

# Addiction to Massively Multi-player On-line Games: An Ethical Analysis

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## Abstract

Massively Multi-player On-line Games provide a medium for virtual social interactions to which an addiction can develop. This paper examines the nature and causes of game addiction, and the game players', developers', and publishers' ethical responsibilities in preventing it.

## Keywords

MMOG, RPG, MMORPG, MUD, social network, avatar, anonymity, persistence, self-image, addiction, ethics.

## 1 Introduction

Massively Multi-player On-line Games (MMOGs) are highly interactive and constantly available virtual worlds in which the social notions of self-image, fame, power, and wealth are often paralleled without social barriers that restrict them in real life [1, 3, 4, 6, 7].

### 1.1 Addictive Behavior

The state of addiction is one in which an individual partakes solely in one activity at the cost of their own welfare [8]. Biologically, the motive for engaging compulsively (where one will “do the activity over and over even if he/she does not want to” [2]) in an activity is to facilitate production of 'beta-endorphins in the brain, which makes the person feel “high” [2]. Obsession, where a player continually thinks about playing MMOGs [2], compulsiveness, loss of control, denial, low self-esteem, and anxiousness are characteristics common to addictive behaviors [2].

It is important to note that game addictions are of a purely psychological nature and that treatment procedures targeted for physical and substance based addictions may not be effective [7].

Addictive behavior begins with an initial, relatively low risk, involvement in some pleasurable or beneficial activity [2]. With time and repetition, the affected individual will spend more time in the activity and partake in it with greater frequency, in order to indulge in the pleasures or benefits it provides [2]. These individuals will reach a state of awareness of their addictive behavior, during which they can choose to pursue a path to recovery [2]. In persistent MMOGs (see 1.2.3 on the following page), this decision is difficult to make, because by choosing a path to recovery, the player must eventually sacrifice all of their virtual possessions, relationships, and social status.

In a case study [4] (circa. 2004) of MMOGs, 12% of 1836 surveyed players indicated that they play “more than 40 hours per week” [4], while the median amount of time spent playing by all players was 21 to 27 hours per week on average [4]. An extreme minority of ten, conclusively addicted, players stated playing an average of 156 hours per week [4], which leaves them only 12 hours during the week for vital activities such as sleeping and eating.

In a case study [7] (circa. 2002) of Massively Multi-player On-line Role Playing Games (MMORPGs), strong correlations were found between the following.

- Stress and the likelihood of addiction.
- Low self-esteem and the likelihood of addiction.
- Game-play time and the likelihood of addiction.
- Game-play time and real life problems resulting from game-play.
- Helplessness and the likelihood of addiction.
- Game-play time and “withdrawal symptoms” [2] such as anxiety, anger, restlessness, irritability, and frustration [7].

Here we see that by simply prolonging the playing time, the player is more likely to become psychologically dependent on the game; thereby gradually developing an addiction to it. This observation is key to understanding how MMOGs can cause addiction.

## 1.2 Appealing Qualities of MMOGs

The primary lure of MMOGs is the empowerment of one’s ability to “literally live out their ideal self” [8] whilst enveloped in the freedom of complete anonymity [6]. This and other appealing qualities of MMOGs, which can cause a player to become psychologically dependent upon them and thus become addicted, are discussed in following sections.

### 1.2.1 Anonymity

The anonymous and decentralized nature [1] of MMOGs allows players to partake in social interactions that otherwise may not be possible in real life. Particularly, the absence of social barriers such as name, sex, location, age, ethnicity, and social status, allow unrestricted social interaction between players. For example, some players act upon their homosexual fantasies by flirting with and seducing other players in confidence of their anonymity [6]. Knowing that one “will likely never meet anyone from... [a MMOG] in real life,” [6] removes the real life risks of social interaction, such as rejection and humility. Also, anonymity promotes a sense of intimacy not easily paralleled in real life: “computer-mediated chat environment facilitates self-disclosure, and many players have told personal issues or secrets to online friends that they have never told their real life friends or family” [7].

The use of an intermediate entity, often called an “avatar” [5], to represent the player in MMOGs aids in achieving anonymity. Avatars are commonly represented through a mix of graphical, textual, and audible elements. Also, avatars need not have any resemblance nor relation to its player (human or otherwise).

