

Agency and Media Experience: A Theoretical Model for MMO Addiction

Neils L. Clark

Abstract

This article pulls from work in a number of disciplines in order to explain two proposed theories of game addiction: agency theory and media experience theory. Works in neuroscience, psychology, visual perception, communication and semiotics are brought together in order to explore a study of 291 players of Massively Multiplayer Online games. Agency is the proposed bridge between dopamine and psychology in these games. A player's relative level of agency dictates their ability to successfully navigate between thousands of potentially rewarding activities. Agency theory suggests that as skill at gaming and game world navigation increases, so does dopamine and thus resistance to dopamine in the nucleus accumbens. Non-game behaviors become relatively less rewarding, and are thus less likely to be engaged in. Media experience suggests that players might actually perceive interactive game imagery as real. While this has the potential to increase game rewards, and thus the likelihood of addiction, it introduces its own unique complexities.

What we consider to be addiction may not be entirely straightforward when it comes to Massively Multiplayer Online (MMO) gaming. Many approaches seek to

assign blame. They put the onus of addiction either on the gamer, or the game. Neither of these suppositions is warranted, nor will they be until the process of addiction is fully understood. An understanding of addiction will not be reached solely through psychology, neuroscience, genetics, or any other single field of study. Addiction is a complex interweaving of many factors, and addiction to games is no different. This article pulls theories from several disciplines, though is influenced heavily by the role of dopamine as established by neuroscience (Depue & Collins, 1999), psychological analysis of behavioral addictions (Brown, 1997), the structures within games (Wood et. al, 2004), neurological processes of visual perception (Barry, 2005, Kenney, 2005), and discussions of human experience (Collins, 1994). These vastly different fields are used concurrently in order to analyze the major results of a study comparing addiction and the in-game preferences of 291 MMO gamers (Clark, 2006). While the process of addiction would likely vary depending on the game, understanding this article's theoretical overlay may provide a background on MMO addiction that could help practitioners, developers and academics to contextualize addiction in a variety of MMO games. Beyond just the study of addiction, these theoretical perspectives have applications to the fundamental ways in which we use media. If game players' experience within games is similar enough to their experience outside of them, then foundational conceptions of game addiction may be called into question.

The study (Clark, 2006) compared conceptions of addiction (Charlton & Danforth) against a player's use of a MMO game's internal mechanics, measured as **structural characteristics** (Wood et. al, 2004). Charlton and Danforth's criteria for addiction was selected because it had been applied to MMO addiction previously, and also because it separated damaging **addiction** from less harmful high **engagement**, making the definition of addiction more stringent (Charlton, 2002). This conception also built off of a number of approaches (Brown, 1997, Griffiths, 1998). Structural characteristics were reworked so that they could be applied to MMO games. They hailed from a number of works examining the mechanics of player behaviors within games (Yee, 2006, Seay, 2004, Ducheanaut and Moore, 2004, Jakobsson and Taylor, 2003). No study had yet queried the relationship between addiction and a player's activities within game worlds. On the face it seemed highly likely that there would be a connection. This study was interested in gaining preliminary information on any such existent connection between addiction and structural characteristics.

Simple correlations showed each structural characteristic to have unique and varying relationships with either addiction, engagement, or both (See Table 1). When these factors were controlled for, it seemed that preference for a social guild was strongly related to engagement, preference for a goal-oriented raid guild was strongly related to addiction, and PvP (player versus player) advancement was related to both (See Table 2). This data suggests that there might possibly be some kind of unifying process taking place in addiction to contemporary MMO games. While this study's data is limited, it suggests that

players initially establish varied, perhaps random priorities for how they spend their time within MMO game worlds. At some point of engagement these preferences are narrowed down to PvP advancement and social guild preference. At the extreme levels of addiction, goal-oriented raid guild preference joins PvP advancement, these two becoming the most likely behavioral priorities. Academic work done in a number of fields might help to shed light on why this process seems to work as it does.

