ADDICTION AND MASSIVELY MULTIPLAYER ONLINE ROLE-PLAYING GAMES (MMORPGs): AN IN-DEPTH STUDY OF KEY ASPECTS

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I would like to dedicate this thesis to my family and my beloved Victoria. I would also

like to thank Angharad and Richard Boon for all the help they provided.

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Research Methodology

Addiction has been a heavily publicised disorder since the early 1900's when the prohibition of alcohol was enforced in the USA between 1920 and 1933 (Hanson, 2007). With the growth of online games such as *World of Warcraft,* the media's attention has turned to video-game addiction. As an avid player of such games since the first commercially successful online game *Ultima Online* in 1997, an investigation into the relationship between addiction and massively multiplayer online role-playing games (MMORPGs) was of great interest, whilst also providing a deeper sociological understanding of addiction in online games.

Initial research concentrated on the concept of addiction using several books that outlined varying models of addiction including Robert West's, *Theory of Addiction* (2006), and *The Addictive Personality* by Craig Nakken (1996). This was the first step into the endless world of addiction and using their bibliographies and the Athens portal, other valuable texts and journals were found. This particular method was used several times until a timeline of addiction and its proposed models and theories was formed, starting with Magnus Huss in 1849, who was the first physician to outline the effects of alcohol abuse (Sournia et al, 1990, pg.43).

Specific models of addiction from the thousands available were chosen and discussed based on several different theories giving a broad view of the addiction world. After an informed knowledge of addiction was attained, a comprehensive literature research on MMORPGs was undertaken, which consisted of reading several key texts including Richard Bartle's, *Designing Virtual Worlds* (2004), and *The Virtual Community* by

Howard Rheingold (2000). These particular texts provided a great insight into how MMORPGs had evolved throughout their history.

The last section of research consisted of finding particular literature directly pertinent to MMORPG addiction. Again several key texts were acquired including *Massively Multiplayer Online Role-Playing Games* by R.V. Kelly 2 (2004), and *Play Between Worlds* by T.L Taylor (2006). Their bibliographies once again provided another wealth of texts and journals. The Athens portal played a major part in allowing access to several of those key journals, while internet sites such as Guardian Unlimited, Gamasutra, and *The Daedalus Project* by Nick Yee (2004), also played a major role in providing contemporary material.

Introduction

Addiction is widely associated with alcohol (Jellinek, 1960), and drug abuse (WHO, 2004), but in more recent times has started to include dependences not linked with substance abuse, such as gambling (Griffiths, 1995), internet use (Charlton, 2002; Young, 2002) and video-game addiction (Yee, 2006). The term video-game addiction encompasses all genres of games, but it is often associated with MMORPGs as several high profile deaths of MMORPG addicts have been heavily publicised. For example one such addict in South Korea fatally collapsed after playing an online game for 86 hours straight without eating or sleeping (Kim, 2002).

Since then addiction of online games has been specifically highlighted, with the Thai government imposing a curfew on online games (CNETAsia, 2003), and Europe's first video-game addiction clinic opening in Amsterdam (Altizer, 2006). But what causes these addictive relationships to form in the first place?

The conceptualisation of addiction is still a debated subject within the scientific community; and within this thesis several models of addiction are examined as proposed by leading researchers in the field, including the disease model of addiction (Jellinek, 1960; Parr, 1959; WHO, 2004), the genetic model of addiction (Genetic Science Learning Centre, 2006; Nestler, 2000), the experiential model of addiction (Peele, 1975) and the biopsychosocial component model of addiction (Griffiths, 2005). This will then give an insight into how addiction is formed, and allow further analysis of why people become addicted to certain behaviours.

MMORPGs have evolved from a combination of computer role-playing games (CRPGs) and online text adventures i.e. MUDs (multi-user dungeons), into a multi-billion dollar industry, with *World of Warcraft* (WOW) alone generating $1 billion in annual revenue (Schiesel, 2006). Therefore an in-depth study into how the MMORPG genre has evolved throughout its history will be conducted, specialising in games that have been developed in western society (i.e. America and Europe). This study will also incorporate research pertaining to the motivational reasons for why people play MMORPGs, using several play style models put forward by industry researchers such as Richard Bartle, the creator of the first MUD.

With the online community of players expected to rise to the 100 million mark by 2010 (Kelly, 2004), the addiction associated with MMORPGs is only going to rise. Thus this dissertation will look into the reasons for why addiction occurs and compare them to the reasons why people play online games, with the goal of highlighting the key motivational factors linked to the formation of addictive behaviours

Chapter 1: Addiction

In modern day science the term addiction is a conundrum, a riddle that has yet to be solved. The conceptualisation of addiction using models based on theories and hearsay has been happening since the 19th Century when Magnus Huss, a Swedish Physician first published his findings on the adverse effects of alcohol, *Alcoholismus Chronicus* in 1849 (Sournia et al, 1990, pg.43). Since then many neuroscientists, psychiatrists, pharmacologists and biologists have put forth many models of addiction, but none yet have totally solved the mystery of what addiction is. Within this chapter several key models of addiction will be discussed in order to give a greater understanding of what addiction encompasses.

