Implications and Risks of MMORPG Addiction: Motivations, Emotional Investment, Problematic Usage and Personal Privacy

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Abstract

The omnipresence of technology combined with the widespread embrace of online communication has undoubtedly created a subculture of 'always on'. Indeed, experts have revealed that online interaction and information invokes a 'dopamine squirt' similar in effect to that of narcotics abuse. Prior research has established that online interaction through computers and mobile devices gives the feeling of self importance and provides an illusionary short term fix for seemingly isolated individuals. This paper investigates the levels of addiction to Massively Multiplayer Online Role Playing Games and the potential information and social based ramifications associated with such environments. The study made use of an online survey and follow-up case study evidence to assess current levels of addiction and associated security awareness amongst 362 online gamers.

Keywords

MMORPG, Exploitation, Social Engineering, Persuasion, Behavioural Addiction

1. Introduction

The internet is now ubiquitous. Its popularity stems from the fact it is, in essence, a medium of communication for electronic devices. Indeed, evidence suggests that the omnipresence of current communicative technologies has created a subculture of "always on". Indeed, Ritchel (2003) theorises that the constant stream of data can not only hinder productivity and disrupt family time but can in many cases become an addiction which is very hard to switch off. In addition, recent studies have revealed that technology addiction amongst children has a disruptive effect on learning (Kakabadse et. al., 2009).

With the rapid development and evolution of new online applications and activities comes a potentially unique, and possibly unpredicted, new psychological impact (Joinson, 2003; Wallace, 1999). In recent years we have witnessed the rapid development and global embrace of Massively Multi-player Online Role Playing Games (MMORPG's). An MMORPG is a video game genre capable of supporting thousands of users simultaneously. By necessity, they embrace the internet as a communication medium and feature at least one persistent world. This type of game

is typically accompanied by external forums, synchronous chat facilities, clans and guilds (Gladwell & Currie, 2009).

It is the only existing naturalistic setting in which millions of users voluntarily immerse themselves in a graphical virtual environment to interact, collaborate and form relationships with one another though customised avatars (Yee, 2006; Woodcock, 2003).

In the succeeding section the structure and evolution of MMORPG's will be discussed together with the differing end user motivations and emotional investment. This paper then presents the findings of survey and case study research into 362 online gamers.

2. Evolution of MMORPG's

MMORPG's evolved from Multi-User Domains (MUD's). Traditional MUD's consisted of online environments in which multiple users could interact with each other and achieve structured goals. The development MMORPG's was facilitated by the advanced graphical and processing capabilities offered by personal computers combined with the widespread uptake of broadband internet connections in the home environment (Öqvist, 2009). The primary distinguishing factor between MUD's and MMORPG's is the number of users that can interact concurrently within the same environment. One notable example is World of Warcraft which has some 11.5 million subscribers (WorldIV, 2009).

MMORPG's provide subscribers with a graphically rich, fully immersive 3D fantasy world in which like-minded users can interact and collaborate to accomplish complex tasks (Manninen, 2001). Indeed, gamers can choose from a set of professions or roles that the MMORPG provides and the permanence and fluidity of roles varies depending on the design of the environment. Each role has varying strengths and weaknesses and many MMORPG environments force users to collaborate in order to achieve certain goals (Yee, 2006).

It is commonly acknowledged that modern online gaming environments are infinite both in terms of size and ending. Goals and rewards typically use a random ratio reinforcement schedule based on operant conditioning (Joinson, 2003; Yee, 2006). Hence, early achievements are quick, almost instantaneous; however as a player progresses in the game the amount of time, effort and level of complexity is increased until progression becomes almost imperceptible.

The MMORPG market has witnessed unprecedented global growth in the previous five years, with such services accounting for approximately 50% of the overall growth of internet usage in 2008 (Elliot, 2008). These business opportunities, however, do not lie solely with international software vendors. Skilled players are capitalising on the popularity of MMORPG's resulting in skilled and experienced World of Warcraft characters being traded by individuals for sums of up to £700 (Sanders et. al, 2009).

The realism of MMORPG graphics continues to grow more sophisticated, contributing to the seductive, captivating appeal of the game and the likelihood of prolonged excessive engagement. Indeed, this captivating appeal is otherwise described as 'stickiness' or 'flow' (Lee, Lu & Lin, 2007; Wu, Li & Rao, 2008). The concept of cognitive 'flow' predicts an experience that completely engages an individual (e.g. MMORPG's) and creates the conditions conducive to maintain such a 'flow'. Moreover, such an immersive environment creates a highly pleasant and desired experience encouraging gamers to repeatedly engage in a particular games (Gladwell & Currie, 2009).

