# Chapter 23
# Online Gaming:
## Demographics, Motivations, and Information Processing

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## ABSTRACT

*Online gaming has become a major part of our culture. In order to understand this new media in our society we must examine the motivations for playing these types of games and how that impacts individuals processing of information. This book chapter sets out to examine those motivations and how motivational processing influences in-game content during game play. More importantly how individuals recognize, process, and evaluate information relative to their motivations for playing an online game. Furthermore, this chapter not only explores the product-related segmentation variables, but also demographic segmentation variables. Thus, taken together variables such as motivations, demographics, and game features allows us to paint a clearer picture of the: who, how, and why of online gaming.*

## INTRODUCTION

Video and computer games are big business. In fact, it was estimated by the Entertainment Software Association (ESA) that sales for computer and video game software reached about $11.7 billion in 2008. Blizzard Entertainment, the developers behind the game *World of WarCraft* announced in 2007 that they had recruited over 9 million subscribers to that particular game (van Lent, 2008). Not only do individuals have to pay

a one time fee to purchase the game ($50-$60), but they also must pay a monthly subscription fee to play that game online. According to van Lent if you do the math that's nearly $1.5 billion dollars annually! The success of online games has even spawned console systems (i.e., X360 & PlayStation 3) and video games that allow users to connect to the internet and compete or play with other users in a multiplayer format.

The gaming industry certainly takes it sales figures seriously. A person only need to look at the amount of money developers spend upon marketing their games, which is usually about

the same amount of money it takes to produce that game (Nussenbaum, 2004). Thus, if a game takes anywhere from $12 million to $20 million to create, then this same amount needs to go into marketing that game through multiple advertising campaigns in order to ensure that the game makes a profit. According to Nussenbaum the increase in costs has game developers seeking secondary revenue streams through online subscription fees and in-game advertising. Gaming industry leaders speculate that the amount of money spent on in-game advertising could reach $2 billion dollars by the year 2010 (Shields, 2006). In fact there is an advertising corporation called Massive (http://www.massiveincorporated.com) that caters solely to advertising within video games or in-game advertising. This trend was not lost on the part of politicians. For instance, newly elected President Barack Obama spent roughly $44,000 on in-game advertising between October 6th and November 3rd in 2008 for multiple Xbox 360 games (Miller, 2008). The advertisements sponsored voting early and were featured within 17 video games for the Xbox 360 (Sinclair, 2008). The amount spent on these advertisements seems relatively small in comparison to the entire amount put towards running a presidential campaign. However, the return on the investment would seem to be worthwhile, especially if you asked John McCain.

The increase of in-game advertisements certainly brings up important questions related to how individuals process information while playing a video game. Even more important is how that information is processed when it occurs simultaneously with game content. Audience analysis certainly could give us some insights into the answers to the previous questions. According to Livingstone (1999) "As audiences become less predictable, more fragmented or more variable in their engagement with media, understanding the audience is even more important for theories of social shaping, design, markets and diffusion than, perhaps, was true for older media" (p. 62). Thus, understanding the audience and their moti-

vations for play is the first step in gaining knowledge about how content within a video or online game is processed. As academics and industry professionals we need to understand a) what is online gaming, b) who plays online games, and c) what are individual's motivations for playing online games. In order to suggest new directions in gaming research we need to understand the phenomenon that we are studying. Furthermore, the demographic characteristics of online gamers may not be as easily presumed as once thought and therefore not as easily targeted as predicted. Therefore, this chapter will integrate what online gaming is along with player demographics in order to better understand motivations behind playing online games. Once these motivations are understood we can get a clearer picture of how individuals process information during game play.

## WHAT IS ONLINE GAMING?

Online games have been referred to as MMORPG's, which stands for Massively Multiplayer Online Role-Playing Games. However, online games have also been referred to as massively multiplayer/multiuser online (MMO's), massively multiplayer online game (MMOG's), or massively multiplayer online persistent world (MMOPW's) (Chan & Vorderer, 2006). MMORPG's have been defined as "a persistent world… that exists independent of the user" (Yee, 2005, p. 4). Users create their own graphical avatars and interact in an online world with other users and their avatars. Users can login or logout anytime, but the world still exists online and is open to numerous users. In fact, an interesting aspect of these games is the fact that most MMORPG's include a minimum of about 2,000 users (Yee). Thus, these virtual environments at any one point in time can house numerous avatars and characters.

Long before the word MMORPG was a part of our vernacular; games played over the internet were referred to as MUD's (Multiple User Do-

mains/Dungeons) (Kent, 2003). The first MUD was developed in 1978 by Roy Trubshaw and was nothing more than a few interconnected chat rooms (Bartle, 1990). It should also be mentioned that Richard Bartle was also a developer who worked alongside Trubshaw to create these MUD's (Lawrie, 2002). MUD's have a longstanding connection to role-playing board games like Dungeons & Dragons (D&D), mainly because many of the developers like Bartle were avid fans of D&D (Stewart, 1996). This may help to explain why most of today's MMORPGs resemble D&D type fantasy worlds and role-playing aspects. According to Blackmon (1994) D&D is a fantasy game in which players pick a character and interact with other characters and obstacles (e.g. monsters). The game is purely face-to-face as players interact as they would when playing a game of monopoly on a game board. Character development and the outcome of battles are decided by a series of dice rolls (Blackmon). In games like D&D, a player acts as the Dungeon Master rolling the dice to decide these outcomes, in MUD's the server controls the outcome (Yee, 2005). MUD's are essentially D&D type role-playing, only in online chat rooms that are primarily text driven and lack graphical representations. Thus, players enter the room and read descriptions of what the room looks like, smells like, and contains. Players interact with other players and objects through typed commands. Although, this seems fairly primitive compared to today's online games, MUD's are still quite popular among multiple users.

However, one area that revolutionized the online gaming industry was the implementation of graphical representations. Instead of users reading what a room looked liked, they actually see this world come to life on their computer screens. According to Yee (2006b, p. 311):

*On a simplistic level, MMORPGs could be thought of as a scenic chat room with a variety of interactive tasks. Users experience cities, jungles, and even the falling rain or snow in rich real-time 3D graph-*

*ics, and communicate with each other using typed chat and templated gestures and expressions. They interact with the world through a combination of mouse-driven interfaces and typed commands, and partake of a large number of varied activities that increase in complexity, reward, and time involvement which typically operate on a random-ratio reinforcement schedule. These activities revolve around character advancement and translate into a functional advantage in terms of the mechanics of the world, whether this is combat capability, social status, avatar appearance, geographic knowledge, equipment quality, or even cooking skills. Whereas the first few MMORPGs focused heavily on combat-oriented advancement, recent MMORPGs have offered more diverse forms of advancement. For example, in Star Wars Galaxies, one can become a skilled musician, chef, hair stylist, animal tamer, or politician.*

A game called *Meridian 59* was one of the first graphical online games developed, but failed to meet the criteria for the term "massively" because it could only host 250 users at one time (Kent, 2003). Although, developers often referred to *Meridian 59* as a massive multiplayer, the distinction of the first MMOG often goes to *Ultima Online* (Kent), which was developed in 1997 by Electronic Arts (EA). The debate of what was the first MMOG is still questioned; however it is not the purpose of this chapter to solve that argument. The inclusion of graphical representations was an important development in the history online gaming. The advent of graphical representations has expanded research into virtual environments with new and expanding opportunities. Furthermore, advancements in graphical technology allow MMORPG's to offer different factors and features that may give us an understanding of why certain individuals choose to play these types of games.