Addiction as defined in the Concise Oxford Dictionary is:

> addiction n. the fact or process of being addicted, esp. the condition of taking a drug habitually and being unable to give it up without occurring adverse effects. (Allen et al, 1991, pg.14)

This simple yet informative description explains in 'layman's' terms what addiction is on the surface; but there is no definitive definition and this is due to the fact that addiction is still a relatively unknown disease in today's modern science. There are hundreds of definitions that try and detail what addiction is, with each one concentrating on an acute symptom or substance relating to particular research; but none of them totally encompass the whole meaning of the term, for example the World Health Organisation (WHO) define it as:

> addiction, drug or alcohol. Repeated use of a psychoactive substance or substances, to the extent that the user is periodically or chronically intoxicated, shows a compulsion to take the preferred substance, has great difficulty in voluntarily ceasing or modifying substance use, and exhibits determination to obtain psychoactive substances by almost any means. (WHO Lexicon, 1994)

Again the above definition specifically refers to the use of a psychoactive substance (e.g. narcotics), that periodically or chronically intoxicates the user. This form of addiction is in direct correlation with the disease model of addiction (Jellinek, 1960; Parr, 1959; WHO, 2004), but does not take into account the 'behavioural' aspect of addiction (Alexander, 1985; Griffiths, 1996; Peele, 1975; West, 2006), which doesn't necessarily involve the ingestion of psychoactive substance or intoxicate the user e.g. gambling (Griffiths, 1995). One definition that does take into account the 'behavioural' side of addiction is Robert West's definition, a Professor of Health Psychology at the University of London, who suggests that:

> Addiction is a social construct, not an object that can be uniquely defined. According to the proposed theory, addiction can be usefully viewed as a chronic condition to the 'motivational system' in which reward-seeking behaviour has become 'out of control'. (West, 2006, pg.174)

The above definition refers directly to abnormalities within a person's 'motivational system' which is related to specific personality traits that may exist before addiction takes place such as a tendency to become anxious or depressed. It also involves a habitual process that incorporates the user's social and physical surroundings, but again this definition does not explain every aspect of addiction. The fact that addiction is so complex and intricate it is understandable to realise that no definition will be absolute, but the three definitions combined offer more insight into the world of addiction.

Traditionally in the 19th century the word addiction referred to alcoholism (Jellinek, 1960) or drug abuse. Today however the term addiction is not used in medical terminology, as the WHO in 1964 abandoned it in favour of the term 'dependence' to further encompass other forms of addiction e.g. sex (Carnes, 2001). As dependence cannot be diagnosed using any scientific test or scan, the individual's symptoms are

referred to a diagnostic criteria for addiction. There are currently two main criteria's used, the WHO's, International Classifications of Diseases (ICD-10) and the American Psychiatric Association's, Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). The ICD-10 classifies dependence as:

> A cluster of behavioural, cognitive, and physiological phenomena that develop after repeated substance use and that typically include a strong desire to take the drug, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority given to drug use than to other activities and obligations, increased tolerance, and sometimes a physical withdrawal state. (WHO, 2007)

Whereas the DSM-IV classifies dependence as:

> A cluster of cognitive, behavioural and physiologic symptoms that indicate a person has impaired control of psychoactive substance use and continues use of the substance despite adverse consequences (APA, 1995).

The term addiction is still generally used within the public domain and can be used interchangeably with dependence.

Before Magnus Huss published his findings in 1849 addiction was thought of as being an issue of morality, whereby people who abused alcohol or drugs where weak and immoral, and that if they had strong enough willpower they could overcome their own affliction. This form of thinking was not original either, as Aristotle investigated this very trait, called 'akrasia'; a Greek term literally meaning 'lack of mastery'. Aristotle proposed that an akratic person would go against their reasoned thoughts due to a matter of opinion or feelings, and that this could be further broken down into impetuosity and weakness, where a person would react on passion rather than a process of deliberation (Kraut, 2007). This psychosocial model was replaced in the 20th Century with the disease model of addiction (Jellinek, 1960; Parr, 1959; WHO, 2004), as medical techniques and technology became more advanced.

Figure 1 – Mesolimbic Dopamine Pathway (National Institute on Drug Abuse, 2007)

The disease model of addiction also known as the psychopharmacological model is heavily based on neurobiological theories of how the brain functions. This model is solely based around the mesolimbic dopamine system. This involves the firing of nerve cells located in the ventral tegmental area (VTA) of the midbrain, which in turn activates the release of the neurotransmitter dopamine within the nucleus accumbens (NAcc) in the forebrain; this is known as the mesolimbic pathway as shown in Figure 1. As dopamine binds to its receptors within the NAcc it causes the feeling of pleasure and reward. A dual loop system is also involved whereby descending fibres from the NAcc affect the release of dopamine in the VTA, which is directly linked to the reinforcement of behaviours and stimuli that are critical to survival e.g. eating & drinking.

It is thought that psychoactive substances e.g. cocaine, have a much greater impact on the firing of the nerve cells in the VTA compared to normal activities such as eating & drinking, and can increase the concentration of dopamine in the NAcc by up to 500%,

thereby eliciting a form of euphoria i.e. reward (WHO, 2004). As the mesolimbic dopamine system reinforces behaviour that is associated with survival, and psychoactive substances act so forcefully upon this system, the brain associates the drug-taking behaviour as being immensely important. As the substance is continually used, an abnormal strengthening of the synaptic connections within the neural pathway occurs, leading to a strong motivation to re-enact the behaviour that was associated with the reward; this is called associative learning.

This behavioural modification is not the sole reason behind addiction though, as secondary stimuli can cause the same motivational feeling caused by the primary stimulus, in this case a psychoactive drug. There are several types of secondary stimulus that can form this relationship, including the environment the user was in when taking the substance, or a visual aid such as a syringe. These types of secondary stimuli are termed 'cues', and are associated with relapses and cravings. Cravings involve unrelenting urges and desires to perform a particular behaviour e.g. gambling, and can fully dominate a person until that craving has been sated. This loss of control over certain actions is a main theme that runs through all models of addiction, and is mainly referred to as a dysfunction of the 'motivational system' present within the brain.

