors:
- Having difficulty at work
- Change in appetite
- Inability to experience pleasure
- Disruptions in social functioning
- Difficulty at work
- Deterioration in physical health
- Insomnia

Since this is not a formal diagnosis, rather mere suggestions, the exact number, priority, and duration required of these behaviors are unsubstantiated.

**MMORPG versus MMO**

An **MMORPG** is a Massively Multiplayer Online Role-Playing Game. MMORPGs consist of an online virtual world in which users can interact with one another as well as the game by means of an avatar. This avatar represents a particular role which the user chooses to exhibit to the online world. An **MMO**, or Massively Multiplayer Online, is a multiplayer online game that is capable of supporting large numbers of players. The types of games vary from first person shooter to strategy to puzzle games. There is typically not much variation on the avatar characteristics. Many MMOs allow for the user to choose and personalize various avatars, but MMORPGs allow for greater depth and character growth. Both can be played on any device that has internet access (mobile, laptop or desktop computer, or video game console).

A **squad** is a group of players who partner up to work towards a common goal. Many games offer options for this partnering and may limit the number of people allowed in a **squad**, typically to six or eight players. **Squads** are short-term teams that can be easily formed and disbanded. They
typically allow members to heal as well as empower one another with offensive and defensive spells or enchantments, often called *buffs* or *bufferings*.

A *faction*, or *guild*, is a longer term grouping of people. There can be as few as 1 person in a *faction/guild* and as many as 300 or even 500 people, depending on what the particular game sets as its maximum. Some *factions/guilds* have a purpose, goal, or mission for the members, while others do not. Various MMORPGs allow for specific chat options for *factions/guilds*; specialized locations (i.e. guild halls or castles) where the members can meet; promotion systems where members can achieve higher rank status within their *faction/guild*; and wars where *factions/guilds* can battle other *factions/guilds* for land/territory, wealth, or reputation. *Factions/guilds* may offer a sense of community for many gamers within the virtual world.

The term, *gamer*, refers to any person who plays a video game. For the purpose of this study, *gamer* relates specifically to people who play games on computers, rather than video game consoles.

Waite (2007) classifies and describes five levels of *gamers*: *The casual gamer, transitional gamer, the skilled player, second job player, and pro-gamer*.

The *casual gamer* lacks attachment to the MMO and can easily transition in and out of playing as they would with any other video game. They would not spend an excessive amount of time playing. They likely
have active social lives and function undisturbed in their day to day lives. Their game time is typically less than 5 hours per week. They will not take on leadership positions or gain virtual in the MMO because of their minimal time spent gaming.

The *transitional gamer* will shift between casual play and to have some dedication to the MMO. Their gameplay will typically consume about 5 to 9 hours weekly. These hours may be broken up over a series of sessions or lumped together in two or three longer sessions. These gamers will not engage in high end game content. They may or may not receive some negative feedback from loved ones.

*The skilled player* is good at video games and will play three or four sessions per week. Each session may be three or four hours long, resulting in about 10 to 15 hours of gaming per week. This player will typically focus on one main character and eventually achieve a high level. Their slower rate will prevent or at least delay them from reaching more advanced game content. They are mostly able to maintain balance and keep up with their responsibilities. They are considered to be “at risk” because of the potential for these games becoming destructive in their lives. Those in committed relationships and/or with families in which have responsibility, their gameplay will be more noticeable. For those who are single and/or with less familial responsibilities, the increase is not as noticeably significant. The skilled player will neglect other hobbies or recreations in this stage as their
time on the MMO typically takes from their optional pastimes so that they can maintain balance as a family member, student, and/or employee.

The second job player treats the game as a part time job. They will spend 15 to 24 hours a week playing their MMO. These players may keep important family activities as priority and fit their job in around it. In an effort to maintain homeostasis in their lives, they will begin to struggle in keeping up with their responsibilities. The play will become problematic for sleep, school, work, and family life. Consequently, these people will exhibit fatigue in their day, resulting in an increase in caffeine or other stimulants, decline in grades, assignments, or projects, and/or weakened connections with family members. The second job player will typically have one to two active characters on a MMORPG. Being familiar with the particular MMORPG, they can reach power in the game within a few short months. Waite (2007) suggests that this level of play and symptomology could be classified as MMORPG Abuse. The disruption in one’s life can yield different results depending on the amount of responsibility they have. A young single male with a simple job can play 20 hours a week and show similar symptoms to a working married male who only plays only 10 hours a week, but has family obligations to a wife and two kids.

The pro gamer will spend more than 24 hours a week playing online. Often these hours are much high and in extreme cases can exceed 70 hours a week. These players are able to reach level 60 in 16 days or less, depending on the game. With their excessive gameplay, they are able to
achieve great power within the virtual world. They may have four characters
who are all over level 50 and have nearly invincible skills, powers, and gear.
They are usually very active in guilds or factions and have often taken on
leadership positions and other in game responsibilities. These may take the
form of planning raids, dungeon sieges, helping people with their quests,
planning and organizing for various guild wars, or farming for guild
materials. Some pro gamers have a strong desire for real world attention but
lack the resources, skills, or motivation of acquiring it, so they feel that the
MMORPG is all they have. Others have devised misconceptions about
reality and distorted it to the point where they express a sense of superiority
in comparison to non-gamers. These pro gamers may be easily defensive
and have rationalized their gaming and/or may be in denial of the magnitude
of how much their gaming affects their lives. These players are at risk for
unintentional self-harm by neglecting their basic needs. They may exhibit
withdrawal symptoms from a decrease in their game play which may result
in symptoms of restlessness, insomnia, depression, and agitation. At this
level, the game is priority and all other responsibilities and obligations are
secondary. Their school/work performance is greatly affected which may
result in failing classes and/or loss of jobs. Their familial and social
obligations are drastically affected and they endure significant damages to
their real world relationships. Waite (2007) suggests that the resulting
symptoms from this level of game play can be classified as MMORPG
Addiction.
Farming is the acquisition of various materials by either searching for particular natural resources within a game or killing certain NPCs or virtual animals.

NPCs are non-playing characters. They are part of the game and can take the form of friends, foes, beasts, animals, bosses, etc.

An avatar is a symbolic representation of the gamer in a virtual form. An avatar can range from a personalized smiley face to a meticulously designed and animated being. Avatars in MMORPGs are typically computer generated characters that are controlled by the gamer in the online world.
CHAPTER II: LITERATURE REVIEW

Online Gaming and Social Influence

History

The creation of Massively Multiplayer Online (MMO) games occurred around 1986 with Air Warrior, an air combat simulation (MMO Graveyard, 2010). Prior to that, a game called Africa also helped set the stage for massive online games (MMO Graveyard, 2010). As the concept caught on, games began to develop in various components: graphics, sounds and music, animations, character development, combat, etc. Over the years, bugs and systemic problems have been smoothed out to make the quality of game play more efficient and desirable. The numerous options within just the fantasy games in terms of what one could do has also expanded from a single story line of quests to player versus player combat, to having factions and guilds that can battle for land, to developing numerous professions and trades. Now the games also allow for people to have spouses, pets, homes, aerogear (flyers), mounts (to ride around and travel faster), and fashion. They can even create their character to look just like them or another desired appearance if they prefer. Essentially, in the last 25 years, Massively Multiplayer Online (MMOs) have been created and evolved to such a standard that many people prefer their virtual lives over their real lives.

The term Massively Multiplayer Online Role-Playing Game (MMORPG) was coined by Richard Garriott, the creator of Ultima Online, in 1997 (Safko & Brake, 2009). This game featured a top-down perspective (which was different from the shooter perspective in games like DOOM and
Quake) and brought the whole genre online (Kent, 2003). A series of MMORPGs followed, starting with Lineage and EverQuest. These games brought international awareness to these types of games with approximately 4 million users playing Lineage in Asia (Korea and Taiwan) around 1998 and about half a million users playing EverQuest (Kent, 2003). It was these games that paved the way for the way for the largely successful and profitable games: Final Fantasy, Dark Age of Camelot, and Star Wars Galaxies. Once gaming companies and programmers caught wind of the worldwide attention and noted success of MMORPGs, they began creating an abundant amount of games while the originals worked on their sequels. Each game added new gamer content to improve game-play, which would also lead to larger profit margins.

The world was then taken by storm with Blizzard Entertainment’s release of World of Warcraft. They doubled their expected yearly sales in the first six weeks of 600,000 units (Tycho, 2005). Now, over 13 million people are playing this game worldwide. That is a significant number of people who may have an internet or gaming addiction. If the number of gamers continues to increase at this rate, this may become a worldwide epidemic (if it hasn’t already).

Impact of Game-play on Social Relations

The impacts of playing massively multiplayer online role-playing games (MMORPGs) can surface in numerous areas of a gamer’s life. Noticeable aspects of a person’s life that may decline include friendships,
relationships with family and loved ones, and school/job performance (Achab et al., 2011; Utz, Jonas, & Tonkens, 2012). Their physical health and mood may also take a turn for the worse as the gaming increases (Smyth, 2007; Achab et al., 2011). These help act as warning signs that the game playing has begun hindering a person.

**Social/Family**

Social relations may influence all three of the aspects mentioned in the previous paragraph. Some researchers found that social life and friendships in the real world are limited and/or decrease in quantity and quality (Achab et al., 2011; Utz, Jonas, & Tonkens, 2012). The gamer may begin to develop online friendships that replace or fill the void of physical friendships (Utz, 2000; Smyth, 2007). While some people come into gaming with a rich social life, others are shy and/or socially inhibited and do not have many or any close real life friendships (Utz, 2000; Charlton & Danforth, 2010). They can use the internet to combat their social introversion while avoiding face-to-face interactions (Charlton & Danforth, 2010). This may in turn act as a substitute for their shyness instead of address the root cause for it.

The gamers’ social relations abilities spans across all levels (Achab et al., 2011). The degree to which they use their abilities however, is what is affected by increased game play. Achab et al. (2011) look at the self-reported changes that the gamers experience, such as “See fewer friends,” and “Go out less.” A gamer who goes from seeing one friend five times a
week to seeing that same friend only one time a week presents the same decline as another gamer who sees ten different friends five days a week to seeing ten friends only one day a week. Though one may have more quantity in their social life, both types of gamers over time report a statistically significant decline in their social relations with the increase in time spent gaming (Cole & Griffiths, 2007; Achab et al., 2011).