Chan and Vorderer (2006) outlined five aspects that differentiate MMORPG's from other online games. Aspects such as *persistence*, *physicality*, *social interaction*, *avatar-mediated play*, *verti-*

*cal game play*, and *perpetuity* all contribute to what makes an online game a MMORPG (Chan & Vorderer). *Persistence* often refers to the fact that the "virtual world" users inhabit exists continuously, whether or not that player is logged in or not. Other users can login and play anytime they wish and the number of individuals playing the game at any one time may fluctuate. Thus, events in this "virtual world" occur even when the person is not logged onto the server, these events are often driven by other users (Yee, 2006b). The persistence aspect may offer a few insights into the motivations behind playing online games. The worlds in which these users inhabit seem to resemble real worlds in terms of consistency. Thus, players of online games may do so to escape the real world into a fantasy world, but still require a level of consistency or persistence that real worlds or environments provide. Another form of *persistence* relates to a chosen players representation (avatar) that maintains the same identity and/or personality (Chan & Vorderer). Although, an individual's avatar may increase in abilities (e.g. physical, magical, stamina, etc…), they generally keep the same contacts and personal characteristics. A player's avatar is an important aspect of an online game. As will be discussed, individuals do not just spend time advancing or enhancing their avatars, they spend money on enhancements for that avatar.

According to Chan and Vorderer (2006), *physicality* indicates that these worlds are representations of material objects and environments. As Yee suggested, these locations can replicate anything from the jungle to frozen tundra and incorporate all of the processing capabilities of computers to create 3-D graphical environments. The fantastic nature of the avatars and the worlds would seem to infer that most games revolve around fantasy role-playing in distant castles and lands. However, some games such as *SecondLife* offer anything from playing games to partaking in virtual classrooms provided by educational institutions (http://secondlifegrid.net/programs/education). Thus, not all online communities and websites are dedicated to role-playing. The consistent fact is that regardless of the type of virtual world or community all provide opportunities to interact with objects and environments that symbolize tangible items. Virtual objects can be bought and sold by users across multiple types of online games for their avatars to use or profit from the sale. According to Natkin (2006) players have the ability to influence and interact with the virtual economy of the game, which may also have an impact on the real world economy. Individuals in the *World of WarCraft* can buy or trade for objects such as weapons, shields, potions, and even reputations (see www.guild-bank.com). In non-fantasy based games such as the *SIMS* furniture, clothing, and other items can be bought and sold online (Natkin). This virtual commerce aspect of the game means that individuals may not just see these games as enjoyment, but also economic opportunities. This may also add a different kind of motivation that has not been considered by researchers.

Chan and Vorderer (2006) further identify *social interaction* and *avatar-mediated play* as specific characteristics of an MMORPG. The simple fact that numerous individuals at any one point in time are playing online adds to the fact that individuals are likely to interact with other players. Many games offer the ability to join groups, clubs, and even have romantic relationships with other players. Ducheneaut, Moore, Nickell (2007) state that "unlike previous video games, MMOG's require players to exchange information and collaborate in real-time to progress in the game" (p. 129). Online games even offer different ways to interact with other players either through typed text or live audio between two or more players. Individuals may specifically seek out MMORPG's for the specific purpose of interacting with other players. Numerous researchers point to socializing as a major reason why individuals play online games (Bartle, 1990; Griffiths, Davies, & Chappell, 2004b; Kerr, 2006; Yee, 2006a). *Avatar-mediated play* is a characteristic

that allows players to create their own characters or avatars within that game. In fact, the *World of WarCraft* offers ten playable races and numerous primary and secondary classes and professions (http://www.worldofwarcraft.com/info/races). Thus, individuals are offered unique opportunities to become whomever or whatever they wish within that online environment. Individuals may seek out online games in order to try a new profession, career, life-style, race, or even gender. Thus, experiencing what it might be like to live as another person with different characteristics and personalities could be motivating game play.

Finally, Chan and Vorderer (2006) identified both *vertical game play* and *perpetuity* as MMOG characteristics. Both of these characteristics are based upon how players define their achievement within play. Most online games are persistent worlds that continuously exist in virtual environments where there is no end or final completion to that game (*perpetuity*). Thus, players of MMOGs can never truly say they have beaten the game. Their level of success is measured by their characters attributes, wealth, reputation, and weapons/equipment (Chan & Vorderer). Success can also be measured by the level or rating of a players avatar. In fact, individuals may even purchase an avatar that has been advanced a few levels by another user or company that pays individuals to advance characters/avatars for sale. For instance, the web site *BuyMMOAccounts* (http://www.buymmoaccounts.com) offers individuals the chance to purchase a *World of WarCraft* character that has been advanced up a few levels from anywhere between $300 and $500 dollars. Natkin (2006) suggests that since there is no set concept of game length, attachment to the game follows certain social and material aspects for continuous, repeated game play. Goals and objectives within MMORPGs often change and are in no way static. The ability to offer players continuous game play with ever-changing plots, objectives, and goals can be a powerful motivating factor and addictive quality of online games.

One key aspect of MMOG's is the word "massive". Most if not all online games that want to be considered a true MMOG or MMORPG must have the ability to support thousands of players. Woodcock (2006) has been collecting subscription data to online games since 2002 based upon multiple sources (corporate data, press releases, news articles, anonymous sources, etc…). The results of this unique analysis have allowed researchers to gain valuable insights into how many individuals worldwide are playing MMOG's. Currently, the *World of WarCraft* is dominating the gaming market with over 10 million subscribers worldwide (Woodcock). Other games such as *Everquest II* and *City of Heroes/Villains* have over hundreds of thousands of players; however games such as *Sphere* and *PlanetSide* are estimated towards the lower end between fifteen & twenty-thousand players (Woodcock). Although, these estimates are not without error it does suggest that a great multitude of individuals have been and/or are starting to play MMOG's. It could be that sheer size of these worlds is a motivation in and of itself. Individuals may play simply because a multitude of different individuals from across the country and world are playing online.