The disease model of addiction also forms part of the genetic model of addiction (Genetic Science Learning Centre, 2006; Nestler, 2000), which theorises that certain genetic and environmental factors can play a role in the susceptibility of a person becoming addicted; for example one identified gene (A1 allele of the dopamine receptor gene DRD2) is more common in people addicted to alcohol or cocaine (Genetic Science Learning Centre, 2006). There is no one gene that is associated with addiction, it is

more of a combination of several genes interacting with each other, and several social/environmental factors such as exposure to the stimulus and cultural acceptance (e.g. peer pressure), that lead to a heightened susceptibility of becoming addicted.

Several decades of animal testing support both the disease and genetic models of addiction, with both models still being referred to today. Avram Goldstein, Professor Emeritus of Pharmacology at Stanford University stated in 1975, what is still the founding belief of the disease model of addiction:

> If a monkey is provided with a lever, which he can press to self-inject heroin, he establishes a regular pattern of heroin use, a true addiction that takes priority over the normal activities of his life. Since this behaviour is seen in several other animal species (primarily rats), I have to infer that if heroin were easily available to everyone, and if there were no social pressure of any kind to discourage heroin use, a very large number of people would become heroin addicts. (Goldstein, 1979)

So far two models have been discussed that explain addiction in terms of neurobiology and psychopharmacology, with both models incorporating external factors such as cultural and environmental elements. Both theories of addiction dictate that the user is only addicted if they experience a loss of control, and continue to perform the addicted behaviour even though they have expressed a willing desire to stop. This loss of control is paramount to the diagnosis of addiction, with both the ICD-10 and DSM-IV listing it as one of their diagnostic criteria:

> ICD-10: (1) Difficulties in controlling substance-taking behaviour in terms of its onset, termination, or levels of use. (WHO, 2007)

> DSM-IV: (2) Persistent desire or unsuccessful efforts to cut down or control substance use. (APA, 1995)

Even though in all models of addiction a loss of control is experienced, within the disease and genetic models this is their greatest flaw, because this loss of control does not explain what is known as self-cure, whereby an addict simply stops performing their

addicted behaviour of their own volition. If the above models discussed where absolute then self-cure should be medically impossible without physical restraint. It could be argued that these addicts where not truly addicted, but Stanton Peele, a recognised psychologist who has dedicated over 30 years of his life to researching addiction offers his insight with the experiential model of addiction which has become a recognised model of dependence (Peele, 1975).

The experiential model of addiction goes back to a social-psychological approach with its main emphasis on emotional and environmental factors. Peele defines addiction as:

> an addiction exists when a person's attachment to a sensation, an object, or another person is such as to lessen his appreciation of and ability to deal with other things in his environment, or in himself, so that he has become increasingly dependent on that experience as his only source of gratification. (Peele, 1975)

The underlying theme of this model is that addiction is part of everyday life, and that people who become addicted to a sensation, object or other person, are compensating for their own unfulfilled lives. For example a person who has a low opinion of themselves and lacks genuine involvement within their life will turn to outside support to survive. This support can be a constructive positive experience involving family and friends, or can involve the use of more damaging forms, such as psychoactive drugs, gambling, or video-games. When they turn their aid to the form of an addictive substance or behaviour, it can relieve their anxieties and provide a protective cocoon around them, sheltering them from their outside lives.

This inevitably is the starting phase of their addiction, as they become unable to cope with normal life without their addictive substance or behaviour. This dependence usually disgusts them and increases their anxiety and unhappiness, which further

reinforces the desire to escape their fears using their addiction, thus giving rise to the cycle of the addiction process within the experiential model. The final stage of this model involves withdrawal of their addiction, where the world becomes so frightful and so alien that they cannot survive without the reassurance they can escape, and so they cannot live without their addiction, nor free themselves from it.

This model is in direct contrast to the disease model of addiction and does not conform to the evidence found from traditional animal tests on addiction, usually involving rats becoming addicted to morphine in laboratories where no psychological or external factors play a role. But Peele argues:

> When we think of the conditions under which animals and infants become addicted, we can better appreciate the situation of the addict. Aside from their relatively simple motivations, monkeys kept in a small cage with an injection apparatus strapped to their backs are deprived of the variety of stimulation their natural environment provides. All they can do is push the lever. (Peele, 1975)

The argument that social isolation could influence the results was further strengthened by the research performed by Bruce K. Alexander, a psychologist at Simon Fraser University, whose experiments in the late 1970s dubbed 'Rat Park' (Alexander, 1985; Alexander, 2001), showed that social factors played a major part in addiction and rejected the claims that exposure to the drug invariably led to addiction i.e. through loss of control.

Alexander's experiments consisted of comparing the intake of morphine hydrochloride (similar to heroin) in albino rats (descendants of Norway rats; an active and sociable species) in two different environments; a standard laboratory cage housing one rat, and Rat Park, a large (over 200 times larger than a normal lab cage), spacious and comfortable area which housed up to 15-20 rats. In both the isolated cage and Rat Park

two dispensers were available, with one containing the morphine solution and the other containing natural water. After several weeks the results were clearly defined, as the rats in the cages consumed up to 20 times more morphine than the rats in Rat Park, who mostly drank water. The most interesting experiment though involved rats in standard cages that had been forced to drink morphine for several weeks and showed clear signs of dependence on the solution, but on re-locating the subjects to Rat Park refused to drink morphine, unless it was highly diluted with water and sugar and did not affect their social interaction with the other rats.