Essentially, the more time people spend playing, the less time they have to spend face to face in the physical world. Over time, their virtual social interactions begin to either replace their physical world ones or fill the void from prior. Once their needs are met in the virtual world, it may become difficult to reengage in the physical world. Furthermore, Cole and Griffiths (2007) found “a negative effect on relationships with those who do not play the same game…” This suggests that even if two people are both gamers, their relationship with each other may suffer if they are not playing the same game.

Close relationships with family and loved ones can take more time to deteriorate, or it can happen quite quickly. Either way, a significant amount of gamers does report family and marital difficulties (Achab et al., 2011). There have been numerous instances where partners leave because of intense gaming (Atwood & Schwartz, 2002; Dedmon, 2003).

One factor that imposes a burden is how time that was previously allocated to family becomes time spent with a guild or faction. Seay, Jerome, Lee, & Kraut (2003) found that gamers who are members of guilds
spend on average four more hours a week gaming than players who are not members of a guild. These guilds can act as surrogate families within the massively multiplayer online role-playing game worlds. Some of the more elite guilds require specific minimum hours logged online (Peters & Malesky, 2008). They may have required times for dungeon sieges, territory wars, guild events, or any other guild related activity. Because some of the required hours are at specific times, the gamer both schedules that time for gaming and will refuse real life interaction at those times, like family dinner or going out with a partner or family. They may also be late or have to miss particular family events because of their dedication and devotion to the game.

*Occupational/School*

The commitment that people make to gaming can also disrupt their school and/or job performance (Cole & Griffiths, 2007). They may be sleeping less because of late nights spent online (Smyth, 2007). They may also miss or be late to school/work (Cole & Griffiths, 2007). And their work or homework may fail to be completed because when they returned home, they were too eager to log more hours online and neglected their other responsibilities. Yee (2006b) explores how many gamers treat gaming as a requirement of daily living, blurring the concept of leisurely fun and required work. All of these factors may lead to job loss, which could lead to emotional factors such as a sense of failure, decrease in self-esteem, and depression.
Health

An important area that is affected by time spent playing massively multiplayer online role-playing games is physical health. This is one of the numerous characteristics that Achab et al. (2011) investigated in their study on the effects of online gaming, comparing addicts to non-addicts. Achab et al. (2011) found a statistically significant negative correlation between amount of time spent online and physical health from self-report measures of online gaming addicts. This makes sense in that each hour of sitting in or on a chair, couch, or bed is an hour not being physically active or healthy.

Smyth (2007) looked at the consequences of massively multiplayer online role-playing game play within a one month span and found that overall physical health was lower in the MMORPG group when compared to the computer, arcade, and console groups. Sleep quality was also significantly lower in the MMORPG group (Smyth, 2007). Smyth (2007) hypothesized that the lower physical health and sleep deprivation might create a vicious cycle where the increased game play which in turn fuels the lowered physical health that influences the difficulty in sleeping which creates additional time for online game play. In this cycle there may exist poor diet, increased smoking, and decreased exercise (Smyth, 2007).

Social Relations

As mentioned in the Definition of Terms section, social relations, is an umbrella term that consists of various types of social interactions. There
are numerous types and degrees of social relations involved when discussing the online gaming community. Prior to immersion within the online world, people primarily interacted with family and friends in the real/physical world. Family members typically exist at the core of social relationships. Beyond family are close friends. Then enter casual friends and acquaintances as well as other peers. If any of these relationships are lacking, the void has potential for being filled with online social relationships. Lastly, there are those who have psychological problems and social difficulties who may gravitate more towards online interaction (Caplan & High, 2011). The online world may offer a safer forum for these people in their face to face interactions where social anxiety, physical impairments, or any other challenges would otherwise hinder their interpersonal exchanges.

*Family Systems*

Social interactions amongst family members can be the most dynamic of all types of relationships. People cannot choose their family members, but rather are born into them. Some people come from loving families while others come from broken homes. Rules and guidelines for family interactions vary among each culture, ethnicity, race, gender, religion, nationality, age, and socio-economic status.

A *system* is defined by von Bertalanffy (1967, 1968) “as a complex of component parts standing in mutual interaction” (Amerikaner, 1981). Each family system contains subsystems and together they are all part of a
suprasystem that has unique rules and boundaries (Goldenberg & Goldenberg, 2008). Common subsystems are the parent, mother-child, father-child, and child-child dyads (Goldenberg & Goldenberg, 2008). Each system is diverse and contains separate rules and responsibilities (Goldenberg & Goldenberg, 2008). Individuals adapt in their ability to socially relate to each different system. A parent-parent dyad will have completely different standards than any other subsystem because of the power (responsibility and decision making) involved (Goldenberg & Goldenberg, 2008). The three most prominent subsystems are the spousal, parental, and sibling subsystems (Minuchin, Rossman, & Baker, 1978).

The spousal subsystem is critically important because it serves as both a role model and a guide to the children on how people should relate to others. It teaches them about male-female intimacy and commitment (Goldenberg & Goldenberg, 2008). It demonstrates how people can attend to one another’s needs, be devoted, communicate, negotiate, and plan for the future together (Goldenberg & Goldenberg, 2008). Any dysfunction with the spousal subsystem can ripple through the family system and possibly have a transgenerational effect throughout the child’s life (Goldenberg & Goldenberg, 2008).

The parental subsystem has the responsibility of educating, limit setting, disciplining, and nurturing (Goldenberg & Goldenberg, 2008). This subsystem is the backbone of the family system. It sets precedent for how the other systems are to learn, grow, behave, and relate to others. Within a
broken home or even a broken parental dyad, the other systems may falter without proper guidance. If this dyad raises the children subsystem in a way that is inadequate to the suprasystem, the children will more likely have difficulty in their future social relations.

One way that the parental subsystem can either succeed or fail is on how well they set boundaries. Goldenberg and Goldenberg (2008) define a boundary as “an invisible line of demarcation that separates an individual, a subsystem, or a system from outside surroundings.” Boundaries help define where subsystems begin and end (Goldenberg & Goldenberg, 2008). They establish which metaphorical lines are acceptable to cross and which are not. Furthermore, they promote self-regulation (Amerikaner, 1981). When boundaries are blurred, or not clearly defined, they can be easily crossed and thus jeopardize the integrity of the system (Goldenberg & Goldenberg, 2008).

The sibling subsystem is equally, if not more, important to the individual’s growth and development in his or her ability to relate to others. This subsystem is the first peer group that a child encounters in his or her life (Goldenberg & Goldenberg, 2008). Siblings are typically the longest lasting relationships that people can encounter in their life, existing throughout the majority of a lifespan (Cicirelli, 1995). This subsystem provides a practice ground for individuals to learn how to communicate, cooperate, negotiate, compete, and be supportive (Goldenberg &
Goldenberg, 2008). It also provides the precursor skills and practice to foster successful friendships and proper means of social relations.

Not all family systems contain these three as primary subsystems. Sometimes other subsystems like mother-son, father-daughter, or mother-oldest daughter may dominate when one or more of the aforementioned subsystems are not primary (Goldenberg & Goldenberg, 2008). Some family systems simply fail in one way or another to supply adequate resources for individuals to be successful in their social relations. For many gamers, the online gaming community can act as a surrogate family that fulfills numerous social arenas that have either not been fully cultivated or properly satisfied.

*Online Influence*

Regardless of the type of family from which each gamer comes, the online world offers an alternative from their home life. Their new friends and guilds/factions can act as the aforementioned surrogate for real life social engagement (Smyth, 2007). These online social interactions are a key driving force that both lure and maintain gamers (Smyth, 2007). A few social interactions offered are encouragement, loyalty, and love.

The process of obtaining new friends seems safer and easier online than it is in the real world (Young, 2011). Many gamers have difficulty being face to face in the real world (Leung, 2007). Others simply have poor communication skills or no one with whom they feel close enough to talk (Young, 2011). Even for those that have sufficient social skills, there is a
lure of simplicity in fulfilling social needs with less effort online. Unfortunately, this can spark a downward spiral of excessive online involvement.

*In-Character versus Out-of-Character Relationships*

When socially relating in the virtual world, gamers typically use an avatar in place of their physical self. The avatar acts as a medium between what is real and what is make believe. The person controlling the avatar can often choose how much of their self crosses through that medium. Chan and Vorderer (2006) categorize this into two types of online relationships: in-character relationships and out-of-character relationships. The in-character relationship refers to all communication and interaction between avatars (not the people controlling them) within the game setting (Chan & Vorderer, 2006). In-character relationships withhold all of the gamer’s personal information and instead communicate as the avatar and its virtual existence. Out-of-character relationships vary greatly from any small amount of personal information, like one’s age, to more in depth conversations about life matters. The main difference is that the gamer, not the avatar, exhibits their personality and communicates in out-of-character relationships (Chan & Vorderer, 2006).

In-character relationships are integrated in many of the massively multiplayer online role-playing games. Some games that are geared towards children, such as *Wizard101*, have a selection of word choices from which to choose (KingsIsle Entertainment, Inc., 2013). These communication
features censor the avatar’s speech to keep it safe and prevent negative real life consequences from the online world (KingsIsle Entertainment, Inc., 2013). It also establishes a boundary from which in-character relationships cannot extend to out-of-character relationships. These in-character relationships do not provide any substantial real world social interaction, but rather detract time from physical human contact and for many, provide an escape from any possible anxieties related to such occurrences.

Out-of-character relationships have the potential for a greater extent of positive social interaction (Chan & Vorderer, 2006). When people infuse their real life personality and identity in their avatar, they open themselves to the possibility of real life social interactions. This can manifest other forms of communication outside of the game (i.e. social networking sites, email, texting, and phone calls). This out-of-game communication can also increase the sense of belonging to the gaming community (Axelsson & Regan, 2006; Achab et al., 2011). Furthermore, out-of-character relationships have the potential to develop into real life physical gatherings and relationships (Cole & Griffiths, 2007; Koster, n.d.; Stampler, 2011). These real life physical relationships have also led to romantic relationships and even real life marriages (Squire, 2010; Stampler, 2011).

**Gains of out-of-character relationships**

Axelsson and Regan (2006) discuss the possible outcomes of engaging in out-of-game interaction. They found that it is useful in numerous areas. It can be used to plan and organize game play, organize
play session amongst comrades, and obtain advice about the particular game (Axelsson & Regan, 2006). As previously mentioned, substantial positive social and romantic relationships can and have formed as a result of out-of-character interactions (Cole & Griffiths, 2007; Squire, 2010; Stampler, 2011). Another gain mentioned prior is the sense of belonging that people feel (Axelsson & Regan, 2006; Achab et al., 2011). These relationships offer situations that empower the gamer’s ability to safeguard their social relations. They can branch out to other gamers with a filter for their social relations abilities. Over time, these interactions can also help people develop their social skills as they extend their out-of-character relationships (Krotoski, 2004; Cole & Griffiths, 2007).