## SEGMENTING THE ONLINE AUDIENCE THROUGH DEMOGRAPHICS

In order to understand the motivations behind playing online games, we need to understand *who* plays these types of games. According to Oliver (2002) "the existence of certain individual characteristics may heighten or intensify media influences or may even provide a necessary condition for media influences to occur" (p. 518). Research conducted by Griffiths, Davies, & Chappell (2003, 2004a, 2004b) as well as extensive research conducted by Yee (2005, 2006a, 2006b) has provided excellent insights into the question of *who* plays online games. One assumption is that online game players are often younger socially withdrawn males.

However, research on the demographic characteristics of online game players questions this stereotypical image of online game players. Thus research that dispels commonly held assumptions about who plays online games needs to be understood before discussing how these demographics may influence the possible motivations of online game play.

## Age

It is a common held assumption that most online gamers are teenagers. However, a recent demographic sample of MMOG players has disputed this widely held belief. Griffiths et al. (2003) conducted a secondary data analysis of demographic information from two fan websites dedicated to the massive online player game of *Everquest*. The results showed that out of 11,457 players from one website that approximately 72% were between the ages of 14 to 29 years (Griffiths et al.). The other website reported a larger age range between 10 and 30 years for 71% of the 12,538 sampled from that particular site (Griffiths et al.). Thus, evidence suggests that wide ranges of age groups are playing these types of games. This research paints quite a different picture in terms of the stereotypical image of an MMORPG player. Yee (2006b) examined the demographics of MMORPG players across a three-year span by recruiting them through multiple websites dedicated to online gaming. The results of this sample further challenged the youthful stereotype. The results showed that the average age of the respondents was 26.57 years, with only about 25% of the sample being teenagers (Yee). Thus, we can no longer assume that the market segments of online gamers are younger adolescents. Just like in real world environments different generations of individuals are interacting in online gaming environments.

## Gender

Another stereotypical belief is that online gaming is a male dominated activity. Early research conducted on the examination of demographic characteristics of video game players suggested that only adolescent boys played video games (see McClure & Mears, 1984). This stereotype has been upheld in subsequent examinations of the effects of video game play (see Ballard & Lineberger, 1999). Lucas and Sherry (2004) noted that a random sample of college students who admitted to playing video games were more likely to be male (88.3%). However, a majority of the samples mentioned above were answering questions primarily about console games and not online games or MMOG's. Williams (2006) notes that this gender gap may occur because a majority of research aimed towards examining the effects of video game play has used adolescent samples. It is very possible that a majority of adolescent boys play console games and girls avoid such activities because they may have been deemed a male activity (Williams).

However, as mentioned before a majority of older individuals play MMOG's compared to adolescents. Thus, females may start to play MMOG's later on life because they provide activities in the gaming arena not typically male dominated, such as combat or killing. Griffiths et al. (2003, 2004b) found evidence suggesting an increasing number of females are starting to play online games (15%-20%). Although, not directly related to playing MMOG's, the Entertainment Software Association (ESA) released a news report on July 16, 2008 stating that 40% of computer and video game players are women. Yee (2007) found evidence to suggest that a large majority of female online gamers are between the ages of 23 and 40. Thus, it could be suggested that as females get older they are more likely to find reasons for playing online games than younger females. Although, the majority of MMOG players are male, female MMOG players should not be discounted.

Furthermore, motivations for playing an MMOG may be very different for male and female players.

## Occupation/Yearly Income/ Marital Status

Yee (2007) found evidence to suggest that over 50% of MMORPG players work full-time. The slight majority of occupations goes to individuals in the information technology field (28.7%), however there seems to be great diversity when it comes to occupations that play MMOG's (lawyers, doctors, nurses, homemakers, office work, manual work, etc…) (Griffiths et al., 2004b). Griffiths et al. (2003) found that about 21% of online gamers make less than $35,000, 20% make between $35,000 and $60,000, and 14% make over $60,000 year. The above results make sense as most MMORPG's require a monthly fee and faster computer processing speeds, which cost money. The fact that individuals in the information technology and computer science fields are more likely to play MMOGs is also not surprising, as these individuals are more computer oriented. An interesting finding by Yee (2006b) relates to marital status of MMOG players. The results of demographic analysis reveal that most female players are married, while most male players are single. Evidence suggests that a majority of female players get involved because of a romantic partner (Yee). Thus, motivations may widely differ between men and women when deciding to start playing MMOG's. Finally, understanding these motivations may also help to predict how information is processed during game play. Individual's motivations for playing that online game may influence what in-game content is paid attention too and what is ignored.

## MOTIVATION SEGMENTATION AND INFORMATION PROCESSING

Why are motivations important to information processing? The Uses and Gratifications perspective of media effects may add some insight on how to answer that question. The Uses and Gratifications approach to media effects was developed by Katz, Blumler, and Gurevitch (1973) to help explain individual's motivations for media use and selection. According to Rubin (2002) audience activity and media orientations are two essential concepts of uses and gratifications. Audience activity refers to the fact that individuals are not passive viewers of media, but rather, they are active participants who select and choose what they watch, hear, and read from media outlets. However, this activity is viewed on a continuum with individuals switching back and forth between passive and active viewers (Rubin). Thus, in terms of information processing, individuals often have different levels of cognitive involvement at any one point in time when processing a media message. The level of cognitive involvement is likely to influence what is remembered or recalled when playing an online game. For instance, an individual who is using a medium to gain knowledge or seek information (ex. watching a TV show about sharks) may have a different cognitive frameset than someone who is watching that show simply to alleviate boredom (Sherry, Lucas, Greenberg, & Lachlan, 2006). The amount of cognitive processing may be more effortful for people seeking to gain information than the person watching to pass the time. However, the person watching to pass time may be more susceptible to background features of the TV show because they are not as involved as the person with the information seeking motivation. If an individual is devoting a large amount of cognitive processing to completing a mission within an online environment or socializing with another player for information then it is likely that other sources of information are likely to be blocked out or passively processed. However, as will be

discussed individuals may still recall in-game content passively through implicit associations.

Rubin (2002) further offers two distinct types of motivations about individuals' attitudes and expectations of their media use: ritualized and instrumental. In ritualized motivations individuals seek out media outlets to consume time or for diversionary purposes (Rubin). Instrumental motivations are more goal-directed such as seeking information about an object, environment, or individual. This may draw connections to economic perspectives about motivations because virtual objects may also be bought and sold between vendors and players (Natkin, 2006). Thus, utilitarian motivations of purchasing behaviors should be considered as a reason why individuals play online games. According to Mort and Rose (2004) utilitarian motivations relate to the functional purposes of outcomes produced by goods or products. This means that individuals may simply go online to purchase new clothing, weapons, or a means of transportation for their avatar. Any type of information related to these items would take cognitive processing priority over other aspects such as completing missions or socializing. Thus, these media orientations offer insights into audience activity when using a specific medium (Rubin). In terms of processing information during game play this means players may give cognitive processing priority to content that relates to their current motivations.