The results clearly contested previous animal testing data and Alexander (1985) claimed that no empirical support for drug induced addiction was evident. The experimental findings were rejected however by the majority of the medical community as Alexander's methodology was questioned. It is clear though that social and environmental factors play a huge role in addiction, with Mark Griffiths, Professor of Gambling Studies at Nottingham Trent University, offering a mixture of pharmacological and psycho-social components in his biopsychosocial framework of addiction (Griffiths, 2005).

Griffiths' component model of addiction theorises that an addiction can built around a number of behaviours such as gambling, over-eating, sex and video-game playing, and doesn't necessarily involve the ingestion of drugs. He claims that addiction consists of certain common components. The first of these key components is salience, which is when one particular activity dominates the person's life and thinking, leading to social demoralisation and cravings. Another component is mood modification, which is feelings of great high (e.g. a 'buzz') or of great calm (e.g. stress relieving) when the

addictive behaviour is acted out. Tolerance is another component and involves addicts having to increase the regularity and time spent performing the addicted behaviour in order to experience previous levels of reward, for example veteran gamblers will no longer experience a feeling of excitement previously achieved when betting small amounts.

Another component is withdrawal, which is when undesirable feelings or physical effects are felt upon stopping the activity. These feelings and effects can be felt both physically (e.g. headaches, insomnia) or psychologically (e.g. moodiness). The penultimate component is conflict, which involves interpersonal (between user and other people) and/or intrapsychic conflict (between the user and themselves). Interpersonal conflict is usually in the form of compromising personal relationships due to the continual choosing of short term pleasure to the detriment of long term health, whereas intrapsychic conflict is when a person experiences a subjective loss of control and continues to perform the addicted behaviour even though they wish to stop. The final component of the model is relapse, which is when a person who has previously given-up an addictive behaviour resumes that activity at a later date.

The component model suggests that when all of these components are brought together, they offer a broader view of addiction and addictive behaviours compared to previous models, with Griffiths stating:

> Addiction is a multifaceted behaviour that is strongly influenced by contextual factors that cannot be encompassed by any single theoretical perspective. (Griffiths, 2005)

Timeline of Addiction Models	Previous -1800	1800-1950	1950-1975	1975-2000	2000-Present
Pyschosocial Model of Addiction	Aristotle (320 BC)			Alexander (1985); Peele, (1975)	Alexander, (2001)
Biopyschosocial Model of Addiction				Griffiths, (1995, 1996)	Griffiths, (2006); West (2006)
Pyscho-pharmocological Model of Addiction		Huss, (1849)	Jellinek, (1960); Parr, (1959)	Goldstein, (1975)	WHO, (2004)
Genetic Model of Addiction					Genetic Science of Learning Centre, (2006); Nestler, (2000)

Figure 2 – Timeline of proposed Addiction Models

The conceptualisation of addiction using models based on theory is a complex and intricate matter involving biological, neurological, behavioural, and sociological factors. No one model encompasses all of the answers to the questions surrounding addiction, but the main theme that can be taken from them is a 'subjective loss of control' involving an object or activity. The word subjective is critical to the understanding of this 'loss of control', as many external environmental and cultural factors affect the nature of one's addiction, whether it's physical or psychological. All of the models listed in Figure 2 can be applied to addiction or dependence, and I can now look at what factors play a key role in the addiction of massively multiplayer role-playing games.

Chapter 2: Massively Multiplayer Online Role-playing Games

Before analysing the relationship between online games and addiction, an in-depth view of what a massively multiplayer online role-playing game is and how the genre has evolved throughout history, from early text based games to the multi-billion dollar franchises they are now must be performed.

Massively multiplayer role-playing games, also known as MMORPGs are big business. So much so that *Norrath*, the virtual world of Sony Online Entertainment's (SOE), *Everquest*, has an estimated gross national product of $135 million, making it the 77th richest country in the world (Castronova, 2005). This form of virtual and potentially illegal wealth (as SOE owns all the intellectual property rights to anything in the world of *Everquest*) is accrued through the sale of in-game items and player accounts on online auction sites such as Ebay. This fascinating statistic was released back in 2001 when *Everquest* was the most successful MMORPG in the market with a customer base of over 300,000 subscribers paying between $10 and $20 a month (Bartle, 2004).

Since then we have seen the first virtual world millionaire in *Anshe Chung*, whose creator Ailin Graef managed a virtual real estate firm in Linden Lab's, *Second Life* (Chung, 2006), and Blizzard Entertainment's, *World of Warcraft* (WOW) break the 10 million subscriber mark worldwide (Blizzard Entertainment, 2008), which approximates to a direct income of over $1.5 billion annually. *The Burning Crusade*, WOW's expansion pack released in 2007, also went on to become the fastest selling PC game of all time, with over 2.4 million copies sold in its first 24 hours, and over 3.5 million in its first month (Blizzard Entertainment, 2007). But what is an MMORPG?