### 1.2.2 Immersiveness

Different from forms of static entertainment, such as novels, television, cinema, and radio, MMOGs are dynamic and highly interactive, allowing players to become mentally immersed within them [5]. The immersive quality of MMOGs is not specifically dependent on stunning 3-D graphics: “Engaging stories [like those in text based MMOGs] mean more than eye-candy to the immersiveness of environments” [5]. MMORPGs immerse players within huge virtual worlds littered with towns, castles, and other real life constructs, to the point which a player can feel as if living inside a fully functional alternate reality.

### 1.2.3 Persistence

The term “persistence” denotes that the state or result of an activity remains available and unchanged after one disengages from the activity. When one re-engages in the activity at a later time, they will find their previous efforts are not undone. MMOGs can be persistent by storing the state players’ avatars on a server accessible to the game’s host or players.

Persistent MMOGs tend to prolong the duration of game-play more than non-persistent MMOGs by giving the player a logical incentive (their efforts will persist) to invest time in developing their avatar. For example, in a popular non-persistent MMOG named “Counter-Strike,” a player’s avatar is available only for the duration of game-play; when a player disconnects from the game, their avatar ceases to exist.

The non-persistent model inhibits wealth and power based addictions because the effort and time a player expends to improve their avatar’s attributes, such as money for purchasing weapons in “Counter-Strike,” are to no avail

once they disconnect. Therefore, persistent MMOGs such as text-based MUDs (Multi-User Domains) and multimedia-based MMORPGs provide an incentive for players to play longer and improve their avatar's attributes.

#### 1.2.4 Availability

Playing MMOGs is different from traditional group interactions where participants would decide upon and gather at a common physical location and time to interact [1]. Whereas, the around-the-clock availability of the Internet encourages people to play MMOGs whenever they want: "People can participate within the comfort and safety of their own homes or offices, at any time and at their own convenience" [1]. In support, a case study [6] (circa. 1992) of the LambdaMOO MUD, shows that there were at least ten people logged in and actively conversing during all times of the day [6].

#### 1.2.5 Social Interaction

A case study [7] (circa. 2002) of MMORPGs, shows that the need to establish relationships and interact socially, especially motivates players who:

- Have low self-esteem by allowing them to be "Competent and Powerful" [7].
- Lack "control over their own lives" [7] by granting them control or by promoting a sense of achievement.
- Feel "Trapped by Circumstances" [7] by allowing them to "Make a Difference" [7].
- Feel "Undervalued" [7] by allowing them to feel "Valued and Needed" [7].
- Have difficulty "Making and Sustaining Relationships" [7] by simplifying the process of communication.

Statistical results from several case studies of MMOGs strongly suggest that the primary motive for playing MMOGs is to engage in social interaction [3, 6, 7]. Of these, a study [3] (circa. 1998) of the LambdaMOO MUD estimates that the time spent socially interacting, in comparison to other possible activities within the game, is 66% among females, 57% among males, and 59% among all players [3]. Thus it can be summarized that the primary element of attraction for players in MMOGs is the presence of other players [2].

In real life, an individual's breadth of social interaction is generally confined within one or more groups (a dense subgraph of social networks in which few, if any, edges connect to external networks directly [1]) such as their family unit, close friends, and colleagues [1]. Whereas MMOGs, due to their anonymous and decentralized nature, easily facilitate social interactions among individuals and groups between whom social ties may not exist [1].

Because on-line relationships "develop on the basis of shared interests rather than be[coming] stunted at the onset by differences in social status" [1], on-line

relationships may be more meaningful and longer lasting than real life relationships [1]. This provides one reason why players spend time socializing in MMOGs rather than performing other activities.

### 1.2.6 Self-Image

Among the social notions borrowed from real life into MMOGs are “social pressures to maintain the accountability afforded by a single primary identity [a player’s avatar]” [3]. Contrary to such pressures, many players simply become attached to their virtual personae because it boosts their self-esteem: “every hour that they spend in these games helps to build their sense of worth” [8].

However the notion of self-image is quite loose in MMOGs as avatars are not necessarily an exact representation of their player. For example, in the LambdaMOO MUD, players are free to choose avatars of various sexual orientations, species, and other criteria via textual avatar descriptions [3]. Graphics-based MMOGs on the other hand force players to choose from a set of predefined avatars that may represent “idealized/normalized bodies” [5].