An important aspect of the uses and gratifications perspective is that it allows for the development of unique taxonomies of motives for using a specific type of media (Harris, 2004). Since online gaming offers opportunities for a multitude of interactions, events, and behaviors one needs to consider multiple motives for playing. Bartle (1990) was one of the first researchers to examine the motives for playing online games. Although, Bartle was addressing the motivations for playing MUD's, his research offers an entry point into the MMOG motivation literature. According to Bartle "a pattern emerged: people

habitually found the same kinds of thing about the game 'fun', but there were several (four, in fact) sub-groupings into which opinion divided" (p. 2). The sub-groupings in which he refers to are four personality types that define individual's reasons for playing. The personality types are *Achievers*, *Explorers*, *Socialisers*, and *Killers* (Bartle). *Achievers* at the most basic level play the game in order to achieve game related goals, whether it is beating monsters or gaining points/treasure (Bartle). *Explorers* play the game in order to discover new virtual worlds, in the case of MUD's this would be another virtual room. *Socialisers* play the game to interact with other players. Finally, *Killers* play in order to impose upon other players, thus to kill or inflict damage on other players in the game (Bartle).

Bartle (1990) further suggested that to maintain a proper working MUD, game administrators would need to find a delicate balance between these four personality types. Meaning, the MUD or "World" would need to emphasize certain aspects of the world or players, and the types of play (socializing or fighting) at any one point in time. For instance, Bartle mentioned that increasing the number of *Killers* in the game could drastically reduce the number of *Achievers* and *Socialisers*. However, Bartle's taxonomy of player types assumes that each personality is independent in terms of the individual (Yee, 2006a). Thus, a person can only be an *Achiever* and not a *Killer*, or a *Killer* and not a *Socialiser*. Players in most MMOGs may have multiple motivations for playing. Furthermore, graphical MUDs or MMOGs offer rules of engagement that already hamper killers from simply destroying every player in the environment. For instance, many MMORPGs like the *World of WarCraft* do not allow players to "duel" or engage in combat with another player unless both parties agree to this action (http://www.worldofwarcraft.com/info/basics/duels.html). Thus, MMOGs offer experiences and rules that are beyond what Bartle theorized would allow for a successful MUD. That said, Bartle's taxonomy does offer

a beginning insight into some of the underlying motivations of online game play. Also, individuals who habitually play for certain reasons are more likely to attend to features with the online game that pertain to that style of play. Here, information processing is increased when an online game offers individuals the opportunities to play or interact in a virtual environment that meets the needs of different kinds of players.

## Developer Perspectives

MUDs may offer a textual guide on how to design effective virtual environments. As mentioned, MUDs are primarily chat rooms with text describing the look and feel of the virtual room or environment. The effectiveness of a virtual environment may depend upon how that space meets individual's needs or motivations for playing and/or interacting in that space. Cheng, Farnham, and Stone (2002) conducted research into the designing and deploying of virtual environments by examining user feedback during the design process. The results suggest users and designers prefer 3-D environments with little abstraction that provide third-person points of view (Cheng et al.). Furthermore, users of these environments preferred environments that fostered social interaction and graphical representations that could present non-verbal cues similar to real-life interactions. Other design aspects have been found to influence enjoyment of video and computer games. For instance, Hsu, Lee, Wu (2005) examined the design features of action video games in order to assess what consumers of this type of media thought were fun and not fun. Hsu et al. asked participants to evaluate 28 different versions of the same game (*Pac Man*) and then describe why these games were evaluated positively or negatively. The results suggested that consumers favored aspects like novelty, interactivity, sense of control, and appealing presentation (Hsu et al.). At a structural level, players want to be able to customize their avatars and interact with them

in new and changing environments that provide a certain level of control.

Individuals do not necessarily want total control, overcoming goals would be too simple and the game would be predictably easy if a player controlled everything that occurred in the environment. Players want a level of unpredictably and challenge, thus according to Klug and Schell (2006) they want the "illusion of control" (p. 92). For instance, it is noted by Salen and Zimmerman (2005) that for game play to be meaningful, players' actions must result in a system outcome. The game must respond to player's actions, because if this does not occur then a player has no control over what happens. A lack of control would likely hinder information processing for goals or objectives during game play because players would view the experience as a pointless endeavor. However, the reverse may also be said for total control, if players see objectives or goals within the game as too easily attainable it will likely result in diminished information processing of game play content. Thus, there must be a delicate balance of control in order facilitate higher levels of information processing.

Furthermore, a player's actions must be discernable to the extent that the game offers some form of feedback that something has occurred (Salen & Zimmerman, 2005). If a player acts upon an object or another player then the system should provide feedback in the form of visual or auditory responses in terms of the outcome of what occurred to that object or player. Although, this may seem to be fundamentally obvious, providing users with the appropriate feedback cannot be understated as a key to the success of a computer or video game. According to Garris, Ahlers, and Driskell (2002) appropriate game features that can be represented in the form of feedback increase individuals' interest and involvement during play. Cognitive processing may be increased through feedback that meets with the consistent visual or auditory response to an action within an online game. The implications are that proper feedback

and means to achieve objectives highly influence the level of cognitive effort and focused attention a person gives when playing an online game.

Finally, it is suggested that individuals play in order to seek out romantic relationships in a safe environment. According to Klug and Schell (2006) "…if the game business can figure out a way to provide greater exploration of the kinds of fantasy relationships that men and women both want…that kind of content could really grow the industry exponentially" (p. 97). These types of interactions (not always romantic) have been taking place long before the introduction of graphical representations. As mentioned previously, researchers examining the motivations behind playing MMORPGs have consistently noted that socialization aspects are quite often the reason why people play.

## Social Interaction

Griffiths et al. (2004b) examined the demographics and motivations of individuals who were online gamers of the popular MMOG *Everquest*. His research demonstrated that player's favorite aspects of the game were related to social interaction, while the least favorite aspect related to the immaturity of other players (Griffiths et al.). However, there were numerous other favorite aspects including: being able to group together, character advancement, tactics, trade skills, being part of guild membership, strategic thinking, taking on leadership roles, guild competition/politics, and the fact that there was no end to the game (Griffiths et al., see p. 483). Examples of their least favorite aspects included: helping inexperienced players, hand-to-hand combat, solo play, team play, and lack of customer service (Griffiths et al.).