Dopamine has increasingly been recognized as a key component to motivation (Wise, 2004). Neurological research regarding dopamine makes a critical contribution to our understanding of addiction, noting that dopamine's effect on motivation is contingent on two major factors: "the availability of reward, and the effort required to obtain it..." (Depue and Collins, 1999). While brain chemistry's susceptibility is often also influenced by genetics (Wise, 2004), psychological factors also play a major role in addiction. It would be a mistake to separate the psychological and neurological aspects of addiction.

Psychological conceptions of behavioral addictions suggest that a behavioral component underlies most types of addictions, even those with highly substance-driven components (Brown, 1997, Griffiths, 2005). Brown put this concept as "hedonic gap," most simply an individual's resistance to adversity. The "gap" is between the best stimulus known and factors that might lower that person's resistance to addictive behavior. Brown noted these factors as planlessness, weakness, poor skill at manipulating feeling states without external stimulus, low frustration tolerance, previous deprivation, personality/temperament, and social/economic/cultural influences. Beyond this, Brown suggests that we all have a preferred list of behaviors that we would like to engage in at any given time. As we become addicted to one particular behavior, or rather gain great skill at using that behavior in order to change how we feel, that one behavior starts to edge out the other behaviors on the list. A healthy person will have a diverse list, while the quintessential addict displays something Brown calls, "motivational monopoly." At this phase, the addict displays a complete reliance on short-term fixes of a monopolizing behavior, rather than goals that may provide more reward over the long term.

"An addiction develops its maximum power and momentum through the prolonged action of several positive feedback loops. These positive feedback loops begin with a series of cognitive failures which lead to the strengthening of an acquired drive for particular feeling states as a goal associated with the performance of the addictive activity. As the acquired drive strengthens, so the single activity becomes more and more salient as almost the sole source of reward." (Brown, 1997).

A major factor connecting dopamine reward requirements to psychological behavioral prioritization, in nearly every relatively new form of media, might best be called *agency*. Contemporary media users of all types have been gaining more and more agency in the ways that they find and consume media. With television we "channel surf" until we find the desired programming. With the

World Wide Web, we “web surf” until we find the desired page. Within MMO games, we “structural characteristics surf” until we find the right activity to pursue. Okay, so “structural characteristics surf” is simply meant to illustrate the idea; MMO players do not always just ‘surf’ from one activity to another. While players do often direct the action, they also largely float from one activity to another. Oftentimes the behaviors undertaken by MMO players are not actually of their express choosing. Many times players are coaxed or coerced into performing large group goals, for instance raiding, or even support roles, such as farming. Players can even be forced into activity that serves no real function in the game world. While obligations seemingly direct the gamer’s actions, gamers do almost always have the agency to direct their avatar’s actions within these worlds.

There are variable levels of agency, not only in different media types, but also in various combinations of media. Stepping away from just MMO gaming, the contemporary media consumer has so many choices in media that with even moderate economic stability they could go between on-demand cable, saved TiVo programs, live streaming broadcasts, books, CDs, vinyl records, instant messaging, and countless other types of media. What is more, many of these media can be and are taken simultaneously. A major component to dopamine’s role in motivation is availability of reward, and media providers give no shortage of this. Navigating these media is easy. We tune the radio, flip the channel, and click through a few websites in order to activate our streaming broadcast. The other major component identified in dopamine motivation is the effort required to obtain reward. When we have the agency to maneuver ourselves in and out of available media, it significantly increases the availability of reward.

According to Brown’s psychological models addicts had settled on only one behavior, learning to best manipulate it in order to provide the most bang for their buck. Perhaps the use of agency allows the addict to negotiate pervasive media in a way which picks and chooses only those structural characteristics of media which maximize dopamine control. Could it be possible that media use with agency is itself a monopolizing behavior? Agency might allow a media consumer to lump a number of behaviors together as a pattern of monopolization.