In addition to the seductive appeal of naturalistic graphical environments, MMORPG's are played in real time, requiring participants to remain online for excessive periods of time in order to keep up with the action. Indeed, the previously mentioned increase in time, effort and complexity encourages users to engage in such environments for literally hours and days as they compete with themselves and other opponents to achieve higher ranks or beat previously attained scores (Yee, 2006, Sanders et. al., 2009, Öqvist, 2009). Recent studies have highlighted the potential addictive aspects of MMORPG design infrastructures and press articles have revealed the impact of pathological internet use (Bell, 2007, Yee, 2006, Griffiths, 2000).

3. Motivations

Having examined the appealing characteristics of MMORPG's, it is important to understand the motivations behind an individual's initial engagement with MMORPG's. Prior studies together with the succeeding evidence contained herein exposes the varied and multi-faceted reasons for why users engage in MMORPG environments.

It is worth noting that the diversity of age ranges has increased exponentially with the evolution of MMORPG's. Data from studies undertaken by Yee (2006) and Griffiths (2003) challenge the stereotype that only adolescents engage in online environments and that the interaction with online games differs between adolescents and adults. Yee's (2006) study revealed the average age of respondents was 26.57 (n = 5509, SD = 9.19); the medium was 25, with a range from 11 to 68. Therefore only 25% of MMORPG subscribers were teenagers.

In studies by Chak and Leung (2004); Chou and Hsiao (2000); Meerkerk et. al. (2006) users who were classified as pathological online gamers reported lower self-esteem, increased loneliness, increased depressive and suicidal ideation, increased shyness and external locus of control. Bell (2007) points out that anxious, lonely or depressed people often attempt to alleviate their distress by seeking online resources (including MMORPG's) for entertainment, social interaction and sexual gratification.

Initial motivations for engaging in MMORPG environments do not always evolve through depression, loneliness or a lack of self-esteem. Indeed, the following responses from surveyed respondents highlight the differing motivations:

"I first became interested at school as all of my friends played World of Warcraft. It's a convenient, easy and varied form of entertainment. There is not much to do in the area I live in." [Male, 18 - 24]

"I feel important and valued when I play EverQuest. People listen to me and take notice of what I have to say. Nobody judges you on your looks or way you dress. Everybody is equal and respected." [Female, 18 - 21]

"I enjoy socializing with like minded people. We all have something in common and I found communicating with people online much easier than with people offline" [Male, 25-29]

"I have played MMORPG's with my wife for nearly two years. We take different roles and approaches in game. My wife is more passive where as I am more active and adopt more of a leadership role. We have developed more ways of communicating together" [Male, 30 - 39]

Joinson (2003) notes that individual personalities are inherently different and consequently embrace computer mediated communication (CMC) platforms (such as MMORPG's) for different reasons and in different ways. As such this is a crucial factor when attempting to determine both the effect of the internet on mental health and how and why a user interacts and behaves in a given way.

Yee (2006), dissected individual motivation into the following five factors:

Relationship factor: measures the desire of users to interact with one another and form meaningful relationships that are supportive in nature and in many cases induce disclosure of real life problems.

Manipulation factor: measures the degree to which users objectify and manipulate other user for their own personal gain and satisfaction. Such players often enjoy deceiving, scamming, taunting and dominating other users.

Immersion factor: immersive users enjoy the fantasy world environment of MMORPG's as well as being another person. They enjoy the story-telling aspect of the game as well as the histories that extend and tie in with the story of the game.

Escapism factor: measure the extent to which a user embraces a virtual environment to temporarily avoid, forget about and escape from real-life stress and problems.

Achievement factor: measures the desire to become more powerful within the virtual environment through the achievement of goals and the accumulation of items that confer power.

"It is an easy way to escape the stress of the real world. The more stress I have in life the more I want to retreat into the game." [Female, 30 – 39]

In addition, Yee (2006) also found that males scored higher than females on achievement and manipulation, whereas females scored significantly higher on the relationship, immersion and escapism factors. These findings indicate that motivations differ between genders with males engaging in MMORPG environments to achieve objective goals in contrast to females who engage in such environments to form relationships and become immersed in a fantasy environment.

Yee's (2006) study supports the theory of 'attachment style' (Haidt, 2007). The 'attachment style', in essence, refers to the fact that as humans, we have the fundamental need to feel wanted, loved, valued and cared for. Moreover, if the aforementioned needs are not adequately satisfied, this can lead to feelings of isolation and depression.