Yee has provided the most detail in terms of motivations for playing online games. Yee's research began in 1999 through online surveys of MMORPG players and is called the Daedalus Project (http://www.nickyee.com/daedalus/). This research presents the most extensive and

ambitious findings of online games. Yee (2006a) developed a taxonomy of MMORPG motivations through a factor analysis and social interaction was categorized as a main component of motivations for playing (p. 773):

- Social Component
  - Socializing—Having an interest in helping and chatting with other players
  - Relationship—The desire to form long-term meaningful relationships with others
  - Teamwork—Deriving satisfaction from being part of a group effort

Thus, the ability to socialize and interact is a common reason for playing online games (Yee; Griffiths et al., 2004b). Furthermore, the subcategories offer more insights into what kinds of interactions are taking place during game play. Thus, it can be seen that socialization taking place during game play goes beyond mere romantic interactions as suggested by Klug and Schell (2006). Interactions that involve helping other individuals or working as a team are common aspects that make MMOGs enjoyable. The more enjoyable an online game is the more likely a person will be involved within that gaming environment.

Cole and Griffiths (2007) examined the differences between social interactions that occurred online and those that occur off-line (face-to-face). The researchers reasoned that since social interaction is an important aspect of MMOGs, it may facilitate the development of friendships. Furthermore, this research suggests these online interactions offer qualities and characteristics that may be more positive and rewarding than offline interactions. Cole and Griffiths surveyed a large sample of both male and female MMORPG players about their online friendships. The results suggest a majority of male and female players have built friendships with individuals that they met during game play. Furthermore, over 80% of those

sampled had mentioned that they enjoyed playing their chosen MMOG with real-life friends and family (Cole & Griffiths). The results also suggest there are differences to these interactions based upon gender of the player. For instance, female game players were more likely to discuss sensitive issue with online friends than real world friends.

It should also be noted that close to half of the participants had met online friends outside of the MMOG in real-life. Although offline relationships are often referred to as real-life friends, online friendships can be just as real. Kerr (2006) has suggested that "Social relationships may also be important in terms of understanding game preferences, duration, and frequency of play" (p. 125). From an information processing perspective, online game players may be more likely to cognitively focus on interactions with other players whom they have a long standing relationship than newly formed relationships. However, first time contacts within that game may initially receive a similar amount of attention, but have a shorter attention window. Finally, games that offer more opportunities for interactions with other players are more likely to gain cognitive efforts towards such endeavors.

## Competition

As Bartle (1990) noted in his typology of MUD players, *Achievers* typically enjoy the game when they get chances to accomplish game-related goals such as finding/accumulating treasure and beating monsters or other players. This finding may have offered the first explanation of how competitive aspects of online game play (graphical or not) contribute to its overall experience. Furthermore, some individuals may find this aspect more enjoyable than others and may seek out instances of competition when playing. Vorderer, Klimmt, and Ritterfeld (2004) suggest that motives for the use of newer technologies are linked to competition and achievement because these technologies offer more interactivity than the rather passive tradi-

tional mediums. Thus, individuals may choose more interactive mediums because they offer more competitive situations. The achievement or goal-attainment of succeeding over another individual can elicit positive emotions that individuals routinely seek-out. According to Klug and Schell (2006), individuals compete in video games to experience positive emotions about themselves because they have out performed another individual.

To this end, Vorderer, Hartmann, and Klimmt (2003) explored the interactive and competitive aspects that make video and computer games enjoyable. These researchers conducted an experiment and an online survey in two separate studies to explore the enjoyment of competitive situations in computer games. Results support the hypothesis that higher levels of competition (more monsters) and more alternatives for action showed the highest levels of enjoyment (Vorderer et al.). Moreover, results suggest that individual's motivation to compete against others has more influence in the choice of a competitive computer game rather than an individual's self-efficacy to succeed in a computer game competition (Vorderer et al). Thus, even though individuals may not have confidence in their ability to succeed in competitions during game play they still choose computer games that are highly competitive.

Yee's (2006a) analysis of MMORPG motivations has shown that competition is a subcomponent of a larger structure related to achievement. As mentioned, even though online games may not offer rewards in the form of completion of a game, they can offer other forms of markers for success or achievement. Aspects like the accumulation of wealth and power (advancement), game optimization and analysis (mechanics), and challenging and dominating others (competition) all contribute to the higher component of Achievement (Yee). For instance, *World of WarCraft* (http://www.worldofwarcraft.com/wrath/features/gameplay/achievements) allows individuals through quests, events, world exploration, and player-to-player

situations to advance their character in abilities and cosmetically (new armor, hair, clothes, etc…). Thus, competing against another individual offers the reward of winning, but there are also other achievements related to advancement of an individual's avatar.

## Immersion

Yee's (2006a) factor analysis yielded four sub-components of immersion. These include aspects such as exploration (discovery), story line and character history (role-playing), appearances and accessories (customization), and relaxation/escape (escapism) (Yee). Discovery was possibly one of the earliest aspects of immersion discussed. For instance, Bartle's (1990) taxonomy of MUD players identified *Explorers* as individuals who play games "to find out as much as they can about the virtual world" (p. 3). Role-playing involves the incorporation of a character with a unique background story or narrative. Schneider, Lang, Shin, and Bradley (2004) examined the effects of including a story narrative within a video game on identification, presence, emotional experiences, motivation, and physiological arousal. Recent video games, regardless of content, have come to include very intricate story lines (see any of the *Halo* or *Grand Theft Auto* series games) and character backgrounds. The results showed participants who played a story-based video game compared to non-story based video game reported greater levels of identification with their game characters and felt more presence within that game (Schneider et al.). Also, the story-based video game condition elicited more positive emotional valence than the non-story based condition (Schneider et al.). The inclusion of a story narrative along with a character/avatar narrative is likely to increase enjoyment and positive affect towards the game.

The third subcomponent of immersion relates to the ability to create and customize an avatar (Yee, 2006a). Most MMORPGs provide viewpoints from a third-person perspective. Why?

First, many games take the customization of characters very seriously. As previously discussed, the *World of WarCraft* offers players the option of choosing their avatar representation from ten playable races and numerous primary and secondary classes and professions. Avatar-mediated play is also a main characteristic associated with most MMOG's (Chan & Vorderer, 2006). Cheng et al. (2002) noted that individuals prefer to have some control over the creation and appearance of their avatars. It would seem rather pointless to offer numerous customization options for the look and appearance of their characters, then not let them view that appearance within the environment. This may also influence other aspects related to identity formation and identification with avatars that first-person perspectives do not allow. Thus, third-person perspectives may offer an underlying motivation of character/avatar customization. In terms of cognitive processing individuals who are highly motivated to upgrade or change the appearance of their own characters maybe more likely to pay attention to such elements within the game that allow for such options. That is, players may be more likely to pay attention to other player's avatars for ideas about how to customization their own avatars. This likely plays a small, but significant factor of the socialization aspect of online gaming.