Agency plays a similar role within MMO games. As many of these games are richly interactive and responsive worlds, there are innumerable structural characteristics to ‘surf’ or ‘float’ between. You can kill wolves, fly over skyscrapers, and even use in-game chat programs to talk with living players. Additionally, other media layer over the top of these structural characteristics. These might be best divided into **game-specific** and **non game-specific** media. Individual players may listen to digital or analog radio music, watch television, or check email while they play. Non game-specific media use would generally have little direct connection with play, yet would nonetheless represent a use of agency in order to maximize efficient dopamine release. Other game-specific media have been specifically created for layering over the top of these games.

Many free voice chat programs have been created specifically for use in videogames, for instance Ventrilo or Teamspeak. Certain websites have been created to provide information on specific MMO games, for instance thottbot or Allakazam. Often groups of players will additionally layer programs over their play that could have both game-specific and non game-specific uses. These might include internet relay chat (IRC), AOL instant messenger (AIM), guild forums, community websites, and even email. With MMO games, players do not need to subscribe to, own, or even understand a number of media types in order to use agency in directing their experience. They have ubiquitous and easily obtained stimulus within and around these worlds.

And yet, in considering addiction to either MMO worlds or contemporary media there may be a more important question to ask: "How exactly do MMO games blend the distinction between real world and fantasy?" In order to understand how we experience media, we must first make an attempt at understanding how we experience the world around us.

Experience, even experience within mediated environments, makes each of us unknowably unique. Charles Sanders Peirce's conception of the mind's inherent system of logic, *semiotics*, can help to explain the relationship between ideas, words and culture (Collins, 1994). Within everyone are **internal referents**, our mind's representation of some concept or object. **Abduction** is a process wherein the brain compares our internal referent with a thousand other ideas, and in a random process we narrow down our referent, or representation of a certain concept or **object**, based on what that referent does or does not connect to. These objects or concepts are then further connected to **signs**, our culture's mode of communicating them. Even in societies with mass media systems powerful enough to distribute identical signs to tens or hundreds of millions of people, the process of abduction and object identification will render an individual person's experience of that mass media unique. The addition of agency only compounds the ability for a single individual to have a very personalized experience in media.

And while Peirce's conceptions traditionally primarily dealt with words (he was writing around the 1870s), our contemporary media systems, especially television and MMO games, are strongly visual. Current perception theory argues that our brain's structures make concessions for neither mediated words nor images, "Because evolution is a slow process, our brains have not yet adapted to visual experience gained via media in any special way." (Barry, 2005). Furthermore, illusion theory supposes that "pictures give us the false perceptual belief we are in the presence of the subject." (Kenney, 2005). Our eyes cannot tell the difference between real visual experience and newspaper or television images. "It is the eye, not the brain that is fooled." (Kenney, 2005). If our brains and eyes believe that we are experiencing monster garage alongside Jesse James, or if they believe that we are jumping through the Stargate with John Sheppard, then we must rely on rational thought for centering. Yet some scholars

have insisted that the general public is *ill-educated* to be able to understand or decipher the multiplicity of visual and media cues that fuel our culture (Williams, 2005).

And perhaps that is because the communication technologies responsible for fueling television, computer games, analog/digital radio, cellular telephony/gaming, alongside innovations not listed or yet to come, are truly changing the ways in which human beings experience their world. How are MMO games *not* real? We not only perceive them, as we might an image on a television screen. We now interact within them. Where there has previously only been experience, these technologies have introduced a kind of *media experience*. Where there has been only a **primary world**, we now have **secondary worlds**. While it is important that any value judgment be withheld until contemporary media are thoroughly scrutinized, it seems clear that analog experience in the primary world must be held separate and distinct from media experience within secondary worlds.