Having an avatar that has an idealized body may appeal to “Individuals who do not like the way they look in real life” [7] and allows them to “throw away their flesh and bone bodies for a few hours and live in the mask of their attractively-shaped avatars” [7]. In such players, low self-esteem can also result as “there is permeability between these spheres of interaction [the game world and real life]... idealized representations can result in a further denigration of unusual presentations of physical bodies” [5]. Such players may develop a strong emotional dependence on their avatar because it represents their true intellect and personality without their supposed unattractiveness. Such dependence may develop into an obsession, as the player incessantly attempts to escape reality and immerse themselves within MMOGs.

### 1.2.7 Mirroring Reality

As do real life communities, those within MMOGs tend to conform to a set of rules, virtues, morals, and ethics in order to safeguard the freedom to socially interact [1, 3, 6]. For example, it is common among MUD communities to establish a code of manners which defines acceptable social interaction and discourages unwanted real life elements such as discrimination and harassment [3, 6].

Some MUD communities give special rights to chosen players (known as “Wizards” in the LambdaMOO MUD [6]) to enforce their codes of conduct [6]. However, just as in real life, corruption can creep into MMOG societies: “MUD wizards who demand deference... severely punish those who transgress... there is an ego boost to those who wield even simple administrative power” [6]. The glory of commanding others as a wizard would certainly appeal to power and control motivated players.

### 1.2.8 Wealth and Power

The real life psychological chains of inferiority, helplessness, dependence, and ridicule often disappear in MMOGs. Individuals of low self-esteem or social status often find great pleasure and stress relief in MMOGs because they “can have complete control over it [the game world and computers in general]... it does what it is told and is always predictable in its behavior or action” [2].

MMOGs are often uplifting and bring out the qualities of such players that are otherwise not acknowledged in real life: “An individual who is ordered around in his everyday life may be able to lead a group and be admired for his abilities” [7]. Such players can easily become hooked to the power they can wield in MMOGs and may begin to expect no less in real life: “[they] feel anxious if the[y] do not have control over their environment” [2].

Wealth motivated players are keen upon maximizing the attributes of their avatar. In Role Playing Games (RPGs), this is often achieved by having players gather certain items or gain experience by performing certain tasks. RPGs which incorporate these factors tend to hook wealth-motivated players: “[employing an] elaborate rewards cycle... works like a carrot on a stick” [7].

Power and control motivated players are known to use bots (“software robots” [5]) to covertly spy [5] upon, gather data [5] (often statistical marketing data), and silence unwanted actions (generally the right to free speech and assembly) of other players. However it can be frustrating, if not dangerous, when MMOGs (especially those with a violent theme) mimic real life too closely: “Just as an ornate picture frame can distract from the beauty of the picture, focusing on making an environment mirror the everyday world can inhibit smooth methods of communication” [5].

### 1.2.9 An Escape from Reality

A case study [7] (circa. 2002) of MMORPGs found that the need for players to immerse themselves in games, motivates players who are “[of] poor self-image” by allowing them to become “beautiful and attractive”, and “[are undergoing] stress and RL [real life] problems” by allowing them to avoid or escape from their troubles.

Some players simply play to escape from, and consequently neglect, their real life troubles and responsibilities: “an addictive behavior functions by empowering the individual and thereby easing the sense of helplessness that they may be experiencing” [7]. For example, success oriented people develop a fear of not producing or achieving perfect work, and may postpone their duties altogether by playing MMOGs when things do not happen according to plan. As a deadline nears, they will increasingly immerse themselves within the MMOG as to avoid their work. In fact, case studies of the LambdaMOO MUD have found a correlation between excessive playing time and stressful exam periods among university students [3] and between stress and game addiction [4]. If such cycles of procrastination (by way of playing MMOGs) and production of poor quality work continue, a rapid erosion of self-esteem may result. In which

case the affected individual will withdraw from real life social interactions to hide their shame.

#### **1.2.10 Commitments**

Case studies of several MMOGs show that players do not typically engage in multiple MMOGs simultaneously because of a strong commitment to maintain the social status and self-image that is associated with their avatar [3, 4, 6]. A case study [4] (circa. 2004) of MMORPGs shows that players who are members of a cooperative group (known as “clans” and “guilds”) play more hours per week than others. Also, playing time among cooperative group members strongly correlates with the amount of members in the group [4]. One reason for this correlation is peer pressure: “a player now plays to catch up or remain around the same level [a quantitative representation of an avatar] as their friends... the pace is set by the player that levels [improves their avatar] the most, and often times causes a chain reaction of others trying to catch up” [7].