Consequences of out-of-character relationships

Unfortunately, there are numerous consequences for out-of-game character relationships. The gamers’ orientation may be impacted by the increase of mediums for interaction. Essentially, the boundaries of the game and reality can become more blurred to a point where the player has difficulty distinguishing between reality and virtual reality (Axelsson & Regan, 2006). Within these blurred boundaries, Axelsson and Regan (2006) found a correlation between engagement in the game and the use of additional social media. This implies that the more outgoing they are, the more media they will use, and will thus become even more immersed within the online social community. Caplan and High (2011) propose that when gamers have a stronger sense of community from online relationships,
rather than face to face contact, they are more prone to *problematic internet use*. The term, *problematic internet use*, suggests a collection of “cognitive and behavioral symptoms that result in negative social, academic, and professional consequences” (Caplan & High, 2011). Furthermore, time for other activities and socialization in real life becomes redirected to the online community.

The progression of increased out-of-character interactions can be a slippery slope. People turn to their out-of-character online friends when they are feeling lonely or are in need of someone to be a confidant (Young, 2011). The desire to help others and the feeling of having purpose can make the out-of-character friends great listeners. The fulfillment of a person’s real life need by an out-of-character friend can be interpreted as a loving act. This can blossom into a wonderful new real world relationship and in many instances it can ruin a preexisting one. When a romantic or sexual relationship is initiated by people who are already in committed relationships and maintained through electronic conversations via e-mail, chat rooms, or within the game, it is called an *online affair* (Atwood & Schwartz, 2002). Whitty (2005) states that *online affairs* are increasing at an alarming rate. According to a study from 2002 conducted by the American Academy of Matrimony Lawyers, 68% of the nation’s top attorneys said that online affairs were significant factors in their divorce cases (Dedmon, 2003). That study was not tailored to massively multiplayer
online role-playing games, but rather is suggestive that they are more fuel to the preexisting fire.

*Impact on pre-existing real world relationships from online gaming*

Loss of close relationships among gamers is not limited to family members. The people with whom gamers previously spent the majority of their social time can be lost to the online world. The social loss typically begins with acquaintances and friends. Gamers have the option of spending time with their friends or logging online. For each hour they are logged online, that is one more hour that they are not with their friends. With the diminishing hours of face to face time among friends, the quality and stability of those relationships begin to falter. The gamer begins to flake, or not follow through with plans of meeting up, and their friends begin to notice. Some friends will push harder for interaction while others will learn the pattern and simply stop inviting their friend to join them in various activities. Eventually, most of the friends become preoccupied with their individual lives and allow the friendships to diminish.

*Preexisting psychological impairments effect on social relations*

Caplan and High (2011) found in their research numerous correlations between people with various psychological impairments and their likelihood to use online social interaction to fill that void. They found numerous studies where people who had preexisting psychological disorders were more likely to engage with strangers in online social interactions (Caplan & High, 2011; Ybarra, Alexander, & Mitchell, 2005;
van den Eijnden, Meerkerk, Vermulst, Spijkerman, & Engels, 2008; Mitchell & Ybarra, 2007; Mittal, Tessner, & Walker, 2007). While strengthening their online relationships and community, their few previous ties to the real world may deteriorate. Mittal, Tessner, and Walker (2007) also found a negative correlation between how much time they spend engaging in internet chat and the amount of real-life friends that they have.

This research is important because it shows that some of the online gaming community has preexisting psychological disorders that have made it difficult for them to relate with others face-to-face. It is within this population that special attention needs to be allocated and awareness increased to prevent excessive problematic internet use.

People who are psychologically sound, but still have difficulty relating to others socially are equally prone to higher rates of problematic internet use (Caplan & High, 2011). Some of the interpersonal difficulties they might exhibit are “loneliness, social anxiety, low social skill, and introversion” (Caplan & High, 2011, p. 39; Morahan-Martin, 2008). Even though the internet does offer a venue for some people who are extremely introverted or have extenuating social anxieties to get their interpersonal needs met, for others it can fail to act as a proper substitution for real life face-to-face interactions (Erwin, Turk, Heimberg, Fresco, & Hantula, 2004).

*Splitting as a psychological defense in social relations*
Melanie Klein’s work on splitting may apply as formidable reason for people to immerse themselves in an online world (Whitty, 2011). Klein suggested that splitting was a basic defense mechanism often used to combat anxiety (Whitty, 2011). The splitting of personality and communication may be seen in that of their avatar. Essentially, Klein (1986) proposed that the splitting can come in a form of regression. When applied to the online gaming population, it may be apparent that people have anxiety about a myriad of issues (i.e. people, tasks, activities and obligations, other real world problems) and are coping with their anxiety by immersing themselves in the online world. Furthermore, Klein’s object-relations theory is applicable to the avatar being the object of good, yielding more attention from the gamer.

*Why people choose to play Massively Multiplayer Online Role-Playing Games*

All gamers start as beginners with each new game they encounter. The manner in which they find and start playing each game will vary from person to person as well as from game to game. There are numerous theories and philosophies on how gamers discover their next gaming experience. Bekhtina (2002) identified four basic motivations for playing: (1) curiosity, astonishment, and interest; (2) cognitive stimulation; (3) enjoyment of a different life style in virtual environments; and (4) recreational refreshment.

These motivations can be sparked by various means of advertisement. Blizzard Entertainment and Electronic Arts are among some
of the larger video game organizations that run progressive ad campaigns on television, on the internet, and in other forms of media. They create enticing and dynamic commercials that trigger the various motivations classified by Bekhtina (2002). Once triggered, gamers have both an awareness and interest in exploring the newest games and game content.

Klug and Schell (2006) suggest five theses for why people become involved in game play. The first thesis is for players to gain control over their environment. The second is for players to play games that allow them to vicariously experience something that could only previously be imagined or observed. The third is for gamers to vicariously live somewhere else and/or in another time. The fourth relates to the competitive component involved in game play. Lastly, Klug and Schell (2006) suggest that people play games to explore fantasy relationships safely.

The first thesis suggests that people play in an effort to gain control over their environment, which they can do by taking an active involvement in their virtual world. The active involvement piece is what differentiates video games from other forms of escape such as novels and television. In this scenario, the gamer experiences a sense of control or at least the illusion of control (Klug & Schell, 2006). This may be the only area in their life where they truly feel in charge and able to manage (to a certain degree) how their experience will pan out.

The second thesis depicts how the gamers’ fantasies become more of a realistic experience (Klug & Schell, 2006). Even though they are not
the avatar who is firing a gun or swinging a bat, they are the one who controls it. They have the opportunity to experience something they have seen on television or read in a book (Klug & Schell, 2006). Playing games puts images, sounds, and function to ideas that were previously limited to individuals’ cognition.

The third thesis addresses how gamers play as a means to escape into a fantasy world of a different time and/or place (Klug & Schell, 2006). Klug and Schell (2006) suggest that gamers having control over this environment is not as important as how realistic that environment appears. It does not need to make sense in terms of making sense in the real world, but rather that the graphics and images are functional. The aesthetics of these fantasy worlds are more appealing for certain gamers who desire an escape from reality. The graphics need to make sense more than the content because for these players the journey is more important than the destination (Klug & Schell, 2006).

The fourth thesis suggests that gamers play for the competitive factor (Klug & Schell, 2006). For years, the gamer could only play against the computer or some form of artificial intelligence (AI). With the influx of online gaming, people have more opportunity to play against one another. Klug and Schell (2006) propose that people enjoy this factor because their victories imply that they are better than someone else in one way or another. This in turn makes them feel good about themselves, boosts their ego, and improves self-esteem.
One of the most important theses proposed by Klug and Schell (2006) is that people play to safely explore fantasy relationships. The area of safety stems from the barrier between their avatar and their real self. Within massively multiplayer online role-playing games, there exists a possibility for person to person relationships (as opposed to player to computer relationships). Furthermore, Klug and Schell (2006) propose that people can take on a new or different personality. They use the example of a woman who chooses to be more promiscuous, taking on numerous partners in a game. In this example, the woman gains pleasure without having to face any social ridicule and is additionally reinforced by other male gamers who promote and enjoy her in-game behaviors.

Axelsson and Regan (2006) suggest that socially, there are three main types of play: helping, cooperating, and hostility. Numerous people gain pleasure from being able to help another in need. It can give them a sense of self-worth and boost their ego. Within the helping, their avatar, and thus the player behind the avatar, has a reason and meaning for playing the game. The second social reason for gaming arises from the cooperation that people have with one another. The core concept of many massively multiplayer online role-playing games is that the experience is shared with others. With this in mind, game designers create numerous mediums for players to interact with one another. Squads and guilds/factions are the most common means for players to cooperate with each other. People enjoy the opportunity to work together towards a common goal (McGonigal, 2011).
It can give them a sense of belonging (Axelsson & Regan, 2006; Achab et al., 2011).

On the other side of the coin, many gamers greatly enjoy being hostile in the games. Hostility online can get the person attention from others just as it does in real life. For some, this may be their primary means of interaction with others in real life and that is all that they know. For others, they receive gratification for being better than someone else. Either way, establishing dominance over another can boost one’s self-worth and ego (Axelsson & Regan, 2006). Axelsson and Regan (2006) also suggest that these reasons for social game play may and likely will overlap.

*Details of the Games*

Massively Multiplayer Online Role-Playing Games typically contain numerous components that make up an interactive virtual world. They often consist of large cities, small towns, forests, deserts, beaches, oceans, seas, dungeons, caves, and mountains. Each of these areas has numerous non-playing characters (NPCs) that provide services and dialogue. There are usually buildings, shops, roads, agriculture, animals, sculptures, fences, walls, and other people playing on their characters. Each and every one of these components is designed with the intent to mirror reality as much as possible. In some games, the grass on the ground and leaves on the trees are in incredible detail. The sculptures and artwork are intricate and even the sounds of birds chirping and footsteps made from walking echoes as the person moves their *avatar* (online character that the
player controls) through these virtual worlds. This intense graphic development further blurs the boundaries between real and virtual life (Smith, 2006).

Each avatar is tailor made. With time and effort, people can make their avatars look just like they do in real life, or what they would want to look like in real life. People can experience life as another gender, race, or ethnicity. They can choose to be skinny, fat, fit, muscular, short, tall, or a mythical beast (i.e. Minotaur or vampire). They can choose specialized tattoos; piercings; hair style; hair, skin, and eye color; fashion, scars, and make-up. One such example of intricate work is a person who made their avatar to look just like the Joker from one of the more recent Batman movies, *The Dark Knight* (this was in a medieval fantasy game, so no easy feat).