Albeit different users engage in MMORPG environments for different reasons, studies suggest that children and adolescents participate in online gaming worlds for similar reasons as those mentioned above. Bowlby (1988) states that children's behaviour is guided by two basic goals: safety and exploration. His theory was based on the concept that a child who stays safe ultimately survives and a child that explores develops the skills and intelligence needed for adulthood. These two opposing needs are then regulated according to the level of ambient safety.

Evidence from prior studies (e.g. Bell, 2007; Lee, Lu & Lin, 2007) suggests that MMORPG environments can satisfy the basic emotional needs outlined by both Haidt, (2007) and Bowlby (1988). It is commonly acknowledged that MMORPG environments provide subscribers with a second identity in which they can feel powerful, valued and respected.

In the case of children, naïve parents often advocate their children's engagement in MMORPG's as they seemingly provide cheap, convenient entertainment, in which children can explore online in the safety of the home environment. However this common misperception could not only be detrimental to a child's education but also to mental and physical safety (Öqvist, 2009).

"It's safer than going out on a Friday/Saturday night, i.e. no physical harm when playing online. Plus it's a lot cheaper" [Male, 18 – 21]

It is commonly acknowledged that, in some cases, the motivations for online interaction are malicious. From paedophilia to online fraud, the art of social engineering, manipulation and deception provide malicious individuals with the tools to exploit end users (Öqvist, 2009; Sanders et. al., 2009).

4. Emotional Investment

Evidence suggests that emotional investment in gaming has exponentially evolved with the development of MMORPG environments. Yee (2006), states that the majority of subscribers to such services classify the game as one of the most important aspects of their life. Joinson (2003) adds that the affordances of MMORPG synchronicity combined with visual anonymity encourages likeminded

users to become more expressive in such environments. In addition, the majority of MMORPG subscribers adopt a pseudonym, thereby increasing the level of overall anonymity.

Walther (1996) describes communication within MMORPG's as hyper-personal; due to the nature of the communication channel, interactions are more intimate, more intense and more salient. Firstly text based communication within such environments enable the sender to optimise their self-presentation. Secondly, the receiver then forms an inflated view of the sender due to the few optimised pieces of information transmitted. Thirdly, due to complete anonymity and the consequential lack of true visual presentation (e.g. body language) users perceptions of one another are purely based on the cues transmitted in text format (Joinson, 2003). Hyper-personal interaction invokes more personal and intimate communication between individuals which naturally induces idealised impressions through reciprocity. As the levels of intensity and intimacy accumulate, so does the desire to spend increasing amounts of time online.

Yee (2003) suggests there are factors unique to MMORPG environments that facilitate the formation of relationships. As stated in preceding sections of this paper, collaboration and trust is required for achievement of many complex in-game goals and thus these scenarios initiate and nurture the building of relationships. In addition, the mythical and chivalric romance embraced in many MMORPG's (e.g. a 'knight in shining armour') further exacerbates the levels of hyper-personal interaction.

The preceding distillation of in-game communication by Yee (2006) and Walther (1996) provides an insight into why and how relationships evolve more rapidly online than offline. The aforementioned theory of self-presentation also provides the fundamental basis for exploitation and this is discussed in the final sections.

5. Problematic Usage and Addiction

Many conceptual frameworks and theories have been developed in relation to 'internet addiction' (Young, 1998, Beard & Wolf, 2001, Ko el. al, 2005), but Griffiths (1998) points out that the internet is merely the communication medium on which other addictions are fulfilled. According to Griffiths (1998), addiction can be divided into two strands: substance and behavioural. Substance addition refers to the use of narcotics where as two examples of behavioural addiction are excessive online gaming and gambling. Despite the differences in definition, most of the criteria used in behavioural addiction frameworks are almost identical to those of substance addiction frameworks. Griffith's (1998) developed a six point criteria framework to measure behavioural addiction consisting of the following elements: salience, mood modification, withdrawal symptoms, relapse, tolerance and conflict. This framework was embraced in this study and is discussed later in the paper. The following response from one surveyed participant further illustrates the impacts of excessive MMORPG engagement:

"I feel depressed whenever I play the game, because it reminds me of all the countless hours of my life I have wasted on a non-existent world. But still I have a hard time stopping. Recently, I have started focusing a bit more on my real-life - and I've realised that 5-8 hours of gaming every day for 4 years, has affected my real-life social skills. I'm working hard on stopping 100%, but I still feel addicted at times. My real-life confidence has also faded during those 4 years, and I'm no longer a very confident boy. The hardest part was to realise that I had a gaming problem, and I only just recently admitted it for myself. It helped to talk with friends about it, and I see myself "getting better", and I have also started doing some sport again. I no longer let WoW control my life, but sometimes I get an extreme urge to play the game. One of the few good things though, is that I've met incredibly many people through wow. 95% of them are just MSN buddies, but I've met the last 5% in real life, and befriended some of them. Anyway - WoW is an incredibly addictive game, and if someone asks me if it's a good game and wherever they should start or not, I tell the truth: "WoW is without doubt a good game, but I urge you not to start playing it". In a game like WoW, you cannot become a good player without spending countless hours on the game every day and week. Playing casually isn't enough."[Male 18-24]

The succeeding sections document the studies undertaken, together with the results obtained.

Survey

The first stage of the study made use of an online survey, collaboratively recruiting participants through leading online gaming forums. The survey assessed the levels of addiction amongst 362 MMORPG subscribers and their abilities to detect and respond to exploitation attempts.

The majority of respondents were male (86%) with almost half (48%) aged between 18 and 21. 87% engaged with MMORPG's on a daily basis with 41% of respondents playing for more than 5 hours per weekday and 24% spent 9 hours or more engaging in such environments over a given weekend.

In order to determine the levels of addiction amongst MMORPG subscribers, 26 questions were compiled; each of which were benchmarked against Griffiths' (1998) behavioural addiction framework (salience, mood modification, withdrawal symptoms, relapse, tolerance and conflict). Griffiths (1998) states that for an individual to be classed as behaviourally addicted they must show signs of each of the six criteria.

Of the total surveyed population 20% openly admitted to being addicted to MMORPG's of which 17% felt that they could not give up playing on their own. This correlated with 23% of participants that were classed as behaviourally addicted in accordance with Griffiths' (1998) six point criteria framework.

Although only a quarter of the total respondents were classed as behaviourally addicted, the following statistics indicated that many of the surveyed players were

experiencing negative lifestyle changes as a result of their engagement with MMORPG environments. The key highlights are as follows:

Addictive Tendencies

29% have attempted to cut down the amount of time they spend on MMORPG's but were unsuccessful.

63% found themselves spending increasing amounts of time online.

85% frequently found themselves staying up until late into the evening playing MMORPG's.

80% often found themselves thinking about the game when they were not physically playing.

Lifestyle Impact

22% felt the number of hours spent online was unhealthy.

35% considered their MMORPG engagement as a top priority in their life.

22% have consequently missed or been late for appointments or work due to playing MMORPG's.

42% have missed meals as a result of online gaming.

Social Implications

84% believe that their online gaming habit has had a negative effect on their real world social life.

53% prefer to socialise within MMORPG environments than with real world offline friends.

52% found playing an MMORPG more exciting than going out with friends.

51% find interacting with online friends easier than conversing with real world friends.

80% had formed particularly close friendships with other MMORPG players.

96% discussed personal issues not related to game play with fellow players.

The analysis on MMORPG engagement highlighted significant levels of addiction amongst respondents. The collated evidence suggests that the aforementioned engagement is negatively impacting on player's social abilities, general wellbeing and mental health. Indeed, the results confirm the validity of Walther's (1996)

hyper-personal communication theory in that engagement within MMORPG's appear to have altered just over half of the respondents social preferences. Moreover the following responses from surveyed participants evidence Haidt's (2007) theory of 'attachment style':

"I'm a guild master in World of Warcraft. I have many good friends in WoW and we look after and protect each other. My role as guild master is important and my group members respect me and follow my command. I have met many good loyal friends online who I discuss many issues with. I play the game for several hours a day and find it a very positive social experience" [Male, 18 – 21]

In addition to the above, the following response from a parent of an online gamer further illustrates the addictiveness of MMORPG's:

"My son who is 15 is the online gamer. I completed this survey (I'm 45) to the best of my knowledge. He has become withdrawn, depressed, his grades have suffered as well as his sleep patterns, social behaviours. I have him in counselling, but he refuses to believe he has a problem. I know that he has an addictive personality and maybe borderline ADHD, because he is just like me. I believe that there is huge populations of teenagers out there just like him who are missing out on so much life because of this addiction." [Female, 45]

The evidence presented thus far provides a clear insight into the motivations, emotional investment and levels of addiction amongst MMORPG subscribers. The following section investigates personal privacy and consequential threats that users are exposed to whilst engaging in such environments.