Finally, playing computer or video games allows users to participate in and perform activities they would not normally be able to do in real-life (Klug & Schell, 2006). Yee (2006a) referred to this subcomponent as escapism, which means that computer and video games have the ability to allow users to escape from the real-world. Furthermore, individuals can be transported to fictional locations that do not exist. As in most video games, the 3-D environments transport individuals to times and places that either do not exist or visit events in a historical sense (The Wild West, WII, Civil War, Medieval Times, etc…). Thus, not only do video and computer games offer experiences that individuals may only know as an observer, but they

also allow users or consumers to take on personas and live vicariously in different times and places (Klug & Schell). In terms of processing information this means that individuals may be more likely to pay attention to features or aspects of the virtual environment that add to the consistency of that time period or location. For these individuals, socializing or competing is secondary to exploring the environment, which should present the most cognitive effort. Thus, background features are essential to a user who plays for escapism as the virtual environment is an important reason why they play video or computer games.

## Gender Swapping

One unique aspect of online games that has not been discussed as a possible motivation is the ability to gender swap. Gender swapping refers to the phenomenon of "playing a different gendered character from oneself" (Hussain & Griffiths, 2008, p. 48). Differences in the demographics of who are and are not participating in this type of activity suggests important underlying motivations. For instance, Griffiths et al. (2004a) found that a majority of game players are likely to swap genders and that older male individuals are the most likely to engage in this activity. From here, Hussain and Griffiths explored the reasons behind gender swapping. Results suggest a majority of both male and female players gender swap, this is contrary to results found by Griffiths et al. However, the results also seem to suggest males and females gender swap for different reasons. Hussain and Griffiths note that females may gender swap in order to avoid male players soliciting them during game play. Thus, female users play as a male avatar in order to prevent male players from flirting or making sexual advancements towards them during online interactions. However, from a male user's perspective, it may be that "playing a female character meant that male gamers treated him far better" (Hussain & Griffiths, p. 52). Other motivations for gender swapping

include enjoyment, curiosity, and because that particular gender was attributed certain sought after characteristics or skills.

## Gender

Thus, there may be significant differences in motivations based upon gender. Cole and Griffiths (2005) found evidence that while both males and females enjoy socializing in MMOGs, male players may socialize for a sense of teamwork or camaraderie, while females may socialize for relational and intimacy purposes. Although, this may seem somewhat stereotypical of males and females the evidence does seem to point in this direction. For instance, Yee (2006a) found evidence to suggest significant gender differences in the relationship subcomponent of gaming motivations, but there were no differences in the socializing subcomponent. In a subsequent analysis, Yee (2006b) found that "female players prefer to relate to other players, while male players prefer to work together to achieve goals" (p. 319-320). Royse, Lee, Undrahbuyan, Hopson, and Consalvo (2007) investigated the uses and negotiation of women's usage of computer games from a feminist standpoint. The conclusions showed women who played more frequently did so for motivations of achievement and competition (Royse et al.). However, women who were deemed to be moderate game players were motivated by escapism and control.

Although, not specifically related to online gaming research has examined differences in information processing based upon gender. Hendriks-Vettehen, Schaap, and Schlosser (2004) argued that TV news is largely a masculine medium because it is typically created by men and is a stereotypically male profession. This aspect seems to be similar in relation to the creation and development of online games. An interesting finding from Hendriks-Vettehen et al. was that female participants expressed an overall lack of clarity with information presented in the news. Here, it

could be suggested that females are not likely to process information related to stereotypical male endeavors such as competition and violence. In online games this may mean that female players are likely to focus upon and be more involved with stereotypical "feminine activities" such as socializing or relationship maintenance. However, this point should be warranted with caution as female players are still likely to enjoy competing against other players. Thus, there does seem to be some evidence to suggest that males and females may process certain kinds of content differently based upon the type of content. However, age of the game player may contribute significantly more than gender.

## Age

It seems there may be large differences between males and females in terms of online game play. However, Yee has shown that age may be a factor that accounts for greater differences in motivations than gender. As discussed previously older individuals (20yrs +) make up the typical demographic of MMOG players (Griffiths et al., 2004b). Griffiths et al. (2004a) specifically compared adolescent and adult gamers for possible differences in motivations. The results indicate that while both adults and adolescents enjoyed the social aspects of online games, only adolescents enjoyed the violent aspects of online games (Griffiths et al., 2004a). Age of players may interact with gender for motivational differences. For instance, most female game players are older individuals (Yee, 2006b) meaning there is a considerable lack of adolescent female MMOG players. This may be due to the stereotypical image of video and computer games being a male activity especially among adolscent individuals. However, with male game players there seems to be a wider ratio in that both adolescent and adult males may be likely to play MMOG's. As Griffiths et al. (2004a) found, adolescents are more likely to play for violent purposes. Yee (2006b) has even found

evidence that adolescents typically play for their own selfish reasons of personal gain. Although, both age and gender are worthy of consideration, together these two demographic characteristics offer greater insight.

## IN-GAME PROCESSING

Motivations for online game play may affect individuals processing of events that occur during game play. In-game processing refers to individual's memory for events, content, and interactions that occurred during game play. Obviously, in a sense of consumer or player experiences, positive affect of game play is desired. This is not to say that individuals do not remember negative experiences of playing MMOGs. In terms of information retention, positive experiences should outweigh negative experiences. Certainly there are different aspects of video and computer games that establish the right conditions for involvement and enjoyment. These conditions are likely an interaction between multiple factors related to enjoyment, game experience, and player motivations. Thus, determining a player's motivation is a requisite to understanding involvement and enjoyment.

As discussed, there are numerous motivations for playing online games (Yee, 2006a, 2006b). Motivations for playing online games can take many forms, from playing simply to interact with other players (Cole & Griffiths, 2007), to competing or achieving goals (Vorderer et al., 2003), or to buying a coat or furniture for your avatar (Natkin, 2006). Also, there are factors related to *persistence*, *physicality*, *vertical game play*, *perpetuity*, and avatar development and creation (Chan & Vorderer, 2006) as well as immersion (Yee, 2006a) and gender swapping (Hussain & Griffiths, 2008). It has been suggested that different demographic segments have different motivations for playing online games. The larger questions is how can we understand the influence that motivations have on information processing

for in-game content when there is a large variety of those motivations. A good starting point that may help clear up some of the confusion is too review similar research that has examined information processing (recall of content) of advertisements within video games and websites.