Media experience and agency impact conceptions of MMO addiction theoretically, practically and culturally. Theoretically, if agency is having a major impact on the availability and effort required in MMO goals, and media experience renders these goals perceptually real, such an arena could be highly addictive. What is the middle ground here? Dopamine and media experience are likely factors in making games enjoyable in the first place. These games are an arena that can provide a much needed respite from everyday life, and they have shown some success at relieving chronic pain in certain clinical circumstances (Raudenbush, 2006). They are enjoyed by many responsibly. Addiction is not just a case of certain gamers playing due to increased psychological 'gap' or genetic susceptibilities. Nor are games the only factor responsible for addiction by virtue that they provide attractive dopamine loops. Television, games, almost all visual media fool the eyes in some sense. A societal and cultural lack of understanding regarding primary and secondary worlds takes these problematic factors and compounds them. The key to keeping gaming healthy is to understand the process of addiction, and then share that understanding.

Practically, media experience combines with psychological and neurological conceptions of addiction in order to explain the apparent process of addiction. Player versus player combat, fighting against other living players within an MMO game, was found to have major predictive relationships with both healthy engagement ($\beta = .180$; $p = .01$) and harmful addiction ($\beta = .118$; $p = .05$). This may be because PvP, in certain circumstances, engages more of the human nervous system than many other structural characteristics. If this is the case, then media experience likely figures into this largely. A player engaging in PvP is not passively watching images, nor are they attacking monsters with dubiously sophisticated programming. They must react to and fight with one or more unpredictable enemies within a perceptual reality. If perceptually viable images of anything, be they chocolate, sex or violence, are right in front of us and subject to

our manipulation, then this has the potential to trigger all manner of adrenal, visceral, rational and/or irrational responses. Personal interviews have suggested that during PvP, the human body may actually prepare itself for a physical conflict. It will be a fascinating study indeed that determines the degree to which this actually occurs. It is important to not lose sight of the fact that PvP ranked highly on engagement. While PvP structural characteristics may increase the addictive potential of MMO games, they do also appear to be major factors in making these games *fun*. Sweeping value judgments would be uncalled for at our current level of understanding.

Goal oriented guild preference held the other major predictive relationship with harmful addiction ($\beta = .233$; $p = .000$), yet no marked relationship with engagement. Goal-oriented, or “hardcore raiding” guilds, are groups of usually 30-250 players who give and expect exceptionally massive commitments within these worlds. Guild leadership will typically expect at least 5 hours of raid attendance per week, although personal interviews suggested that over 15-20 hours was often standard. There is often extra time required in order to gather necessary equipment for a successful raid. This kind of time commitment makes little sense until psychological gap, dopamine reward, agency, structural characteristics and media experience are all considered in an integrated approach. At the extreme endgame in most MMO games, expert groups of players must rely on one another’s skill if they hope to advance in goal completion. If the distinction between the primary and secondary world has been blurred, then the irrational visual processing within the brain may lead a person to view both the primary and secondary world as real on an unconscious level. Would you rather file an report at work, or defeat an army of berzerking gnomes? If they both feel real, yet defeating the army brings you more pleasure, it seems straightforward that you will display a preference for the gnomes.

Hardcore raid guilds require members to navigate structural characteristics in very specific patterns, depending on the MMO in question. In these guilds, actual skill in manipulating game structures is valued over aspects that involve pure socialization. Play itself is valued. While few if any guilds are strictly anti-social, such a pure raid guild would value only what other members can do, not who they are as a person. Does preference for these guilds tie directly into fulfillment of endgame goals? Have addicted players simply exhausted the reward in easier to gain structural characteristics? Are these coveted endgame reputations, items, or goals ultimately driving an addict’s play? As with PvP, it is critical to note that while raid guild preference did show a predictive relationship with addiction, many members of raid guilds make a conscious decision to participate because it can be *fun*. Many raid guild members are not addicts.