Such demanding commitments can take away time from real life responsibilities such as work, school, and family, whilst possibly hindering the player’s physical and social qualities in real life.

### **1.3 Treatment**

There is no certain remedy to game addiction nor any agreement upon the types of treatment because it is not a substance or physical based addiction [2]. In fact, game additions are purely psychological and thus professional counsel from a psychiatrist may be more effective than other forms of treatment [7].

## **2 An Ethical Analysis**

### **2.1 The Subject of Analysis**

Since MMOGs are very diverse and, in general, are decentralized (where players are not forced to play in specific servers) it is difficult to identify stake-holders who may benefit from prolonged playing time. For this reason, MMORPGs will be exclusively analyzed using the procedure outlined in [9, 10], due to their unique centralized (where players can play only in the publisher’s servers) subscription based model of distribution. In this model, the primary stakeholder who can financially benefit from prolonged playing time is the game’s publisher.

### **2.2 The Scenario of Analysis**

In this scenario and the analysis that follows, the pronouns “he”, “him”, and “his” should be read as “he or she”, “him or her”, and “his or her” respectively. This scenario proposes a relatively strong development of game addiction. Thus

it is important to note that in real life, only a minority of players become addicted [6, 7].

Imagine a consumer named Sam who hears about a fantastic new MMORPG named FOO that is published by the BAR corporation. Sam purchases a copy of FOO at a local computer shop, installs it on his home computer system, and starts up the game. Sam sees a lengthy legal statement, which denies BAR's liability in case any of a plethora of misfortunes happen to affect him, to which he must agree before playing. Among other details, the legal statement specifies that avatars and their possessions become the property of BAR once players cancel their subscription. Sam carefully examines the legal statement and acknowledges it. He then proceeds to connect to BAR's server. Once connected, he chooses an avatar and begins an epic journey into the virtual world of FOO.

Since he is a new customer, Sam receives a complementary one week trial period during which he is allowed to play on BAR's server. Note that FOO can only be played by connecting to BAR's server. After a week, Sam decides that he would like to continue playing FOO and purchases a subscription. Sam is periodically billed for the subscription.

While playing FOO, Sam socializes with other players, explores the game world, improves his avatar's attributes, and embarks on wonderful adventures to find rare and valuable items. Much of the technical factors contributing to his increased playing are due to the game's reward system, human player interface, procedures for disconnecting, and the procedures for growth of items', avatars', and locations' diversity and population.

The game's "rewards system" [7] is designed so that each time an avatar increases its level by one unit, the amount of experience an avatar needs to increase to the next level grows exponentially [7]. This system also rewards players who have kept their subscriptions for a certain period of time by granting them exclusive access to beta test their latest expansion game for FOO, aptly named "Foo: Return of the Baz."

The game's human player interface demands excessive mouse clicking and typing to perform actions within the game. Sam notes that the finger which he uses to click the mouse, often pains and becomes swollen. Also, Sam has pain in his wrists because the game requires him to either type in-game commands or use lengthy shortcuts which span his keyboard rather uncomfortably.

The procedures for a player log-out dictate that an avatar must travel to a specific location in order to properly log-out. Otherwise no guarantees are made about the avatar's state during the next time such players join BAR's server.

The procedures for game growth dictate that the game world will be periodically updated in new and exciting ways. Players will not be notified of the changes that were made during an update nor the time at which an update occurred. During an update, a unique town containing unique, rare, and powerful items will be added to the game world. Players must explore the game world to seek out the treasures that await in such towns.

Over several months, Sam increasingly spends significant amounts of time playing FOO instead of doing other activities. Sam no longer eats dinner in the evening nor participates in recreational activities with family members, nor



joins colleagues at the cafeteria for lunch. Sam begins to purposely stay at home and avoid his occupation by making excuses to his manager. Sam is often tired because he doesn't get enough sleep. When Sam is not playing FOO, he is perceived as a pale and emotion-less apparition by his family.

Sam soon realizes that he is addicted to FOO but decides not to cancel his subscription because all of his hard work and dedication in improving his avatar, its attributes, items, social status, and all of his friends in FOO would be lost. Since all of the game data is stored exclusively on BAR's server, there is no way for Sam to keep a copy of his avatar's data.