An important aspect that cannot be overlooked when it comes to content recall is *attention*. Meaning, the first step in understanding how individuals recall material of in-game content is through attention. According to Salisch, Oppl, and Kristen (2006) "attention governs the way in which information from the electronic game is taken up…Which information is selected depends on the salience and the affective valence of the figures on the screen in the sense that attractive protagonists are given more attention" (p. 160). Research examining the recall of advertisements within video games offers excellent insights into in-game processing. Although, this research has been somewhat limited, a few studies have examined individuals processing of advertisements within a video game. Yang, Roskos-Ewoldsen, Dinu, and Arpan (2006) examined college student's memory for brand advertisements placed within a sports video game. Yang et al. based their expectations upon the differences associated with explicit and implicit processing of message content. According to Rovee-Collier, Hayne, and Colombo (2001) explicit processing involves deliberative, effortful cognitive reflection of our memories. Thus, individuals who explicitly process information do so in a manner that puts forth cognitive effort on recall and recognition of that information. Conversely, implicit processing does not involve effort and is usually incidental in that it pops into the forefront of our minds (Rovee-Collier et al.). Yang et al. hypothesized that because individuals put forth a large amount of cognitive processing when playing a video game that there is less attention paid to the background features of that video game. It was assumed that implicit memory would be exhibited for brand names that were placed in the form of billboards within sports video games.

Yang et al. randomly assigned participants to one of three conditions. The first two conditions were sports games (*EA's Formula 1 2001*; *EA's FIFA 2002*), while the third condition was a control condition (Yang et al.). The researchers measured participants implicit (word completion task) and explicit (brand name recall) memory for the advertisements that appeared within the game after participants had finished playing. The word completion task requires participants to complete word fragments to create a word (i.e., E_P_; for "ESPN"). A total of 24 word fragments were included that could be completed as brand names from the two games (Yang et al.). Thus, some of the word fragments were for brand names that did not appear within that particular video game. According to the hypothesis, then individuals should complete more word fragments for brand names that appeared within the video game that they played. The results showed that participants were more likely to complete word fragments for brand names that appeared within the respective video game they had played. Yang et al. suggest implicit memory does influence recall of in-game content and that this may in fact be a more sensitive measure of influence for advertising recall. Explicit memory for brand names was only about 45-50% accuracy (Yang et al.). This is a relatively low estimate seeing that participants were explicitly asked to recall the brand names only half-hour after playing the video game. The results show that recall of content in a video game does not necessarily have to be based on effortful concentration upon that specific content. Memory for events or content may still be remembered even if that person is concentrating upon another aspect of the game. However, concentration may still be a key concept as will be discussed later.

Internet advertising is also an area that can help answer questions related to in-game processing as online media resembles the interactivity of online games. Research into banner advertisements may give us a clearer picture of how individuals process and retain attention to one aspect when

there is virtual sea of information presented. Lohtia, Donthu, and Hershberger (2003) examined the content and design elements of banner advertisements on websites. Furthermore, the researchers compared business-to-business (B2B) and business-to-consumer (B2C) websites for their click-through rates. The researchers content analyzed numerous banner advertisements for color, interactivity, animation, emotional appeal, and incentives then analyzed each advertisements click-through-rate (CTR). Typically, clicking on an advertisement takes the user to another web page. The CTR is the number of times a banner advertisement is clicked on by the number of times it is served to the user's browser (Lohtia et al.). Results suggest the incorporation of interactivity and incentives actually lowered the CTR of B2B banner advertisements, whereas emotion and animation increased the CTR of B2C banner advertisements (Lohtia et al.). It seems that different design elements are more effective for B2B and B2C banner advertisements, with exception of medium color, which was successful for both types of advertisements. The differences in CTR rates based upon types of advertisements (B2B vs. B2C) could be attributed to differences in user motivations. Similar results have been generated from banner advertisements examined on online casino websites (see Robinson, Wysocka, & Hand, 2007). Thus, motivations for searching contributed to what information was recalled.

Rodgers and Thorson (2000) developed an integrated model of information processing for internet advertising based upon function and structure. Design elements (structure) and consumer's motivations (functions) for using the internet will influence their recall, attitude, and behavior towards those advertisements. In fact, "Probably most important to how interactive advertising operates are the motives and modes (serious versus playful) with which people enter cyberspace" (Rodgers & Thorson). Individuals who have goals (motives) in mind when they log onto the internet are more likely to pay attention to elements and features that relate to those goals. For instance, someone searching the internet to buy concert tickets may be more likely to pay attention to elements related to music or the purchasing of tickets rather than online dating-services or design elements (i.e., animation). However, when individuals search the web for entertainment purposes or no particular reason, elements of design such as color, animation, and trade characters are more likely to gain attention (Rodgers & Thorson). In relation to online gaming it is important to understand why an individual logged into the game. The purpose in any gaming session will likely influence what information gets cognitively processed.

Pravettoni, Leotta, and Lucchiari (2008) furthered examined the relationship between recall of banner advertisements based upon external factors and internal motivations. The researchers assumed that what is eye-catching to users depends upon their motive for use. According to Pravettoni et al., a person with an intended objective will give attention to features that relate to their motivations, however if a person has an exploratory (no specific objective) objective then banner stimuli will likely influence attention. The researchers conducted two experiments differing in the level of advertisement (banner vs. pop-ups) and objective (set objective vs. no objective). It was hypothesized that individuals with a goal-directed task (set objective) would be less likely to be influenced by external elements (design features) of both banner and pop-up advertisements. The results showed that individuals who were given a specific task had less recall of banner advertisements and pop-up advertisements (Pravettoni et al.). However, one interesting result was that when the pop-up advertisement was congruent with the task goal it was better remembered than if it was not congruent (Pravettoni et al.). Thus, factors of an online game may be paid attention to simply because they relate to that players goal or current mission.

Finally, repetition is likely to influence recall of banner advertisements. Yaveroglu and Donthu (2008) examined repetition strategies to banner advertisements in an online environment. Results from this study demonstrated that repetition of advertisements both single ads and varied ads for the same products created increased brand name recall and intentions to click (Yaveroglu & Donthu). Thus, repetitive content is more likely to influence recall. How does this relate to recall of content from MMOGs? Griffiths et al. (2004a; 2004b) have conducted research into the frequency and length of game play along with demographic characteristics. The results have showed that close to 25% of online gamers play for 10-20 hrs per week (Griffiths et al., 2004a). The low end of frequency of online gaming is somewhere around 5hrs per week. Yee (2006b) found a large majority of respondents spent close to 22 hours per week playing online and even more interesting was that 60% of the respondents reported playing for at least 10 hours continuously! Thus, there are greater chances of exposure to repetitive content due to the increased amount of time per week and time per game-play session that individuals give to MMOGs.

In the case of online games, information that relates to ones goals or motivations for playing are likely to be given priority over other types of information within the game. It could be suggested that content aspects related to the encouragement, development, and enhancement of motives for playing that online game would likely garner higher recall. However, effortful cognitive processing is not the only way information can be recalled from a video game. Yang et al. found evidence that implicit processing of information may also aid in the recall of content during video game play. As mentioned previously it may not just be the content itself, but the overall experience of playing an MMOG that contributes to content recall.