An MMORPG as defined by Raph Koster, the Lead Designer of Origin Systems (OSI), *Ultima Online* is:

> An online virtual world wherein embedded systems layered atop the spatial simulation present game rules; where the game presented is a role-playing game (Koster, 2007)

Although this definition is very precise and describes exactly what an MMORPG is in technical terms, it does not reflect the true essence of what an MMORPG has to offer, in terms of social, cultural and immersive factors. Tim Guest, the author of *Second Lives* perhaps describes this best:

> We've always dreamed of perfect places: Eden, heaven, Oz – places over the rainbow, beyond death and loss. Now through computer technology, we can inhabit those worlds together. In Boston, Massachusetts, a group of nine disabled men and women inhabit one virtual body, which frees them from their lifelong struggle to be seen and heard. (Guest, 2007)

So where did it all begin? MMORPG's can trace their lineage back to when J.R.R Tolkien first published the fantasy novel *The Hobbit* in 1937 in England, and seventeen years later the *Lord of the Rings* in 1954. These books went on to inspire the eventual founders of the *Dungeons & Dragons* (D&D) franchise, a tabletop adventure game that involved players assuming the roles of fantasy characters including warriors, wizards and rogues. The players using character sheets detailing all their attributes (strength, wisdom, intelligence etcetera) would then be led on an adventure by another player who assumed the role of the dungeon master. The players would then roll several different sided dice in order to see the outcome of their actions. Dave Arneson, and Gary Gygax, released D&D commercially in 1974 to great commercial success, selling all 1000 of their hand-assembled games (Wizards of the Sword Coast, 2003).

Figure 3 – *Akabeleth*. (Barton, 2007)

D&D played a major role in influencing the computer game developers of the time, especially Richard Garriott, a man who had dubbed himself 'Lord British' due to his fascination with the board game. Garriott went on to create the first commercial computer role-playing game (CRPG) *Akabeleth* in 1979 for the Apple II (Barton, 2007). As you can see in Figure 3 it used wireframe graphics and was a first person perspective game (i.e. the camera showing the virtual world was situated on the in-game character's nose, giving the impression the player was looking through their character's eyes) where the player could assume the role of warrior or wizard. The player's goal was to perform quests for a character named Lord British, who invariably tasked the player with retrieving a magical trinket located in a deep underground dungeon containing several monsters. Upon completing a quest the player would return to Lord British, in order to receive a reward and experience points, so that they could then buy new equipment and increase the power of their character.

A year previous to the release of *Akabeleth*, a student at the University of Essex called Roy Trubshaw, had started to programme what would become the first virtual world, also known as *MUD* (multi-user dungeon). *MUD*, (later known as *MUD1* to disambiguate it from the genre it had created also called MUD) was eventually released in 1980 by Richard Bartle, (another University of Essex student and friend of Roy's) on

the Experimental Packet Switching Service (EPSS), a pre-cursor to the Internet (Bartle, 2004). This network which was being trialled by ARPA (Advanced Research Project Agency) on the University of Essex's framework, allowed up to 36 players to play the game simultaneously. The game was essentially a text adventure, whereby players would be given a description of the room or dungeon they where in, and would then input a series of commands to interact with the game world, for example:

> You are stood on a narrow road between The Land and whence you came. To the north and south are small foothills of a pair of majestic mountains, with a large wall running round. To the west the road continues, where in the distance you can see a thatched cottage opposite an ancient cemetery. The way out is to the east, where a shroud of mist covers the secret pass by which you entered The Land. (Taylor, 2006)

The player could then use commands such as WALK, LOOK, JUMP or TAKE, to continue on their adventures. EPSS which eventually became PSS was a university and business network that was only available at a very high cost. Thus *MUD1* was only commercially released in 1985 on the emerging online services of the time, CompuServe, in the US and CompuNet, in the UK (Bartle, 2004). The game went on to become a commercial success and was the inspiration for hundreds of MUD games throughout the rest of the 1980's into the early 1990's.

Several CRPGs and MUDs were very successful in their own right but it wasn't until 1991 that both aspects of each genre would be combined to create the first MMORPG, America Online's (AOL), *Neverwinter Nights* (NWN). It was the first online game for multiple users to use a graphical user interface (a 2D top down view), and it was an officially licensed D&D game using the same game mechanics as the board game. As NWN could only be played on AOL's network service, the price to play the game was

$6 an hour, and even though it could only sustain up to 500 players the game made AOL an astonishing $5,000,000 in 1996 (Bartle, 2004).

Figure 4 – *Ultima Online*. (Gamespot, 1998)

It wasn't until 1997 though that the MMORPG genre became truly mass market, when Richard Garriott's, OSI released *Ultima Online* (UO), an online version of the *Ultima series* (9 separate CRPGs released between 1980 and 1999) which Garriott created after the success of his first game *Akabeleth*. As can be seen from Figure 4, UO was released with a 2½D graphical user interface, (i.e. the world was still 2-dimensional but tilted to a 60˚ angle to give a 3-dimensional feel) and viewed from a third person perspective (i.e. the camera was situated so the player could fully see their character and their surroundings). UO wasn't the first to market claiming the 2½D graphics engine though, as 3DO/Archetype Interactive's, *Meridian 59* was released a year earlier in 1996. Unfortunately it was released too early to take full advantage of the newly emerging World Wide Web and failed to achieve a solid user base.