As a result of Sam's choice to not cancel his subscription, his addiction has gotten worse. Sam now exclusively spends all of his time playing FOO and neglects his real life responsibilities. Consequently, Sam loses his job and is unable to provide for his family. Sam soon becomes divorced and his children are taken away by his spouse. In a matter of weeks, Sam is hospitalized because he has become so immersed in FOO that he has not eaten nor slept for four days. Sam is charged with, and unable to pay for, the heavy medical bills for his hospitalization nor the subscription bill for FOO. Thus, BAR assumes Sam's subscription is canceled and claims ownership of his avatar. Sam's real life is ruined as he is forever haunted by the loss of his job, family ties, respect of his colleagues, social ties with friends in FOO, and his beloved avatar.

## **2.3 Participants and Their Actions**

### **2.3.1 Primary Participants**

Primary participants, "who have taken specific, obvious actions" [10], are Sam and BAR corporation. Sam has taken the action to purchase FOO, play FOO, purchase a subscription for FOO, and consequently has developed an addiction to it.

The BAR corporation has taken actions to prolong the duration of players' game-play time by introducing inconvenient or immersive elements within the game and its human interface. The motive for taking such action lies in the simple fact that causing an addiction among players will ensure that the players incessantly maintain a subscription with BAR corporation; thus BAR corporation benefits financially by promoting game addiction.

### **2.3.2 Secondary Participants**

Secondary participants, "who have been acted on or affected by actions of the primary participants" [10], are Sam's family members. The game's features inherently prolong game-play time and reward players who become immersed within it. Thus players spend more time in the game, develop a psychological dependence to it, and eventually develop an addiction.

### 2.3.3 Implied Participants

Implied participants, “who are not directly identified but may have a stake in the outcome” [10], are Sam’s colleagues, Sam’s friends in FOO, and society in general.

## 2.4 Assumptions

Society in general, Sam’s colleagues at Sam’s work-place, and Sam’s friends in FOO, are eliminated from further analysis because their “interests are only minimally involved” [10]. These participants are not so directly hindered by Sam’s absence because they can interact and form relationships with people other than Sam with minimal psychological loss.

## 2.5 Legal Considerations

The first amendment of the U.S. Constitution supports Sam’s choice to purchase and play FOO because it makes Sam happy and enriches his life. However, there are no direct laws, as of this writing, against purposely making a game immersive as to addict players.

The lengthy legal statement to which Sam had voluntarily agreed to removes any legal liability of BAR corporation in easing his misfortune.

## 2.6 Alternative Actions

The BAR corporation had the option of allowing a grace period in which Sam had a chance to renew his subscription, or they could have given Sam’s avatar data representation to him, possibly for a fee. They also had the option to educate consumers about the psychological dependence that their product is known to cause by placing a warning label on their shrink wrapped product container. They could have removed the obstacles (such as disconnection procedures and uncomfortable human interface), if not the immersive elements, which prolong game-play time.

BAR’s game developers can design the game with usability in mind, simplify the user interface and disconnection procedures, and decrease the exponential growth rate for gaining a new level for avatars.

Sam had the option to limit game-play by focusing on other activities or to stop playing altogether by canceling his subscription. Another option is for Sam to begin playing a different game in order to reduce his psychological dependence on FOO.

Sam’s family had the option to discuss with him, his psychological dependence to FOO and the symptoms of addiction which he was exhibiting. They also had the option of suggesting a psychiatrist whom Sam could consult about his addiction. As an extreme option, they could discard Sam’s computer system and cancel his subscription as a means to stop his game-play altogether.

## 2.7 Justification of Alternatives

The BAR corporation could allow a grace period for renewing a player's subscription because it aids their business efforts to maintain ongoing relations with their customers. However, they cannot easily give Sam's avatar data representation to him because that would expose their proprietary avatar data representation format to unwanted parties, such as business competitors and dishonest players. They could educate players and mark their product with warning labels about game addiction, and provide resources to limit game-play, and remove elements devised to prolong game-play because by doing so they can establish an image of benevolence and trust among and empathy towards their customers and the general public.

BAR's game developers can also help innovate their very user-friendly and comfortable human interface into BAR's games. This will also help with creating an image of excellence in producing high-quality products for BAR.

Sam could limit or stop playing altogether in order to focus on Sam's real life responsibilities. For example, Sam can play FOO only on weekends or for a limited amount of time each day. By doing so, Sam would be better able to fulfill his real life responsibilities.