In addition to how people visually design their avatars, they can also create a new personality to go with it (Blinka & Smahel, 2011). They can choose to be a kind soul, helpful and good. They could act as a menace and be evil to all those they encounter. If they desire, a male can take on the personality of a female or vice versa. Someone who is incredibly shy in real life may feel comfortable opening up online to others (Utz, 2000). They can take on leadership positions in squads, guilds, or factions.

Beyond identifying with their avatars, gamers develop attachments to them. Bowman, Schultheiss, and Schumann (2012) suggest that some Massively Multiplayer Online Role-Playing Games encourage the merger
of the person’s concept of self with that of their avatar. They refer to this connection as *character attachment* (Bowman et al., 2012). With the gaming market fostering and encouraging these bonds, the gamers will find it more difficult to differentiate between their sense of self and that of their avatar. Over time, the gamer may have difficulty distinguishing their online world as virtual versus reality. Moreover, if their *character attachment* is high, they will likely relate to others and experience the game as seriously as they do real life.

*Social Component*

Massively Multiplayer Online Role-Playing Games provide numerous opportunities for people to come together. People may replace or fill a void of current real life relationships with these interactions. Krotoski (2004) suggests that MMORPGs with necessary group interaction and involvement, gamers may enhance some social skills such as flexibility; which involves being open to the plans and ideas of others. Through this involvement and cooperation, gamers can develop significant friendships and personal empowerment (Krotoski, 2004; Cole & Griffiths, 2007).

As mentioned previously, these interactions primarily come in the forms of joining squads, guilds, or factions. Squads are groups of people that join for a short length of time to work on particular quests together. Guilds and factions are larger collections of people who act more as a family, army, group, or club. Guilds and factions can have a particular theme or be completely random. Many have level and gear prerequisites,
where the player has to be strong enough (i.e. level 60 or 80) (Bergmark & Bergmark, 2009). People can also choose to fight against others within the games. This can be done solo, with squads, or with the factions/guilds. The factions and guilds themselves can make alliances or enemies and sometimes go to war over particular land or territories.

Team cooperation is essential in most massively multiplayer online role-playing games. Some components of the games require more people to accomplish success. They may need different skill sets, multiple tasks that need to be performed simultaneously, or more firepower (Chan & Vorderer, 2006). For example, a warrior player can perform melee attacks and absorb most of the damage while a healer restores the party’s health and a mage attacks from a distance (Chan & Vorderer, 2006). These scenarios promote positive social interaction, provide gamers with an experience of being dependent on each other, reinforce their relationships after repeated success, and yield a good understanding of teamwork (Krotoski, 2004; Chan & Vorderer, 2006; Cole & Griffiths, 2007).

Another social component that these games have is an option for adding people to a friends/buddy list or blacklist (similar to an enemy list) to encourage or prevent future contact (Chan & Vorderer, 2006). Interestingly, Bowman, Schultheiss, and Schumann (2012) found that older gamers were more likely to engage in pro-social gaming, whereas younger male gamers tend to carry out more anti-social activities.
Beyond friends and enemies, some games have options for romance. Certain games contain the option to become married with another person’s avatar. Moreover, some games have elaborate weddings that can be planned where guests can be invited and bring gifts (Morris, 2008).

_Reward System_

These games contain numerous hooks and reinforcement techniques that aim to keep players involved and as a result, detached from their real world social lives. A broad way of doing this is the reward system that is built into these games. One method is the rewards obtained from completing quests. After completing quests and gaining enough experience, the game rewards the player by leveling up. The game also involves intricate reinforcement by means of graphics and their use of colors, lights, and sounds.

The main way that one can become more and more powerful is by completing the storyline quests. Certain quests can take numerous hours to complete. Since there is no save option in massively multiplayer online role-playing games, the player is unable to leave the game and keep their progress (Young, 2009). Many gamers choose to let their real world relationships suffer little by little instead of losing the progress and rewards that they would acquire from completing a quest. At the end of quests, they are rewarded with various prizes such as: experience points, armor, weapons, money, reputation, special items, and/or numerous other items that will aid them in the game. If they are unable to complete a quest, they
may become very irritable and frustrated, and view themselves as failures. Young (2009) relates this behavior to addicts as they work to achieve power and become the most powerful.

The avatar’s level signifies their strength and progression in the game. The majority of video games have players start at level one. It is common amongst most games to have the early levels easy to reach. Within minutes people can level up numerous times. As people level up, they often gain new attribute points that make their character slightly more powerful. Their maximum health or magic meters may improve as well as their overall strength, dexterity, agility, magic using abilities, and/or vitality. This initial burst to allows characters to become more powerful to a point quickly. This provides an immediate sense of accomplishment and success which reinforces the gamer.

People can also share with their friends, squad, and guild/faction that they have leveled up and receive a congratulatory message from them. This provides further recognition that their work has yielded a reward and strengthens their bond with others in the game. This positive social feedback can help fulfill the gamers’ social needs that they would otherwise obtain from their real world friends. As the person moves along in the game, they will work harder and longer to achieve the positive rewards and feelings again.

Most games have a level cap, or maximum. Often, reaching that level cap can take many weeks, months, or even years. At this point the
players work vigorously to achieve more powerful gear (i.e. weapons and armor) (Blinka & Smahel, 2011). The time that players spend online while they strive to obtain the best gear, level, and/or reputation can lead to relationships drifting away and school/job performance to falter (Cole & Griffiths, 2007). Another commonality amongst players who reach or get close to the level cap is the creation of a new avatar. They may also transition from one game to another that is similar. They once again feel the flood of initial level-ups and get hooked all over again as they restart the cycle.

When a person earns a level up in a game, it is usually accompanied with some special animated sequence. There is typical some sound or tune that occurs to signify that this person has achieved a new level. This sound or tune is usually something dynamic and upbeat. It is commonly a short series of sound effects lasting a few seconds. The even larger graphical component is the animated lights and colors that are seen. Most games have a series of dynamic swirling lights that change color, sparkle, and surround the avatar and their screen. Furthermore, other players can see this on their screens and they often congratulate people when they see a level up, which provides gamers with a sense of community involvement and approval.

*Internet Addiction*

*Overview*

For the purpose of this section, it is important to keep in mind that online gaming addiction is one type of internet addiction and that they
encompass similar components. There are six factors that an individual should exhibit when addicted to the internet (Blinka & Smahel, 2011; Smahel, Blinka, & Ledabyl, 2008). One factor, salience, refers to when the activity becomes the most important part of their life; it governs their thoughts, emotions, and behaviors. Another factor, mood change (euphoria), refers to the particular way that the person experiences the activity through ongoing involvement. A third factor, tolerance, occurs when the user requires progressive lengths of time or involvement. One more factor, withdrawal symptoms, is seen when there is some perceived detriment when the full or desired internet use is not met. A fifth factor is the interpersonal or intrapersonal conflict that can be caused by continual application of the activity. The last factor is relapse, the act of reengaging the addictive behavior after demonstrating control over it.

Treatment

Simply within the diagnosis of Internet addiction, there are likely substantial differences to be made between it and online gaming addiction which could result in different treatment options. Mental health clinicians typically treat internet addiction with a variety of theoretical orientations: cognitive, reality, family systems, or solution focused (Parsons, 2005). These likely have significant success with online gaming addiction treatment as well. It is difficult to say because until the fifth edition of the Diagnostics and Statistical Manual of Mental Health Disorders (DSM-V) in 2013, the actual diagnosis of Internet use gaming disorder did not exist; so
there is limited research on specific treatment options for it (Herold, Connors, & Moore, 2012).

A good beginning point for therapists is to discover what the online world does for the addict and how they can use it in real life (Blinka & Smahel, 2011). Massively multiplayer online role-playing gaming addiction and other internet addictions are very similar to the majority of other addictions at its base; on a molecular level, neurological level, and behavioral level (Kuss & Griffiths, 2012). Because of this, Blinka and Smahel (2011, pp. 87) encourage that therapists use “their proven procedures for other types of addictions or problems and possibly combining them with the options provided by the virtual world.” Turkle (1997) suggests going a step further to meet the addict within the virtual realm because it could lead to a possible increase in understanding the gamer’s problems. This could also turn out to be a good boundary crossing within the therapy. A boundary crossing is when a mental health provider acts in a nontraditional way, while still remaining ethical, to advance therapeutic progress.

Kuss and Griffiths (2012) conducted fMRI studies that illuminated how the various areas of the brain are influenced by excessive internet and more specifically, online gaming, use. They found that the brain regions commonly associated “with reward, addiction, craving, and emotion are increasingly activated during game play and presentation of game cues…” (Kuss & Griffiths, 2012). The regions of the brains of gamers and addicts
undergo neuroadaptation to integrate the additional sensorimotor and perceptual information as well as the mesocorticolimbic system involved in reward and addiction (Kuss & Griffiths, 2012). One of the most prominent noticeable changes in the brain’s neurocircuitry is the decrease in gray matter and white matter volume (Kuss & Griffiths, 2012). This decrease occurs amongst various regions and impairs motor skills and a variety of cognitive abilities, such as motivation and impulse control; which are also associated with cocaine addiction (Kuss & Griffiths, 2012). Another key finding shows damage to the corpus striatum, a symptom often associated with heroin addiction, which in turn leads to decrease in dopamine levels (Kuss & Griffiths, 2012). Lastly, internet and gaming addicts exhibited levels of brain atrophy, which may explain loss of control and impairment in mediating emotional processes and memory (Kuss & Griffiths, 2012).

Kuss and Griffiths (2012) suggest using both psychopharmacological and cognitive-behavioral treatments to most effectively treat this population. These treatments can reduce the associated addictive symptoms of craving, gaming cue-induced brain activity, and cognitive dysfunctions (Kuss & Griffiths, 2012).

Treatment of any internet or computer related addiction is very difficult in modern society due to the excessive demand placed by educational and work environments. Computers, cell phones, tablets, and anything else that is used in modern daily life typically has access to the internet. Since the therapist cannot be regulating the addict’s online usage
all the time, a systematic approach is one method that can be successful. This means that all the people involved in the person’s life are requested to participate in an effort to make progress. The most important one of these systems is the family system.