When UO was launched it was a defining moment in the history of MMORPG's, as first and foremost it set the benchmark for the rest of the genre. As it was available to play on the internet, users were charged a flat rate of $9.95 a month instead of a usage charge and within its first year OSI took over $12,000,000 from over 100,000 subscribers (Bartle, 2004). The game like previous CRPGs and MUDs was based around a player creating an avatar (a computer generated representation of the user), picking their skills, and increasing the power of their character through performing quests, usually involving killing monsters. What UO offered that was different from previous games was the community, as a player based economy was established through trades and crafts, and players could own their own property. This was aptly described by Elizabeth Kolbert, a Journalist for the New York Times who wrote:

> In this sense, U.O. is, for all its evident silliness, essentially serious: a game with inherent moral complexity. And it is this, perhaps, that keeps the socialisers, the achievers, the explorers, and the killers all engaged. In U.O., you never know whether the other players you encounter are there for the fun of making friends or for the fun of murdering them. (Kolbert, 2001)

The next major instalment into the MMORPG market was in 1999 when Verant (later to be acquired by SOE) released *Everquest* (EQ), the first truly 3D MMORPG. It soon became the leading MMORPG in the industry, overtaking UO by the end of the year 2000, with over 300,000 subscribers compared to UO's 230,000. As of 2006 it had over 420,000 subscribers, having sold over 2.5 million units of the game worldwide (Taylor, 2006). EQ was released using a first person perspective similar to *Meridian 59*, but offered true 3D compared to 2½D. As with UO, EQ's main selling point was the building of the community aspect of the world, and this was further enhanced with what is called as the party or group system, whereby players could join forces to take down tougher monsters together.

Many other MMORPGs have been released since including Turbine's *Asheron's Call* in 1999, Mythic Entertainment's *Dark Age of Camelot* in 2001, SOE's *Star Wars Galaxies* in 2003, SOE's *Everquest 2* in 2004 and Turbine's *Dungeon & Dragons Online: Stormreach* in 2006. They have all gone on to achieve a stable user base to sustain their business models, but none have really dominated the market like UO or the original EQ did, until the launch of Blizzard Entertainment's, *World of Warcraft* (WOW). When it was released in 2004 it quickly became the leading MMORPG in its field, breaking the US day-one sales record for PC games, selling over 240,000 units within its first 24 hours (Blizzard Entertainment, 2005). Since then it has gone on to achieve over 2.5 million subscribers in North America, 2 million subscribers in Europe, and an estimated 5.5 million in Asia (Blizzard Entertainment, 2008).

Throughout this chapter the MMORPG genre has been defined, showing its historical evolution from tabletop board games and online text adventures into the seamless graphical 3D worlds they are today. The main theme that can be seen from all of these games is a common uniting of players, the community that surrounds each and every game that has been discussed. Even the earliest revisions of the D&D board game and any of the MUDs that were developed all existed due to a community fan base that populated the game world. But why do these communities exist?

There can be no absolute answer to the above question, but any answer given must at least define why people play the game initially and why people continue to play, thereby forming the community. Both areas are crucial to the understanding of virtual communities, as if there was no game there would be no community and if there was no community there would be no game. Roger Callois, a noted sociologist broke down the

reasons for play, in any activity into four elements in his book *Les Jeux et Les Hommes* (Man, Play and Games) published in 1958. The four elements consisted of Agon (challenge), Alea (chance), Mimicry (simulation), and Illinx (vertigo). He believed that each individual who engaged in any form of play exhibited a particular pattern that resonated with one of the four elements he proposed (Bateman, 2006).

Within a MMORPG all four elements of Roger Callois play patterns can be used to define the 'why' people initially play an MMORPG, but they are not the encompassing reason behind 'why' people continue to play and form a community. This reason is encompassed within the community itself, the players that actually play the game, and form relationships not with the game itself, but with other players. These relationships which are usually built on the player's experience within the game are the founding cornerstones of a virtual community. Although this type of relationship is deemed not as important as 'real-life' relationships by society, to some it is the most important relationships they have in their lives. Howard Rheingold, a researcher of Virtual Communities for over 20 years gives his opinion:

> One honest answer to the question "Don't these people have a life?" is that most people don't have a terribly glamorous life. They work, they subsist, they are lonely or afraid or shy or unattractive or feel that they are unattractive. Or they are simply different. The phenomenon of fandom is evidence that not everyone can have a life as "having a life" as defined by the mainstream and some people just go out and try to build an alternate life. (Rheingold, 2000, pg 172-173)

As the relationship between users in virtual communities has been outlined and the MMORPG genre has been defined, an in-depth look at different types of play experience using case studies, and how addiction can be applied to those experiences can now be analysed.

Chapter 3: Addiction & MMORPGs

The main two themes that have been identified so far are firstly, that addiction is a subjective loss of control which invariably leads to a physical and psychological addictive behaviour, and secondly, that throughout the evolution of the MMORPG genre, community has been the defining factor, and that without it there would be no game. Now that these have been identified the play experience within an MMORPG can be studied and the reasons behind why players play in the first place can be further investigated. This will allow key elements to be identified that may lead to an addictive relationship between the player and the game. To do this *World of Warcraft* will be used as a case study to describe and analyse the play experience.

World of Warcraft is currently the most successful MMORPG in the world (Blizzard Entertainment, 2008), but its success has been born from the ashes of previous online games. In essence it was a combination of several key aspects from previously successful MMORPGs, such as a fantasy setting (UO), player based economy (UO), 3D environment (EQ), party based gameplay (EQ), and a seamless virtual world (*Asheron's Call*). Upon this solid foundation it also introduced several new innovative features that alleviated common problems that existed in online virtual worlds, namely player induced bottle necks, where players would overpopulate an area or dungeon leading to a barren wasteland and stagnant gameplay. To solve this problem Blizzard introduced 'instance' dungeons, which made an exact replica of the dungeon each time a new player entered it, thus giving them their own personal play area. The response to the game was overwhelming with Greg Kasavin, executive editor of the video game website Gamespot stating:

> Though MMORPGs have been around for years, it has taken this long for the genre's breakthrough hit to finally emerge. Here is the online role-playing game you should play, no matter who you are. This is because World of Warcraft brings out all the best aspects of this style of gaming, if not many of the best aspects of gaming in general. (Kasavin, 2004)

Using the terminology discussed in chapter 2, WOW can be defined as 'an online fantasy role-playing game presented in a 3-dimensional virtual world where players connect to a common network of servers over the internet and are represented by virtual avatars in a third person perspective.' But what do players actually do?