Sam's family could help stop his addiction by various means, because they have a righteous obligation to ensuring Sam's well being as his family members. They also have a stake in securing the financial, emotional, and psychological welfare of the family unit as a whole.

The following rationalizations will be removed from further analysis because they are unlikely to be performed by the participants. BAR will not educate nor warn their customers about game addiction because it will drive away their potential consumer base (parents would not allow their children to play). Also, BAR has an obligation to stay in business for the financial sake of their family and employees. The BAR game developers have an obligation to financially support their families and thus may not take action against BAR when ordered to implement game-play prolonging elements. Sam cannot easily limit or stop playing FOO via his own will power because Sam is addicted to it.

## 2.8 Key Responsibilities of Involved Participants

The following statements provide the basis for previously listed alternative options and their justifications.

- Game publishers have a respect-for-persons ethical obligation to educate and provide resources for all players about preventing game addiction.
- Game developers, acting upon a utilitarian and respect-for-persons ethical obligations to ensure the health and well being of players, must find alternate means of keeping players' interests without using obtrusive game elements.

- Players, acting upon a respect-for-persons obligation on their own behalf, must seek professional psychiatric help when they cannot limit or stop game-play via their own will power.

## 2.9 Questions for Further Research

The following ethical questions are not discussed in this paper. Instead, they provide motivation for further research.

- What ethical issues are involved in poorly designed human interfaces?
- Does this scenario still hold when considered with international laws? with domestic laws of foreign countries?
- Who is ethically responsible for breaking apart Sam’s family?
- Do the benefits of game-play out-weigh the physical and psychological risks?
- Would the scenario be any different if Sam purchased a non-persistent MMOG?

## 2.10 A Real-Life Analogy

The centralized subscriber model of distribution is fairly common in real life. For example, consider a successful hotel and casino (both located in the Same building) in Las Vegas, USA.

This establishment has its physical architecture designed such that a customer must walk through the casino to reach various venues of interest in the hotel. This increases the amount of time a customer spends in the casino and thus increases the probability that the customer will gamble. If the customer gambles incessantly, possibly due to addiction, the casino benefits financially.

The casino also employs a rewards system that attracts and motivates customers to gamble. For example, the casino may purposely set up their games to be quite easy for a customer to win a few times. But when a substantial amount of money can be gained by or put forth by the customer, they can easily make the customer lose.

The immersiveness of a casino is so great that one cannot perform simple tasks such as determining the time of day (casinos do not have wall clocks) nor weather conditions outside the casino whilst one is inside the casino. Food, drinks, and other life necessities are constantly available in the casino so that one does not need to depart from the preoccupation of gambling.

## 2.11 Relevant Codes of Ethics

The following are relevant codes of ethics that apply to this scenario.

- “Contribute to society and human well-being” [11].

a.1 “An essential aim of computing professionals is to minimize negative consequences of computing systems, including threats to health and safety. When designing or implementing systems, computing professionals must attempt to ensure that the products of their efforts will be used in socially responsible ways, will meet social needs, and will avoid harmful effects to health and welfare” [11].

a.2 “accept responsibility in making engineering decisions consistent with the safety, health and welfare of the public, and to disclose promptly factors that might endanger the public or the environment” [12].

b. “Avoid harm to others” [11].

b.1 “avoid injuring others, their property, reputation, or employment by false or malicious action” [12].

c. “Be honest and trustworthy” [11].

c.1 “The honest computing professional will not make deliberately false or deceptive claims about a system or system design, but will instead provide full disclosure of all pertinent system limitations and problems” [11].

d. “Give proper credit for intellectual property” [11].

d.1 “credit properly the contributions of others” [12].

e. “Strive to achieve the highest quality, effectiveness and dignity in both the process and products of professional work” [11].

e.1 “maintain and improve our technical competence” [12].

f. “Accept and provide appropriate professional review” [11].

f.1 “accept, and offer honest criticism of technical work, to acknowledge and correct errors” [12].

g. “Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks” [11].

g.1 “any signs of danger from systems must be reported to those who have opportunity and/or responsibility to resolve them” [11].

g.2 “avoid real or perceived conflicts of interest whenever possible, and to disclose them to affected parties when they do exist” [12].

h. “Improve public understanding of computing and its consequences” [11].

h.1 “improve the understanding of technology, its appropriate application, and potential consequences” [12].