Poor family functioning correlates with adolescent internet addiction (Yen, Yen, Chen, Chen, & Ko, 2007). If the family is not involved, these problems are likely to be present and continue to exist. In their study, Yen et al. (2007) found that higher parent-child conflict, siblings’ chronic use of alcohol, perceived parents’ positive attitudes towards adolescent substance use, and overall lower family functioning could be used in a predictive model for Internet addiction. Knowing this, it is important to address any possible family dysfunctions and non-conducive behaviors.

An immediate area to work on within the family is the parent-child relationship. Parent-child conflict and inadequate child monitoring by the parent is a predisposition for internet addiction (Yen et al., 2007). A starting area in treatment would be to encourage and practice more efficient parent-child relations. Introducing problem resolving techniques and encouraging better communication between family members can help achieve more productive interactions. Next, the monitoring of the addict’s activity would need to be done by as many members as possible, especially by the addict. Bringing the activity level into the forefront of everyone in the system’s minds will help the family system recognize and address excessive internet
use. Furthermore, having defined hours that the addict is logged on each day will allow for progress to be charted and addressed.

It is likely that this model can be interchanged with adults who suffer from internet addiction. The key relationships may involve a spouse, parents, friends, close relatives, and/or coworkers. The same key components would be to maintain a log of hours spent online playing and strengthen their relationships with others. Online gaming addiction is a withdrawal from the real world into a virtual one. In both adults and children, it will be important to validate their humanity and character, apart from that of their avatar, in an attempt to reengage them with the real world.

The family-based approach aims to increase effective family functioning while decreasing the behavioral problems of the addiction (Yen et al., 2007). The family-based prevention should include skills training for parents (or whoever is involved in the person’s treatment). It should aim to improve communication skills, help the addict develop social skills, help family members reduce maladaptive family function, foster skills for healthy family interactions, sustain effective family monitoring, and discipline focusing on the Internet addiction (Yen et al., 2007). The skills training would be introduced and practiced in family therapy sessions. Each member would work on strengthening their own skill set in an effort to improve the whole family unit’s functioning.

In order for treatment to be successful, it must not only address the gaming behavior, but aid the addict in their identity formation development
that may otherwise be hindered by using the gaming as means of coping with life’s problems (Young, 2009). Treatment should introduce and focus on effective problem solving and social skills that are necessary to nourish self-esteem of the addict (Young, 2009). If they do not build their self-esteem and work on their identity in therapy or in the real world, they will use online gaming to fill the void in their identity development. This may result in a preference to their avatar over their real life self. Furthermore, their identity development may be influenced negatively by how they interact with others (this means any person they encounter and build a bond with; positive or negative) in-game. Even if they develop one personality and great self-esteem in-game, it may be limited to virtual life scenarios while their real life self-esteem is fragile or non-existent (Young, 2009).

The core point here is that for treatment to be successful, it must focus on ways to build or rebuild their identities outside of the gaming environment (Young, 2009).

Another core issue in the treatment of online gaming addicts is their communication skills. Many adolescents, regardless of gaming, cannot communicate well in person (Leo Sang-Min, Whang, Lee, & Chang, 2003). This may be a crucial reason to why they start gaming in the first place. Gaming online provides a safe and easy forum to communicate where there is no real life rejection, punishment, or reprimand for flaws in their communication methods (Young, 2009).
There are numerous techniques that family therapists can implement to foster the development of the gamers’ communication skills. They can encourage a peer or someone older to engage the gamer in short conversations to help develop their skills (Young, 2009). This can be a sibling, cousin, friend, or parent. In adult gamers, this can additionally be a colleague or coworker. Young (2009) goes on to suggest that, “using books, magazines, and television to teach an adolescent client about facial expressions can also be helpful, especially to have them learn others’ body language to help them understand what the other person is feeling.” Another effective method to use in therapy to build communication skills is role playing conversations with the gamer (Young, 2009).

For children and adolescents ages 6 to 17 years old, Young (2009) recommends using Brief Strategic Family Therapy (BSFT). This therapeutic process uses 3 main techniques: joining, diagnosis, and restructuring (Young, 2009). Joining involves building a therapeutic alliance among the family members. Diagnosis relates to identifying the patterns that perpetuate the problematic behavior. Restructuring aims to reduce the family interaction patterns that perpetuate the problem.

Just as there are support groups for other addictions, there are also support groups for online gaming addiction. One of the most popular groups is an online group. It is called On-Line Gamers Anonymous, or OLGA & OLG-Anon. Their website is www.olganon.com. They have both online and face-to-face meetings. They offer both a 12-step recovery program as well
as a modified program without a religious or spiritual component. They also have an online forum for members to access, post, discuss, and seek guidance and help.

In her book, *Caught in the net: How to recognize the signs of internet addiction and a winning strategy for recovery*, Young (1998) lists these ten signs of recovery to acknowledge and pay attention to:

1. Stick to scheduled hours of internet use
2. Acknowledge when parents, partners, or other loved ones say that they see a change in internet habits and behavior
3. Monitor spending of on-line related fees
4. Performance of work tasks, school assignments, or household chores is completed in a timely fashion and resembles how they were done prior to the addiction
5. Rediscover favorite hobbies and activities
6. Expend more energy communicating with people in real life than strangers over the internet
7. View others with internet addiction in different light, with an understanding of the problems they have created and are going through in their lives
8. Feeling less trapped and tempted to resume old habits when on the internet
9. Feel a greater desire to go out with loved ones and friends; turning down fewer invitations and starting to make one’s own
10. Look back on the addiction to see a different person from a different time
These are the signs that people will see as they recover. It is important to be aware of them to both track and identify the recovery progress.

*Effects in real life*

A huge component to the online gaming addiction is not how people are spending their time, but rather how they are not spending their time. It is known they the majority of their time is being spent playing online. Gaming addicts can spend ten, fifteen, or even twenty hours online per gaming session (Young, 2009). Some people have their gaming clients (the game operating program on their computer) running at all times and just leave a merchant shop up when they are AFK (away from keyboard).

One thing that people are not doing while they are gaming is being proactive in life. They are not out dating or spending time with loved ones. They are not going out to social events while they are playing online. They are not receiving fresh air or getting exercise. They are not attending recreational activities or going to social events. They are not taking care of their homes or doing chores. They are typically performing less at work or on homework from their job or school. Essentially, they are not living in this physical world, but rather in their virtual one.

The quality and length of their interactions tends to suffer. They may be shorter on their conversations with people. They may be easily distracted, thinking about the exciting quests that await them the next time they log on. Their relationships with friends and family may begin to suffer. Their loved ones may begin to be replaced temporally or permanently. Essentially, their
normal interactions with friends and family in the real world may have time cut out to feed into their gaming hours.

They may also begin to communicate by various means, just as discussed earlier regarding out-of-character interactions. The primary means of communication within massively multiplayer online role-playing games is the in-game chat box. The games have various types of chat options within the chat box: general, world, squad, guild, and whisper or private message. There is a variety of short-hand communication used as well to convey text in haste. When gamers seek to increase that haste or explore another means of communication, they use a microphone connected in some way to their computer. Some programs they enable this are Teamspeak, Ventrilo, and Skype. These offer a real human voice to the avatar that further blurs the boundaries between virtual reality and physical reality. As online relationships develop, they may become favorable to the current or lack of real world relationships.

Whitty (2011) discusses how online communication can develop into quicker and more intimate relationships, called hyperpersonal relationships. As the gamers begin to communicate more and more, they also use more means of communication. They may email or even become friends on Facebook or another social networking site. Once friends on a social networking site, they can gather more specific information about each other as well as put a face to the text. Whitty (2011) emphasizes the advantages of computer-mediated communication (CMC) when compared
to face-to-face (FtF) communication. One large advantage with CMC is the ability to edit the message before sending it, a luxury not available with FtF (Whitty, 2011). Another factor that allows hyperpersonal relationships to develop more intimately comes from the lack of physical distraction (i.e. face, body, voice) (Whitty, 2011).

Another area that can begin to suffer is professional and/or educational performance. Just as time spent playing detracts from time allocated for other activities like social interaction, leisure activities, and hygiene, gamers may begin to suffer in their school/work performance (Cole & Griffiths, 2007). This can happen from lack of sleep leading to poor memory and concentration. Any work that needs to be performed at home may not get accomplished because gaming. While at work or school, they may also be distracted, thinking about their quest from the night before or how they will get that next item once they get home. Other gamers may lose track of time and miss work/school. Once school or work performance suffers, they may have more serious issues arise. Students might fail classes while workers could lose their jobs. If they do lose their job, then financial issues may arise, which in turn could bring about additional stress. That stress often sends gamers into their best means of escape…their game.

Intense gamers will also prolong the time until they manage their bodily needs. They will put off time between taking care of hygienic needs like bathing and brushing their teeth. Many will hold off on using the restroom for much longer than is healthy. Others will eat or drink minimal
amounts for fear of falling behind on a quest or the game in general. When they do have time to consume food, it is more often fast food and less healthy. Others may stockpile large amounts of snack food near their computer that they eat instead of balanced meals. A large amount of gamers also do not receive the proper amount of physical exercise or even activity. They spend numerous hours sitting in a chair. This can have serious physiological impairments. There have been cases where people have developed deep vein thrombosis and in one particular case, a Chinese girl developed a blood clot in her knee that caused her to have a heart attack and die after playing World or Warcraft continuously for a few days (Murano, 2009).

Male and female differences

Men and women relate differently not only in the physical world, but also online. They seek different gratifications on the internet, just as they do in many of their other social interactions. Wieland (2005) suggests that men and women also experience internet addiction differently. Male addicts tend to fall within three categories of internet addiction: information seeking, games, and cybersex (Young, 1998; Wieland, 2005). Within these categories, males pursue power, status, and dominance (Young, 1998; Wieland, 2005). Women however, tend to use the internet more as a means of support, friendship, romance, and as a coping mechanism for their relationships with their partners (Young, 1998; Wieland, 2005).
Females also differ from males in their demographics and rates of game play (Blinka & Smahel, 2011). Along the age spectrum, female gamers come into the picture later than males. The average age of female gamers is 32 years old, which is significantly older than the average age of males at around 25 years old (Blinka & Smahel, 2011). Among adult gamers in 2003, females comprised of approximately 20% (Griffiths, Davies, & Chappell, 2003). Yee (2006a) suggests that females become more involved later on because it is typically their male counterparts who introduce them to this genre of online game playing.