First and foremost a player creates their online avatar, which involves selecting one of the ten races available (e.g. orc, dwarf, night elf) that are split into two different warring factions, Horde and Alliance. Once a race has been selected, the player must then decide on a class they wish to role-play, for example a warrior or wizard. After an appropriate name for their avatar is chosen, the player can load into the game world. As you can see this type of avatar creation is no different to the one described in chapter 2, whereby D&D players selected their race and roles within the before the start of the game.

The gameplay associated with WOW involves the player accepting quests or tasks from computer generated characters (known as NPCs or non-playable characters) and receiving a reward upon completing them. This reward is usually in the form of items, gold and experience points, which go towards making the player's character stronger and more powerful within the game; this is known as levelling. Again we can see a direct correlation with previous games that have been discussed, such as *Akabeleth*, where players perform quests for Lord British in order to become more powerful. Essentially this describes the core aspects of WOW, but it does not explain the reason

behind why such behaviour can be classified as 'fun', or why players continue to play such games.

The first person to question the 'why' was Richard Bartle, the creator of *MUD1*, who between the years of 1989 and 1990 conducted an in-depth review of why the senior players of *MUD1* played the game. This research led to the founding of the four player types known as Achievers, Socialisers, Explorers, and Killers (Bartle, 1996). Achievers are players who want to succeed at playing the game; Socialisers are players whose sole goal is to interact with other players; Explorers are players whose strongest desire is to explore the world; and Killers are players who delight in dominating other players physically (killing) and psychologically (known as griefing or harassment). It was theorised that every player who decided to enter the virtual world of MUD1 was doing so in order to achieve one of the four player types.

There was evidence though that suggested players could demonstrate behaviour that was attributed to more than one player type, and so Bartle designed the Player Interest graph:

```
                          ACTING
      Killers               |                    Achievers
                            |
                            |
                            |
                            |
      PLAYERS ------------------+------------------- WORLD
                            |
                            |
                            |
                            |
      Socialisers           |                    Explorers
                        INTERACTING
```

Figure 5 – Player Interest Graph (Bartle, 1996. pg.131)

Figure 5 dissects the four player types using an ACTING-INTERACTING axis and a PLAYERS-WORLD axis. As can be seen from Figure 5, the four player types can be described in more detail: Killers ACT upon other players; Achievers ACT upon the virtual world; Socialisers INTERACT with other players; and Explorers INTERACT with the virtual world. This form of player association is critical to the understanding of 'why' people play. The most important aspect of this theory though is that not all players are playing the game for the game itself (Bartle, 1996), which lends great weight to the theme identified in chapter 2, that is without a community there would be no game.

Although Bartle's player type theory has its merits, it does presume that each play type exhibits a negative feedback on other types of play, for example, the more a player is inclined to socialise would have a direct impact on the inclination to explore the world, which may not necessarily be true. As Nick Yee, a research assistant at the University of Stanford's Immersive Virtual Environments department states:

> There have been no systematic attempts to create a motivational framework for MMORPG users, but an exploratory framework for Multi-User Dungeons (MUD) users has been proposed by Bartle (1996). Bartle's proposed "player types" are derived from his experience in creating and managing these online textual worlds rather than empirical data, and provides valuable insight as well as a framework to test and build upon. (Yee, 2006)

After 5 years of having a wide variety of MMORPG players answer questionnaires, Yee, developed his component theory of play types including the three components: Achievement, Social, and Immersion (Yee, 2007). The achievement component was based around players wanting to advance within the game, optimise their characters, and compete with other players. The social component incorporated the different relationships a player may have within the virtual world, such as casual socialising,

building of personal relationships, and teamwork involving a guild (an organised collaboration of players). The final component Immersion was similar to Bartle's explorer play type, but also involved discovery, role-playing, customisation of player avatars and escapism. Although these components are very similar to Bartle's play types, they do not invalidate each other (i.e. a player can achieve high ratings in all three components), as shown by Figure 6, a scatter plot created from collected data which shows a widely uncorrelated association between the achievement component and the social component.

Figure 6 – Achievement/Social Component Scatter plot (Yee, 2004)

Within his questionnaire Yee also investigated the problem of 'online gaming addiction' by incorporating an edited version of Kimberly Young's, internet addiction questionnaire (Young, 2002). Young's questionnaire which was based on the diagnostic criteria outlined in the DSM-IV (APA, 1995) for the diagnosis of addiction allowed users to self diagnose themselves. The data Yee collected after several statistical

analyses, showed a direct correlation with the amount of hours played and the two sub-components escapism and advancement (Yee, 2007).

From both Yee and Bartle's play type models it can be identified that people play MMORPGs for many different reasons and therefore it can be assumed that players achieve different rewards from the experience. What is interesting though is that all of these types of play styles can lead to an addictive relationship. This type of addictive behaviour coincides with Peele's (1975) and Griffiths' (2005) models of addiction, whereby different people react differently to the same stimuli, but all end up with the same subjective loss of control, craving, and withdrawal symptoms, after repeated exposure.