## 2.12 Comparison with Codes of Ethics

The relevant portions of the codes discussed above are now applied to the actions taken by the relevant participants: BAR, BAR’s game developers, Sam, and Sam’s family.

### 2.12.1 The Game-Publisher

BAR has a respect-for-persons ethical responsibility to educate the public about the potential addictive behavior that may result with the use of their product (codes c, c.1, g, g.1, g.2, h, h.1).

When receiving complaints about FOO’s inconvenient human interface, which may cause repetitive stress injuries (RSI) to players, BAR must attempt to improve its product by incorporating solutions to such complaints (codes a.2, e, e.1, f, f.1).

BAR must not incorporate inherent biases, such as obtrusive and immersive elements, whose sole purpose is to prolong playing time for BAR’s financial benefits, because they physically harm the player via RSI and increase the risk of the player becoming addicted to the game (codes a, a.1, a.2, b, b.1).

BAR must not use an avatar of a player who is no longer subscribed without giving credit to the player (codes d, d.1). In a sense, the fact that BAR can seize a player’s avatar seems to be more along the lines of theft of intellectual property. For example, consider an art supply vendor who allows artists to use the vendor’s facilities for painting. Once an artist cancels his or her membership, the vendor seizes all of the artist’s paintings created at the vendor’s facility. In the primary scenario of analysis, such an action by BAR is legal, although not necessarily ethical, because Sam had agreed to this condition when Sam first played FOO (codes d, d.1).

### **2.12.2 The Game-Developer**

It is the professional responsibility of BAR’s game developers to notify their management about the potential risks (RSI and addiction) that may affect players with the use of inherent biases (obtrusive and immersive elements) used in the game (codes b, b.1, c, c.1, e, e.1, g, g.1, g.2). Since MMORPGs are played by hundreds of thousands of players, a utilitarian justification may prove effective when convincing management to remove the game’s inherent biases. Doing so will make the game more accessible in terms of a player’s physical ability to use the game’s human interface and reduce physical harm to players (codes a, a.1, a.2).

### **2.12.3 The Game-Player**

Playing MMOGs, if done so in moderation, may improve the quality of the player’s life (code a). However, it is the player’s responsibility to ensure that their real life responsibilities are handled with priority over game-play and that they identify and restrain addictive behavior if it develops. During this process, it is helpful if the player is honest in the disclosure of their game-play habits (codes b, b.1, c, c.1).

### **2.12.4 The Immediate Family**

Identifying addictive behavior in the player, providing emotional and psychological support, and aiding the player in overcoming it are key responsibilities of the player’s family. One option for achieving this goal is to seek professional counsel for the treatment of the player’s addictive behavior (codes a, c).

### 3 Conclusion

MMOGs appeal to players because they provide a means of unrestricted social interaction [1], an outlet for emotional or psychological troubles [7], relieve stress generated in daily activities [7], and are fun to play [8]. However, if the player's involvement in MMOGs is not regulated, the player may become psychologically dependent on MMOGs and thereby develop an addiction to it.

In MMORPGs, the publisher has a motive in prolonging game-play in order to benefit financially from maintained subscriptions. When a player is addicted to a publisher's game, the probability that a player will withdraw their subscription is reduced, which results in stable and non-decreasing revenues for the publisher.

Game publishers have a respect-for-persons ethical responsibility to not exploit their customers' risk of becoming psychologically dependent on their products. Instead, publishers must attempt to honor their utilitarian ethical responsibility to create high-quality games that improve the well being and quality of life of their customers without such incorporating such exploits.

Although the orders of their employer may dictate otherwise, game developers have a utilitarian ethical responsibility to create unbiased and accessible human interfaces and game-play procedures which do not exploit the player by promoting unhealthy durations of game-play. They also have the professional responsibility to accept and thoroughly consider the feedback from their customers and professional peers [11, 12].

Players have a respect-for-persons ethical responsibility in monitoring their playing time and identifying signs of addictive behavior, for the sake of their own and their family's well being.

The player's family has an ethical responsibility in aiding the player in identifying, restricting, and stopping addictive behavior, if not preventing it altogether. With positive emotional support from the family and peers, a player can maintain a healthy practice of, among other activities, playing MMOGs.

There is no scapegoat upon which we can place blame for the suffering an addicted player and their family endures. It is more important for the involved participants to become aware that such scenarios can be easily prevented, given that proper action is taken.

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