6. Personal Vulnerabilities & Privacy Risks

Online communities are, in many cases, characterised by relatively high levels of trust (Joinson, 2003). Indeed, as Rheingold (2003) points out this provides the opportunity to deceive, violate and exploit members of such communities. From online fraud to paedophilia, computer mediated communication has provided a myriad of avenues for exploitation. Donath (1999) asserts that deception commonly occurs in MMORPG environments and makes specific reference to gender bending. Gender bending refers to individuals presenting themselves as the opposite sex online through the use of gender-neutral pseudonyms. This is further evidenced by the following participant responses:

"The negative side is that there are some people who make use of the game to look for innocent girls, trick them and abuse them." [Female, 18-21]

"One man seemed to be stalking me online. It made me feel very uncomfortable." [Female, 22-29]

86% had been asked to disclose personal and sensitive data in MMORPG environments, including age (76%), location (75%) and email addresses (50%).

41% had received requests for personal pictures.

57% had been asked by online based friends to meet face-to-face.

10% were previously asked to divulge account details including passwords.

The second phase of the study assessed the level of self-disclosure amongst the 362 surveyed participants. Understanding the level of self-disclosure provided a clear insight into the inherent level of vulnerability to social engineering and exploitation attacks. The key highlights are as follows:

89% had previously divulged personal and sensitive data in an MMORPG environment, including age (81%), location (77%), and email addresses (48%).

38% sent personal pictures to online friends upon request

22% previously divulged personal telephone numbers.

10% had divulged credentials upon request.

In addition, almost half (45%) of the respondents had become suspicious of other players behaviours whilst engaging with MMORPG's. Concerns included stalking, harassment, racism, stealing of online currency and property, and extreme aggressive behaviour.

The final stage of the study comprised of a semi-structured telephone interview with willing participants who were classified (according to Griffiths' (2000) framework) as 'behaviourally addicted'. Of the 23% who fell into the aforementioned category, 20% agreed to be interviewed. The key highlights from the follow-up case studies are detailed below:

17% felt they were addicted to their game and could not live without it.

66% stated that the games provided them with a sense of purpose and invoked a feeling of being valued and respected.

47% were either married and/or had their own family. 84% of these admitted that their MMORPG engagement had a negative impact on their family life as a whole and 8% reported that their online gaming had caused family breakup.

16% revealed that they had been subject to one or more social engineering attack. 5% of these fell victim to successful attacks including fraud and being duped into sending personal sexually orientated pictures.

38% had met online based acquaintances in person. 20% of these stated they found the real life personality of the other individual to be much different than their previous online based perception.

In addition, the following responses from the follow-up case study illustrate some of the thoughts, feelings and emotions from online gamers:

"Neglecting my wife and kids emotional needs, depression amplified by gaming" [Male, 30-39]

"Well... I can only speak from personal experience. I was addicted to World of Warcraft for over 2 years... I am a recovering online gaming addict. I almost lost my job, family and wife over my obsession. It was all I could think about, it dominated every waking moment of my conscious, (and unconscious at night) mind. After years of emotional neglect, my family had finally had enough." [Male, 21-29]

"There are very lonely people online, (I was probably one of them too). I have had times where other players have acted inappropriately towards me that they perhaps wouldn't have meeting someone in person for the first time, (i.e. making graphic comments, alluding to emotional attachments." [Male, 30-39]

7. Conclusions

The preceding evidence suggests that online gaming addiction is an ever increasing problem and Walther's (1996) theory of hyper-personal interaction can indeed increase an individual's level of vulnerability and risk of being exploited. Moreover the study revealed that for some participants MMORPG's give a sense of purpose and meaning in their lives. This compliments Haidt's (2007) theory that people need obligation, constraint and structure in order to numb the feeling of isolation. However, in many cases, this misperception changes the dynamics of individual's life and in some cases results in addiction. As the preceding evidence illustrates such additions are not only damaging to an individual's lifestyle and mental wellbeing but also increases their levels of vulnerability to exploitation. The theory of increased vulnerability is distilled from the fact that participants are typically highly trusting within MMORPG environments and the empirical evidence shows that manipulation and persuasion is a common facet of online gaming. In addition, the deep emotional investment exacerbates the aforementioned vulnerabilities.

The affordances of anonymity combined with the immersive nature of MMORPG's creates an environment on which emotion, isolation and the desire for celebrity-like status takes precedence over individual safety and the protection of personal and sensitive. It is clear that the psychological consequences of online gaming are therefore dependent on the attributes of the user and how the two interact.

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