Among all online games in 2011, females comprised nearly 42% of the players, showing a dramatic increase in the amount of female gamers (Entertainment Software Association, 2011). Another statistic that has had a dramatic change in recent online gaming is that women age 18 or older make up 37% of the online gaming community compared to 13% of boys age 17 and younger (Entertainment Software Association, 2011). A large influence on these statistics is the type of online game. Women prefer to play puzzle and card games (Blinka & Smahel, 2011). This category makes up 47% of the types of online games played most often compared to the persistent multi-player universe, which encompasses massively multiplayer online role-playing games, which makes up only 11% of the online games (Entertainment Software Association, 2011). Cole & Griffiths (2007) suggest that women will play about 10 hours per week combined; whether on one game or amongst various games. Blinka & Smahel (2011) found that
males can average 20-30 hours per week combined; whether on one game or amongst various games, which is mainly variable to their age.

Clinical scales

*The Compulsive Internet Use Scale (CIUS)*

The Compulsive Internet Use Scale (CIUS) was developed by Meerkerk, Van Den Eijnden, Vermulst, and Garrtsen (2009) as “a short, easily administered, psychometrically sound, and valid instrument to assess the severity of compulsive internet use.” This scale addresses the online portion of the term, online gaming. People may engage in any type of video game, but this dissertation looked specifically at those who spend time gaming online.

The Compulsive Internet Use Scale (CIUS) consists of 14 items on a 5-point Likert scale. This scale is ideal because it is brief and valid. When a person engages in compulsive behavior, a simple task such as a questionnaire may not be completed if it is too time consuming because it deters the person from their vice. The concurrent validity of the CIUS was examined with a similar scale, called Online Cognition Scale (OCS), which measures pathological internet use (Meerkerk et al., 2009). The CIUS and OCS were highly correlated with a Pearson correlation $p < 0.001$ (Meerkerk et al., 2009). The internal consistency is also high with $p < 0.001$ and demonstrates strong construct validity (Meerkerk et al., 2009).

*Video Game Addiction Test (VAT)*
Just as the Compulsive Internet Use Scale covers the first half of the term, online gaming, the Video Game Addiction Test (VAT), covers the other half; gaming addiction. The VAT measures people’s level of addiction to video games. The combination of the two results in a more thorough assessment of online gaming addiction.

Van Rooij, Schoenmakers, van den Eijnden, Vermulst, and van de Mheen (2012) explored the reliability, validity, and measurement invariance of the VAT. They found that the VAT demonstrated significant reliability, sound construct validity, and “a high degree of measurement invariance across gender, ethnicity, and learning year,” suggesting that results of the scale could be compared amongst various subgroups. (van Rooij et al., 2012).

_UCLA Loneliness Scale (Version 3)_

The UCLA Loneliness Scale was published by Weiss (1973). It is now in its third version. It consists of 20 questions in a Likert Scale from 1 to 4. Scores that correspond to the negative are indicative of loneliness, and scores that correspond to the positive are indicative of non-loneliness (Russell, 1996). This scale was included as a psychological measure of loneliness, just as it was in van Rooij et al.’s (2012) study. Furthermore, it was used to address the gamers’ subjective sense of feeling connected with others. Many of the questions address concepts of isolation, loneliness, and interpersonal functioning.
This scale was also selected for this study because it has strong reliability and validity. Russell (1996) found that this measure is “highly reliable, both in terms of internal consistency (coefficient alpha ranging from .89 to .94) and test-retest reliability over 1-year period (r=.73).” It also has convergent validity, which is determined by its strong correlation with other loneliness scales. Construct validity was determined by the correlation of this scale with other loneliness and measures of health and well-being scales.

Conclusion

In terms of internet addiction, one area where we have limited information is massively multiplayer online role-playing games. In recent years there has been a noticeable increase in the amount of literature involving this game genre. This dissertation researched what the impact of time spent playing massively multiplayer online role-playing games had on one’s subjective sense of connectedness. There were numerous factors involved in how people become immersed in these fantasy worlds. Equally important were how the aspects of these games keep the players so heavily involved that many actually prefer the online world to their physical reality.

When all of the pieces to the puzzle fall into play, it can make a recipe for devastation of someone’s life. When the gamer thrives in the virtual realm that is their game of choice, they likely lose some component of their real life. Some areas may actually improve, such as developing real connections with people, whereas previously one may not have had a friend
in the world. Unfortunately for many gamers, the more satisfaction they obtain from the games, the harder it is to leave those games behind.

People are creatures of habit and comfort. When something appears in life that is comfortable and safe and provides hours of joy, it is very hard to leave it behind. For similar reasons that people become involved in drugs, gamers can get a high from their games. They are constantly reinforced while playing. It is difficult to leave behind something of this nature. Unfortunately, what they might leave behind are the things they truly need and the people who really care for their well-being.

A final note is that no gamer is exactly alike. Many are able to find the balance between their real life and their gaming time. Others have difficulty with self-control in their game play. This study looked at as many people as possible along the spectrum to assess trends and correlations.
CHAPTER III: RESEARCH DESIGN AND METHODOLOGY

Main Research Question

1. What is the relationship between the time spent playing massively multiplayer online role-playing games and individuals’ subjective sense of feeling connected with others (loneliness)?
   a. Does the relationship between playing massively multiplayer online role-playing games and loneliness differ based upon any other factors?

2. Is there a relationship between the time spent playing massively multiplayer online role-playing games and video game addiction?
   a. Does the relationship between playing massively multiplayer online role-playing games and video game addiction differ based upon any other factors such as social components, age, marital status, occupational status, gender?

3. Is there a relationship between playing massively multiplayer online role-playing games and compulsive internet use?
   a. Does the relationship between playing massively multiplayer online role-playing games and compulsive internet use differ between any other factors such as social components, age, marital status, occupational status, gender?

Hypothesis

Hypothesis 1: Time and energy that people spend while becoming immersed in Massively Multiplayer Online Role-Playing Games are negatively correlated with individuals’ subjective sense of feeling connected with others.

Objectives
a. Learn more about how Massively Multiplayer Online Role-Playing Games impact individuals’ sense of feeling connected with others.

b. Learn more about how people relate and interact on a social level online and offline.

Description of research design

This study was a non-experimental correlational design and was composed of three separate multiple regression analyses, each with a different dependent variable. The questionnaire will be written in English (see Appendix I). The sample was 104 participants for the correlational questionnaire sample. The main independent variable was the time spent playing games. The dependent variables for the three different analyses consist of the following scales: Video Game Addiction, UCLA Loneliness Scale, and Compulsive Internet Use Scale. There was no control group. One main step to control extraneous factors was the qualifying question of age, where only people ages 18 or older were allowed to participate.

Selection of participants and procedures

Participants were primarily recruited via a world chat (a communication option that reaches everyone on the server at a given time) and from the main city of the free online massively multiplayer online role-playing game (MMORPG), called Perfect World International, on the West Coast server, called Heaven’s Tear. The participants had an equal chance to be from anywhere in the world because the game allows for international users to select any server. A few participants were be recruited by word of
mouth or via social networking. The participants from *Perfect World International* were be gathered from a Pacific Standard Time server, and thus increased the likelihood to have Americans versus other countries. Players of all levels from *The Casual Player* to *Pro Gamer* gather in this large virtual city and had an equal opportunity to participate in the study (Waite, 2007).

People were asked as a whole by using the *World Chat* option in the game. This is a text box that all players on a server are able to see. The world chat feature reaches anyone on the server versus a regular chat which only reaches certain people within a proximity of the avatar’s location. The question was variations of, “Would you like to take an online survey that takes about 15 minutes for 1mil coins?” At the time of the survey, $1.00 USD was worth about 1.5 million coins / virtual money in Perfect World International. After agreeing to take the survey, they were directed to an online survey site where they completed a questionnaire. On this questionnaire there was a qualifying question of birth year to verify that their age was at least 18 years or older. There was be a consent form on the first page of the survey site where they were directed. In addition, there was a check box on the consent form for them to sign agreeing that they are at least 18 years old. Upon completion of the entire survey (including the three scales), they were provided in-game financial compensation (virtual money) as compensation for their participation.
The reasoning for selecting participants primarily from *Perfect World International* was both financial and convenience. *Perfect World International* is a free game. With the limited resources of a graduate student, this was the most ideal type of game. It was very well representative of other paid games and consisted of many gamers who have played other paid and nonpaid massively multiplayer online role-playing games. The use of the west coast server, *Heaven’s Tear*, was chosen because that is where the primary investigative research had taken place. The avatar (and his wealth accumulated over time) that was created to gain understanding of this type of game was used in aiding the compensation for participants. The convenience came from gaining as many participants as possible from one area. This particular server provided a sufficient representation of the population.

This study accepted anyone who was willing and able to participate in the study except those under the age of 18 years old. The reason for not accepting minors was that there was no discernible method of identifying that a parent indeed provided consent to be a part of a research study or if a minor fabricated the parental consent.

*Description of instrumentation*

An online questionnaire (see Appendix I) was be used in conjunction with Video Game Addiction Test, UCLA Loneliness Scale, and Compulsive Internet Use Scale. The first question was for consent to participate in the study. This was followed by a questionnaire compiled with questions asking demographic information as well as how the person spent
their time. The key question asked them how much time they spent online playing video games. Other questions were related to the participants’ lives, playing habits, online/virtual life, real life, etc. The questions were mostly Likert scale questions. Some other items allowed for the participants to type in their answer for more specific results like, “Age.”

**Data processing techniques**

After all the data was collected, it was entered into SPSS (originally, Statistical Package for the Social Sciences). In this program the data was run as a factor analysis and/or a correlational design. This data was interpreted and identified in the Chapter IV.

**Methodological assumptions and limitations**

One strength of using a questionnaire (especially an online one) is that it can be given to an international sample. Another is that administration is quicker and easier than direct or indirect observation. Since it is easier and less intrusive than other designs, this particular one was more suitable for acquiring participants in this population. Moreover, the participants remain completely anonymous beyond the name of their avatar and may have been more likely to provide truthful answers in their responses.

One possible confound is that people with less social relations in either real or virtual life may have been less likely to participate in the study. Furthermore, people who were more involved in the game may have been less likely to take time away from it to fill out a survey. Another limitation is that people can lie about or minimize the severity of certain portions that shed a negative light on them. They may also have had a misconception or
failed to acknowledge the differences in perceived time spent on and off the game versus actual time spent on and off the game.

One assumption this study made was that people who were drawn to this particular game, *Perfect World International*, were comparable and representative to people who play similar games, like *World of Warcraft* and other massively multiplayer online role-playing games (MMORPGs). Likewise, the assumption was made that people who played on the Pacific server were similar to people who played on other servers. A hope with this sample was that the people who were asked and take the time to complete the survey were representative to those who either refused or were not asked to participate.