Players who are predominantly associated with the achievement component are engrossed with advancement within the game. This advancement can be in the form of levelling (a system within the game that allows players to achieve new skills and abilities upon acquiring enough experience points, usually by completing quests), or in the form of new more powerful equipment. The fact that MMORPGs have no end goal and are limitless by design can exacerbate this desire to advance, potentially leading to an addictive behaviour. This behaviour can also have different psychological effects on different people, similar to some drugs e.g. nicotine. As Griffiths states:

> a nicotine addict may use cigarettes first thing in the morning to get the arousing 'nicotine rush' they need to get going for the day. By the end of the day they may not be using nicotine for its stimulant qualities, but may in fact be using nicotine as a way of de-stressing and relaxing. It could be argued that in these situations, psychology to some extent overrides physiology because of expectation effects. (Griffiths, 2005)

This form of psychological mood modification can also be seen in MMORPG players as one anonymous player gives her account of achievement:

> There's a certain satisfaction to be had from levelling, I find. While there ARE things much more enriching and rewarding than mindless levelling, there's a certain.... feeling of zen to be found in the grind. I've spent hours on end in the same area, doing the same thing over and over, watching the exp bar creep slowly upwards... Just soloing, just me and the monsters. Strangely, it can be a nice way to unwind after a long day at work. [CoH, F 22] (Yee, 2004)

Players who prefer to use MMORPGs as social networks can experiment with their social techniques and use this as a testing ground to improve their social interaction within their real lives. But certain relationships within the game can lead to a form of social dependence, whereby socially inept people become dependent on their social relationships within the virtual world and use it as a replacement for genuine social interaction in their real lives. This form of play can also lead to an addictive behaviour, as Keith Bakker, Director of Europe's first video-game addiction clinic states:

> We have kids who don't know how to communicate with people face to face because they've spent the last three years talking to somebody in Korea through a computer. Their social network has completely disappeared. (Altizer, 2006)

The last component Immersion sees players who are using the game as an escape from the real world. This type of escapism is directly linked to the experiential model of addiction (Peele, 1975), where people use an addictive behaviour as a defence mechanism to shield them from their fears of the outside world. This type of play is very addictive, as repeated use of the behaviour can eventually lead to total alienation of the real world. This cycle of addiction, which is highlighted in the experiential model, can eventually lead to an increased anxiety within the player as they come to terms with their addiction but cannot prevent it due to their subjective loss of control.

Throughout this chapter key motivational factors of why people play MMORPGs have been highlighted and compared with the core components of addiction that were discussed in chapter 1. The main theme that can be taken from this chapter is that people play games for many different reasons, whether it's for the 'actual' game itself, the social camaraderie they encounter, or as a way of escaping from their real lives, and that all of these reasons can lead to a form of addiction.

Conclusion

Addiction is a complex and wide-ranging subject that is still being researched today. It can and does involve addictive substances as demonstrated by the disease model of addiction (Jellinek, 1960; Parr, 1959; WHO, 2004), but can also involve addictive behaviours such as gambling (Griffiths, 1995), sex (Carnes, 2001), love (Peele, 1975), internet use (Charlton, 2002; Young, 2002) and video-game playing (Yee, 2006). Whether addiction is formed through increased dopamine levels in the brain (WHO, 2004), or as a defence mechanism to alleviate the psychological distresses of a hectic life (Peele, 1975), the common theme is that addiction is a destructive process, that takes away a person's control of their lives both physically and psychologically. This process eventually leads to the addiction dominating their life, even though they do not want to pursue it anymore. Thus I believe addiction is:

A subjective loss of control caused from repeated exposure to an object, person, or behaviour, where the person involved is using the addiction to cater for psychological deficiencies such as lack of social interaction, stress, or cultural pressure, and that the dependency is so strong it dominates the person's life to the detriment of anything else in their lives including friends, family, work, education and health.

As discussed in chapter 2, MMORPGs have evolved from a combination of CRPGs such as Richard Garriott's *Ultima series* and MUDs such as Richard Bartle's *MUD1*, and have now become a global phenomenon in which approximately 50 million people every week venture into a virtual world (Guest, 2007). MMORPGs have become so much more than a computer game to some people, as Guest (2007) describes how nine men and women suffering extreme cases of cerebral palsy use the virtual world to live

out experiences that they would never have been able to in the real world. The game itself has become a living, breathing virtual community that exists because the people involved in it socially invest their real feelings through their virtual avatars. Thus it can be deduced that without the community that exists within the game, there would be no game.

The question of why people play MMORPGs is a very subjective question with several different answers. Bartle (1996) tried to answer this question for his game *MUD1* using the player interest graph, incorporating four unique play styles: achievers, explorers, socialisers, and killers. This model was further built upon by Yee (2006) who using empirical data collected from several questionnaires formed the three component model of achievement, social, and immersion. Like addiction the answer is not absolute, it is theory of why people play, but it does allow a comparison to the models of addiction. This comparison can see specific areas of play style that could be associated with addiction such as escapism (Peele, 1975) and mood modification (Griffiths, 2005).

The three main themes that can be highlighted throughout this thesis are:

1. Addiction is a subjective loss of control which invariably leads to a physical and psychological addictive behaviour;
2. Throughout the evolution of the MMORPG genre, community has been the deciding factor, and that without it, there would be no game;
3. All the motivational factors associated with creating the desire to play MMORPGs can lead to addiction.

Initially the linking of the motivational factors of playing an MMORPG to the several models of addiction in order to discover which factor led to dependence was the key objective. But what was found is that all of the motivational factors may lead to an addictive relationship, but it ultimately depends on what type of person you are, and under what physical and psychological influences you are being subjected to, as addiction is abnormality of the behavioural system within the brain in order to counter extreme external factors. Therefore it cannot be quantified into one particular reason as to why MMORPGs are addictive, as it involves a combination of factors that exist externally to the game.

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