Culturally, we may need to change the way in which we approach addiction within MMO games. If we experience everything within a game as reality, regardless of whether it is only reality on a deeply unconscious or emotional level, then what are we addicted to? The entire game, or just PvP, raiding, or

some other isolated structural characteristic? The point here is that unique behaviors within MMO games may need to be recognized separately. To most any person looking in from outside, it does appear that a gamer *is simply sitting at a computer* for protracted periods. And if agency weaves the structural characteristics into some special addictive amalgam, then perhaps these “outsiders” are right. Nonetheless, a gamer’s definition of addiction often differs significantly from what that gamer’s family, friends or community might suppose. Yet this outside judgment is often made in a true ignorance to the vibrancy of these worlds. As a form of artistic expression, MMO worlds are full of wildly creative representations of art, architecture, botany, biology, weather, culture, politics, mechanical engineering, physics, and intrigue.

Secondary worlds, nonetheless, present goals that are much easier to obtain. If the human brain blends primary and secondary worlds perceptually, then we might perceive secondary world goals as being no less real than those in the primary world. They are much easier, and seemingly just as real. This blending, which we might very whimsically call immersion, combined with agency in the use of structural characteristics, does make these worlds potentially addictive, but it also makes these games *fun*. They are easy goals that seem real. Blending these worlds can provide the height of leisure, ***but is potentially dangerous if one does not understand how the human brain processes imagery.*** Secondary worlds are full of potential, but we need to understand the dangers that they present. It is very likely that the progeny of MMO worlds, whether or not they are used for gaming, will provide major elements of human culture in years to come. Understanding secondary worlds early on will feed their growth with cogency.

This theoretical model approaches games primarily from an addiction standpoint. As was mentioned a number of times, the vast majority of MMO gamers are *not addicts*. They play these games for fun. Even for addicts, media experience presents us with a fundamental question; what can *actually* be considered addiction when we experience these secondary worlds so much like our primary world? This model is meant to help researchers in drafting future research that might help to better shape functional understandings of the addiction process in MMO games, but it also raises some major issues that must be taken into account within such study. Agency is a force in this process that allows efficient navigation in a vast array of available technologies and platforms. Meanwhile, interactivity’s ability to blend the primary with secondary worlds, what we might possibly call immersion, allows the brain to engage in contemporary media at a level never before seen in human history. Media experience and agency have clear applications in conventional media, but they illustrate major areas where many critics exercise their craft in a genuine dearth of knowledge regarding MMO games. These are real spaces, in some sense. These are also spaces designed to be fun. They have an amazing potential, but are poised to fundamentally and irrevocably change culture on an international scale. Understanding the interplay between agency, media experience, and addiction will help us to make

responsible decisions regarding future research regarding the process of addiction within these worlds. Assigning blame solely to either gamers or games is irresponsible at best. At its worst, hasty conclusions regarding videogame addiction have the potential to cause massive harm to millions of people, game addicts as well as non-game addicts.

Resources

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Table 1.
Game Element Reliability (Cronbach's α) and Correlation (Pearson's r) with
Addiction and Engagement

Game Element	α	Engagement r	Addiction r
In-game Activities			
Non-advancing	.734	.251**	.028
Non-combat advancement	.794	.240**	.117*
Combat advancement	.748	.287**	.232**
Endgame advancement	.801	.378**	.324**
PvP advancement	.906	.207**	.298**
Guild Characteristics			
Social	.730	.381**	.316**
Goal-oriented	.734	.326**	.385**
Frequency of Interaction			
Real life friends	.802	.120*	-.013
Online friends	.733	.309**	.247**
Miscellaneous			
Immersion	.723	-.220**	-.042
Individualism	.853	-.102	-.036
Manipulation	.797	.027	.215**

* $p < .05$ ** $p < .01$

Table 2.
 Game Element Regression Analysis with Addiction and Engagement

Game Element	Engagement β	Addiction β
In-game Activities		
Non-advancing	.096	-.080
PvP advancement	.180**	.118*
Guild Characteristics		
Social	.201**	-
Goal-oriented	-	.233***
Frequency of Interaction		
Real life friends	.021	-.086
Miscellaneous		
Manipulation	-.073	.083

*p < .05 **p < .01 ***p < .000