*Ethical assurances*

There are ethical considerations for any study that need to be taken into account. One possible ethical consideration was the realization and possible emotional pain involved with self-discovery of an addiction or lifestyle that was not premeditated. A comment box was provided at the end for people to voice concerns. Fortunately, no one voiced any such concerns. If they did seek help in any way, resources to treatment would have been mailed to their email (if provided) or their avatar’s mailbox within the game. One such resource would be the Online Gamers Anonymous Group mentioned previously, [www.olganon.com](http://www.olganon.com).
Another possible ethical issue that could have occurred was if a child under the age of 18 could participated in the survey and simply lied about his/her age. The questions, as seen in the Appendixes, should not have yielded harm to anyone who participates, but their parent(s) would not have had a proper opportunity to consent. Fortunately, all of the scales have been used with children and this should not be an area of concern.
CHAPTER IV: RESULTS

Data from the present study was analyzed using the Statistical Package for Social Sciences (SPSS) version 18.0. Following a review of the collected data, preliminary analyses were conducted to obtain descriptive information, examine the distribution of the data, examine the linear relationship between each predictor variable and each outcome variable, and explore intercorrelations between the study variables.

Subsequently, each one of the three individual outcome variables (Video Game Addiction Test, Compulsive Internet Use Scales, and UCLA Loneliness Scale), was predicted utilizing a series of nested regression models. Thus, the analysis was composed of three separate analyses; each utilized multiple regression to investigate the relationships between one of three separate outcome variables, entered as individual independent variables, and each of the predictors (other self-report data such as age, gender, occupation, and hours per week spent gaming). Supplementary analysis was utilized to explore further relationships among the various predictors.

Sample selection

An initial overview of online gamers participating in the study resulted in a total database of 103 participants. The sample consisted of 59 males and 44 females. The ages of the participants ranged from 18 to 65 with a mean age of 29.48 and a standard deviation of 11.281. The participants reported the following relationship status: 22 in committed
relationships; 4 divorced; 1 widowed; 19 married; and 57 single/never married. In addition, the participants reported the following occupational status: 37 were employed full-time; 16 were employed part-time; 30 were students; and 20 were unemployed. The initial survey also collected information about their gaming behavior. Of the 103 participants, 89 said they were members of a guild, while the other 14 said they were not. The participants included a variety of types of gamers, from casual to pro gamer, as reflected by the number of hours per week that they played, which ranged from 0 to 105, with a mean of 29.7 hours, and a standard deviation of 18.7 hours. The histogram of hours per week spent playing appears to be skewed to the right, or to higher values (skewness: 1.6). It is important to note that there were two outliers at 105 and 98 hours, both approximately three times the average. The next top three were 70 hours per week.

Descriptive Statistics

This study utilized three separate outcome variables. The first variable was the Video Game Addiction Test (VAT). The scores on the VAT ranged from 0 to 39 with a mean of 15.08 and a standard deviation of 7.49. The histogram of the VAT appears to be symmetrically distributed (skewness: 0.6). The second outcome variable was the Compulsive Internet Use Scale (CIUS). The scores on the CIUS ranged from 0 to 26.05 with a mean of 12.32 and a standard deviation of 6.76. The histogram of the CIUS appears to have a slight skew to the right, or to higher values (skewness: 0.20). The scores on the third outcome variable, the UCLA Loneliness
Scale, ranged from -17.39 to 9.35 with a mean of -6.91 and a standard deviation of 6.36. The histogram of the UCLA Loneliness Scale appears to have a slight skew to the right, or to higher values (skewness: 0.36). The histograms of all variables and their frequency distributions can be found in the appendix.

Correlations

A correlation analysis was performed to better understand how the predictors were related to each outcome variable as well as how the predictors were related to each other.

The Video Game Addiction Test (VAT) had significant correlations to hours per week spent gaming (r = .22, p<.05) and age (r = -.32, p<.01). The VAT also had significant correlations with the CIUS (r = .73, p<.001) and the UCLA Loneliness Scale (r = .40, p<.001).

The Compulsive Internet Use Scale (CIUS) had a significant correlation with age (r = -.28, p<.01). It also had significantly correlations with both the VAT (r = .73, p<.001) and the UCLA Loneliness Scale (r = .40, p<.001).

The UCLA Loneliness Scale had significant correlations to age (r = -.20, p<.05) and gender (r = -.22, p<.05). There was a significant correlation with the VAT (r = .40, p<.001) and the CIUS (r = .40, p<.001).

There were few correlations among the predictor variables worth noting. Hours spent per week gaming was negatively correlated with age (r = -.21, p<.05) and full time employment (r = -.23, p<.05). Age was also
correlated with those who reported being single, never married (r = -.43, p<.01), married (r=.50, p<.01), students (r = -.40, p<.01), and employed full time (r = .29, p<.01). Gender and employed full time were correlated (r = .20, p<.05). Single, never married also correlated with those in a committed relationship (r = -.58, p<.01), married (r = -.53, p<.01), divorced (r = -.22, p<.05), student (r = .32, p<.01), and employed full time (r = -.22, p<.05). Committed relationship also correlated with married (r = -.25, p<.05) and employed full time (r = .20, p<.05). Married also correlated with students (r = -.20, p<.05). Students correlated with employed part time (r = -.28, p<.01) and employed full time (r = -.48, p<.01). Lastly, employed part time correlated with employed full time (r = -.32, p<.01).

Multiple Regressions

Video Game Addiction Test

A series of regression models were utilized to predict participants’ scores on the Video Game Addiction Test (VAT) utilizing the following predictors; age, gender, member of a guild, student status, occupational status, marital status, and time spent playing. Results of the final model demonstrated the following relationships with VAT (see Appendix VI). For those participants that were not students, there was no relationship between hours spent playing and their VAT score (p=.86). However, for students, the number of hours per week they play is significantly related to their VAT score (p=.01). Controlling for the other variables, for every additional hour that students spent playing MMORPGs, their VAT score would increase by
.242. For the average player who plays 26.6 hours per week, their score on the VAT go up by 6.4. Additionally, age is a factor on this scale. Each additional year is associated with a drop in their VAT score by .26 (p<.001). Thus, students and younger participants showed higher levels of video game addiction.

Compulsive Internet Use Scale

A series of regression models were utilized to predict participants’ scores on the Compulsive Internet Use Scale (CIUS) utilizing the following predictors; age, gender, member of a guild, student status, occupational status, marital status, and time spent playing. All interactions were tested, but no significant results were found with the exception of age (see Appendix VI). The average CIUS scaled score was 17.32. With each additional year in age, the CIUS score decreased by .17 (p<.01). This means that for someone who is 20 years old their score would be approximately 13.9. In comparison, someone who is 40 years old would have an approximate score of 10.5. Thus, younger participants demonstrated higher levels of internet compulsion.

UCLA Loneliness Scale

A series of regression models were utilized to predict participants’ scores on the UCLA Loneliness Scale utilizing the following predictors; age, gender, member of a guild, student status, occupational status, marital status, and time spent playing (see Appendix VI). Controlling for the other variables, for every additional hour that participants spent playing
MMORPGs, their UCLA Loneliness Scale score would increase by .23 points (p<.05), suggesting that the more time people play, the less lonely they feel. On average males are 2.8 points lower (p<.05) on their UCLA Loneliness Scale score, suggesting that males who play MMORPGs are lonelier than females who play MMORPGs. For every additional unit of importance that participants rated the squad component of the game, there was an associated 1.3 increase of their score on the UCLA Loneliness Scale. This indicates that those who value the squad component to be more important report higher scores on the UCLA Loneliness Scale. Thus, those who valued the squad component of the game were less lonely. This relationship, however, is moderated by the number of hours that participants played. For every additional hour played, the difference in the UCLA Loneliness Scale score associated with the squad component of the game was decreased by .09 (p<.05). Thus, for two players who reported valuing the squad component of the game equally, on average, the player who played more hours was lonelier.
CHAPTER V: DISCUSSION

This study gathered quantitative data from 103 participants, most of which were found within the Massively Multiplayer Online Role-Playing Game (MMORPG), *Perfect World International*, on the West Coast (of the USA) server, *Heaven’s Tear*. Three participants, who played other MMORPGs, were gathered from word of mouth or via social networking.

This study surveyed people whose nationalities were from all over the world. Most of the participants were from United States of America and many more were from Europe. A few others were from Central America, Australia, Asia (one from Korea and one from India), and Africa (one from Egypt). Many chose not to disclose their nationality. This international response furthers the expectations of this study that online gaming is a worldwide occurrence. Furthermore, the research in this field has emerged from all around the globe. The data gathered online yielded the desired demographic variety to showcase the universality of engagement in online gaming.

The majority of the participants were recruited from using the *World Chat* feature, which allows all people online in that server an opportunity to see and respond to the invitation (which included a shortened Uniform Resource Locater, also known as a URL). The participants were directed to a Google Docs survey site where they navigated through disclosures and consent to the various survey questions. Most questions were multiple choice and Likert scale, whereas a few descriptive questions allowed free
response or short answer. Upon completion of the survey, they were provided with virtual currency of one million coin (approximately $0.66 USD) as compensation for their participation. The target sample was 100. In the end, 103 participants had completed the online questionnaire.

Preliminary analyses were then conducted to obtain descriptive information, examine the distribution of the data, examine the linear relationship between each predictor variable and each outcome variable, and explore intercorrelations between the study variables.

Subsequently, each one of the three individual outcome variables (Video Game Addiction Test, Compulsive Internet Use Scales, and UCLA Loneliness Scale), was predicted utilizing a series of nested regression models. Thus, the analysis was composed of three separate analyses; each utilized multiple regression to investigate the relationships between one of three separate outcome variables, entered as individual independent variables, and each of the predictors (other self-report data such as age, gender, occupation, and hours per week spent gaming). Supplementary analysis was utilized to explore further relationships among the various predictors.

Age and student status were the most common predictive factors. Those who were younger and/or students had lower levels of internet compulsion and video game addiction. This was likely due to the culture of the younger generation whereas they have more online engagement than older generations. Furthermore, youth and students on average tend to
have less responsibilities (less employment and less offspring to provide care to) and therefore have more time to spend. Because of this, their problematic internet use may advance more rapidly than those who have more responsibilities and less leisure time. This aligns with Yee’s (2006b) argument that those who lack responsibility in their daily lives may treat gaming as a requirement of their daily living, blurring the concept of leisurely fun and required work. With this augmented view of gaming, they gamer may find a sense of purpose in their online engagement.

These two predictive factors of age and student status were the main finding from the Video Game Addiction Test (VAT). After controlling for the other variables, for every additional hour that students spent playing MMORPGs, their VAT score would increase by .242. This suggests that for students, playing more hours is associated with higher levels of video game addiction. This may be indicative of students being more vulnerable to the risk of addiction as they play video games for longer periods. On the other hand, this may also indicate that the students who become addicted to video games are more likely to spend more hours playing because of their higher availability of free-time. This may not be visible in players who are not students because they have more demands on them (such as family and work obligations). Even if they are addicted, there is a more restricted range of hours they can play due to the aforementioned demands.

The average gamer plays 26.6 hours per week. If they are a student, their score on the VAT go up by 6.4. Additionally, age is a factor on this
scale. Each additional year results in a drop in their VAT score by .26 (p<.001). Therefore, when comparing participants who have played the same number of hours, young students yielded the highest scores for video game addiction.

Cole & Griffiths (2007) and Smyth (2007) discuss how the online gaming can influence students’ academic performance. These are not simply areas that can be affected, but rather areas that can be warning signs for an increase in the students’ addiction. Students may miss or be late to school or work (Cole & Griffiths, 2007). They may be sleeping less because of late nights spent online (Smyth, 2007), and this lack of sleep can affect someone in numerous ways, including: inattention, fatigue, restlessness, irritability, and memory difficulties.

The only significant predictive factor for the Compulsive Internet Use Scale (CIUS) was age. These results indicated that younger participants were more likely to have higher levels of compulsive internet use. This suggests that as people mature in age, they are better able to control their compulsive behaviors with regards to internet use. One main factor that needs to be addressed in this finding is that the younger generation is being brought up with internet use as an in integral part of their daily life whereas the older generations did not have internet so readily accessible in their formative years. Another factor is the social norms; it is much more socially acceptable for a younger person to be completely immersed online.
The predictive factor of hours per week spent gaming yielded a statistically significant correlation with the UCLA Loneliness scale, when controlling for the other variables. For every additional hour that participants spent playing MMORPGs, their UCLA Loneliness Scale score would increase by .23 points (p<.05). This suggests that as people spent more time playing, their loneliness would decrease. Hours spent per week gaming had a significant correlation with one social factor in the game; the squad component. For every additional unit of importance that the squad component of the game held for participants there was an associated 1.3 increase of their score on the UCLA Loneliness Scale. This indicates that those who value the squad component to be more important report higher scores on the UCLA Loneliness Scale. This suggests that gamers who seek out and/or enjoy collaborative gaming will have a high sense of connectedness with others. This relationship, however, is moderated by the number of hours that participants played. For every additional hour played, the difference in the UCLA Loneliness Scale score associated with the squad component of the game was decreased by .09 (p<.05). This may be indicative of second job and pro gamers utilizing the importance of the squad component as a means to achieve their goals, rather than any related social factor (Waite, 2007). In the advanced levels of these games, squads are typically essential for being able complete many quests and boss raids.

The final predictive factor that correlated with the UCLA Loneliness scale was a gender difference. On average males are 2.8 points lower
(p<.05) on their UCLA Loneliness Scale score, suggesting that males who play MMORPGs are lonelier than females who play MMORPGs. One reason for this could be the motivation of the gamer. Women are more socially oriented in their internet use (Young, 1998; Wieland, 2005). They use it more as a social support system where they can cultivate friendships, develop romance, or cope with the difficulties in their current relationships (Young, 1998; Wieland, 2005). In contrast, males use the internet for more selfish reasons. Males seek to advance their self-worth online by obtaining power, knowledge, and dominance (Wieland, 2005). Since the male population gravitates towards these more egocentric or intrinsic motivators, they are more isolated in their pursuit; which may be why they have higher feelings of loneliness when compared to the female population.

The results of this analysis were surprising. It was expected that as people spend more time online, they would have increased feelings of loneliness and thus feel less connected with others. Instead, the opposite was found. As people spend more time online gaming, they would feel less lonely. It was surprising that the study did not yield more statistically significant correlations overall. It was expected that members of a guild or faction would yield statistically significantly higher scores on the UCLA Loneliness Scale; indicating that they felt less lonely being involved in a selective community. With the technological age, people’s subjective sense of connectedness with others appears to be higher than expected. This could
be due to the modern social norm, where people are much more engaged with the online world.

It was not surprising that the younger a gamer was, the lower their scores were on the Compulsive Internet Use Scale and Video Game Addiction Test. The younger someone is the more technology has influenced their life. Millennials, also known as the second digital generation, digital natives, and Generation Z, have been raised in a culture that utilizes the internet as an integral part of daily life (Schroer, 2017; Taipale, 2016). With the technology boom video games and the internet is much more dynamic and captivating than it was 25 years ago. Generation Y (those born 1977-1994), or the first digital generation, was the last generation to have had some of their childhood in the absence of smartphones and high speed internet (Schroer, 2017; Taipale, 2016). The younger generations view their internet use as normal because it is a social normalcy for them.

Suggestions for future research

This study proposes an exploration into the effects of real world interactions versus digital interactions. Since age was such a key factor in this study, it would be interesting to investigate how different generations are fulfilled by face to face interactions and digital interactions. The use of emojis and comments have had a significant influence on recent online social interactions and could also yield interesting findings with online social interactions.
The passion of this study was centered within Massively Multiplayer Online Role-Playing Games (MMORPGs). Future research may include an investigation of why people chose certain attributes in an avatar as well as their social interactions among various avatars. In the latter, it would be interesting to see if people communicate differently when they are using a male versus female avatar. Additionally, does the class (tank, healer, damage dealer) or race (human, elf, undead, orc, etc.) of the character change their communication patterns and social interactions? Furthermore, a dynamic study could include a comparison of people quitting online gaming cold turkey versus others tapering down and how that influences their life in various ways, specifically socially. In such a study, it would be interesting to see the differences between those who received some form of social counseling versus those who did not receive any professional support or guidance.

The immediate future will continue to include digital generations. It will be an exciting journey to observe how they relate to one another. Will we become like the people from the movie, WALL-E, simply relying on technology to communicate and never look up from our screens? Or will we find another way? The future that was once unwritten now appears to be untyped. The important dynamic that came from this study was that no matter which mode of communication, people continue to find new and dynamic ways to fulfill their need for connecting with others.
REFERENCES


APPENDICES

Appendix A - Questionnaire

• What is your date of Birth?
  Month___ Day___ Year______

• How old are you? _____________

• I understand that this study is of a research nature. It may offer no direct benefit to me.
  0. No
  1. Yes

• Participation in this study is voluntary. I may refuse to enter it or may withdraw at any time without creating any harmful consequences to myself.
  0. No
  1. Yes

• Gender:
  0. Male
  1. Female

• Ethnicity
  0. White/Caucasian
  1. Middle Eastern
  2. Asian
  3. Black
  4. Latin American
  5. Other Ethnic Group: Please Specify ________________

• Nationality: ________________

• Marital status
  0. Married
  1. Committed relationship
  2. Divorced
  3. Single, never married
  4. Widow/er

• Occupational status
  0. Student
  1. Employed part-time
  2. Employed full-time
  3. Unemployed
• On average, how many hours a day do you play *Perfect World International* and/or another MMORPG? _________ hours

• On average, how many days a week do you play *Perfect World International* and/or another MMORPG? _________ days

• How many years have you been playing *Perfect World International* and/or another MMORPG? _________ years

• Are you a member of a guild/faction?
  0. Yes
  1. No

• How important is the social component of the game?
  0. Not at all important
  1. A little important
  2. Moderately important
  3. Very important
  4. Extremely important

• How important is the squad component of the game?
  0. Not at all important
  1. A little important
  2. Moderately important
  3. Very Important
  4. Extremely Important

• How would you rate your physical health?
  0. Very poor
  1. Poor
  2. Average
  3. Good
  4. Excellent
  5. Physically disabled: Please specify _______________
## Appendix B - Correlations

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<th>Video Game Addiction Test</th>
<th>Compulsive Internet Use Scale</th>
<th>UCLA Loneliness Scale</th>
<th>On average, how many hours a week do you play Perfect World International and/or another MMORPG?</th>
<th>How old are you?</th>
<th>Are you a member of a guild/faction?</th>
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<td>Employed Full Time</td>
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<td><strong>0.04</strong></td>
<td><strong>0.01</strong></td>
<td><strong>0.05</strong></td>
<td>0.03</td>
<td>0.02</td>
<td>0.01</td>
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</table>

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
Appendix C – Multiple Regressions

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>23.792</td>
<td>2.682</td>
<td>8.872</td>
<td>.000</td>
</tr>
<tr>
<td>How old are you?</td>
<td>-.260</td>
<td>.066</td>
<td>-.391</td>
<td>-.951</td>
</tr>
<tr>
<td>On average, how many hours a week do you play Perfect World International and/or another MMORPG?</td>
<td>.007</td>
<td>.040</td>
<td>.017</td>
<td>.174</td>
</tr>
<tr>
<td>Student</td>
<td>-10.399</td>
<td>2.809</td>
<td>-.634</td>
<td>-3.702</td>
</tr>
<tr>
<td>Hours_X_Student</td>
<td>.235</td>
<td>.089</td>
<td>.454</td>
<td>2.632</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>17.318</td>
<td>1.804</td>
<td>9.598</td>
<td>.000</td>
</tr>
<tr>
<td>How old are you?</td>
<td>-.170</td>
<td>.057</td>
<td>-.283</td>
<td>-2.964</td>
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</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>-8.582</td>
<td>2.933</td>
<td>-2.926</td>
<td>.004</td>
</tr>
<tr>
<td>On average, how many hours a week do you play Perfect World International and/or another MMORPG?</td>
<td>.228</td>
<td>.117</td>
<td>.671</td>
<td>1.945</td>
</tr>
<tr>
<td>Male</td>
<td>-2.798</td>
<td>1.245</td>
<td>-.219</td>
<td>-2.247</td>
</tr>
<tr>
<td>How Important is the Squad Component of the Game</td>
<td>1.327</td>
<td>1.005</td>
<td>.204</td>
<td>1.321</td>
</tr>
<tr>
<td>Hours_X_Squad</td>
<td>-.085</td>
<td>.038</td>
<td>-.883</td>
<td>-2.258</td>
</tr>
</tbody>
</table>


---

a. Dependent Variable: Video Game Addiction Test

a. Dependent Variable: Compulsive Internet Use Scale

a. Dependent Variable: UCLA Loneliness Scale