For instance, Choi and Kim (2004) examined features of online game play that contribute to an

optimal experience and customer loyalty. Here, Choi and Kim constructed a conceptual model composed of social and personal interactions that may combine to influence an experience of *flow*, which then influences customer loyalty. The researchers invoked *flow* as the operationalization of an optimal experience. *Flow* can be attributed to the work of Csikszentmihalyi (1990), who characterized flow as an experience that results from immersion in ones actions. *Flow* has been defined as an interaction between an individual's skills and the challenge or difficulty of the task at hand. A difficult video or computer game may bring about frustration from an individual who cannot advance within the game to the next level. If the person can too easily advance it may likely result in boredom. The ultimate state of *flow* lies between frustration and boredom, such that a player may lose track of time and self-consciousness when trying to advance a level or complete a mission. However, *flow* has also been defined as "total concentration in an activity and the enjoyment which one derives from an activity" (Ghani & Deshpande, 1994, p. 382). Thus, *flow* results when a person feels immersed within a virtual environment through focused attention on goal attainment and an even interaction between skill and challenge.

Choi and Kim assumed that positive interactions between the system (game) and other users would contribute to the overall experience of playing an online game and thus flow would be experienced. The researchers differentiated between personal and social interactions. Personal interactions are based upon goals, operation, and feedback (Choi & Kim). Goals can be any type of objective or mission within that online game (i.e., collecting coins or beating a monster). Operation is based upon the means set out in order to achieve those goals, while feedback allows players to know that they have accomplished that goal (i.e., monster dies) (Choi & Kim). The results of the study showed that positive personal interactions (appropriate goals) and social interactions posi-

tively predicted individual's sense of flow during game play (Choi & Kim).

*Flow* is a construct that is likely to help explain the level of an individual's recall of content when motivation for playing is consistent with goals and objectives. The more individuals achieve a sense of *flow* the more likely that it will increase their concentration or attention for content within that online game. Sweetser and Wyeth (2005) conceptualized a concept of flow defined as "GameFlow" that combined eight elements or concepts as a model of computer game enjoyment. These concepts include concentration, challenge, skills, control, clear goals, feedback, immersion, and social interaction (Sweester & Wyeth). Thus, concentration is a likely condition that needs to be met in order for an individual to experience flow. However, there are other criteria that can establish increased concentration and flow. Weibel, Wissmath, Habegger, Steiner, and Groner (2008) examined differences in individuals' sense of flow and enjoyment within an online game based upon whether or not a user was playing against another user-controlled opponent or computer-controlled opponent. Most if not all MMOGs offer both options in terms of opponents. Weibel et al. reasoned that since a motivation of online gaming is social interaction that competition with another human opponent would increase an individual's sense of flow and enjoyment with that game. The results did show that participants who played against a user-controlled (human) opponent reported higher levels of flow and enjoyment. Also, Yee (2006a) had suggested that competition is a subcomponent of a larger motivation associated with achievement. Thus, a sense of *flow* may also be established if an individual can achieve certain objectives or goals, while playing that game.

Furthermore, those goals or objectives should be consistent in order to gain the most amount of concentration or attention to in-game content. As defined, implicit memory for background features and items may also benefit from increased concentration to aspects of the game during play. Flow within an online gaming environment can also be applied to recall of in-game advertisements. For instance, Nelsen (2002) examined the effectiveness of brand placements within video games in terms of recall and players attitudes towards the game and advertisement as outcomes. Nelsen differentiated the types of brand placements via passive (background features, ex. billboards) and active (characters & equipment, ex. name brand baseball bats) advertising. However, both types of brand placements seem to be similar in that neither are pertinent to the narrative or the game itself, but rather background props or items to be obtained. The results did suggest that game players were able to remember seeing brand names in the game they played across both short and long-term measures. Furthermore, these results suggest that when the item is a part of the game (e.g., using a Nike golf club) individuals have better short term recall of that object (Nelsen). Finally, Nelsen suggested brand placements within a video game resulted in increased perceptions of realism associated with that game. Thus, including advertisements in the forms of brand placements or billboards can enhance that video games realism. Although, not specifically related to flow, it can be suggested that this research points to aspects of recall that can be associated with the assumptions of flow. For instance, increased realism can lead to higher perceptions of immersion. Nelsen's research also showed that player's overall had positive perceptions of brand images within the video game. Enjoyment is a key aspect to the experience of flow and with an interaction between realism. This could suggest that individuals experienced a sense of flow. However, future research needs to be examined in order to provide evidence for this assumption.

Overall, research on advertising recall on the internet and in video games suggests that individuals who have goal-directed motivations (instrumental or utilitarian motivations) when using a medium are more likely to remember content that is related to those motives. User/player motives for playing

online games are as diverse as the individuals who subscribe to such games. And there are different motivations for playing MMOGs and those motivations can be even further broken down based upon differences in demographics. Online gaming content that is congruent with user motives is more likely to establish higher user recall, than content that is incongruous with those motives. Thus, online game designers and administrators would be wise to develop in-game strategies that reinforce different individual motives for playing online games. Online games that involve social interaction in order to achieve goals along with appropriate operations (means to achieve objectives) are likely to generate higher content recall. Furthermore, suitable feedback is needed in order to gain and keep a player's attention. If online games can establish a sense of *flow* through meeting individual's needs for playing, it is more likely that in-game content will be remembered. However, it could be suggested that individuals may not always have an explicit motivation in mind when participating (e.g., ritualized motivations). Diversionary motives are more likely to be difficult to predict in terms of information processing. However, it is possible that past motives will influence what content is attended to and recalled.

## FUTURE DIRECTIONS

It could be suggested that knowing before hand or addressing content that meets the needs of players will likely result in higher recall of content and overall a more enjoyable experience. The difficult task for researchers, designers, and marketers is knowing an individual's motivations for playing that game before that person logs into the game. This means that designers and marketers must think of new ways to establish in-game reinforcement of content related to the goals or motivations of users/players. Also, research needs to examine links between concepts of *flow* and recall of

content. One assumption or criteria to establish *flow* is concentration (Sweetser & Wyeth). If concentration or effortful cognitive processing can aid in the recall of in-game content (Yang et al.) then it may be likely that the establishment of *flow* in an online game can increase individual's information processing of content during game play. Furthermore, it has been established that explicit and implicit memory constructs have shown to influence the recall of in-game content (i.e., Brand name recognition) (Yang et al.). This also needs to be further examined within online environments and the concept of *flow*. For instance, can increased concentration, enjoyment, social interaction, skill level, or competition aid in implicit memory for in-game content? If individuals are highly immersed within that virtual environment and focused upon the task at hand can players implicitly remember other aspects or background features during game play? Yang et al. did find evidence to suggest that implicit memory for name brand recognition was stronger via implicit measures than explicit measures. However, Yang et al. did not give participants instructions or goals when playing the video game. Would implicit memory still be as strong if participants were given a goal or objective when playing? Thus, which form of online game play motivation is likely to aid in implicit memory for in-game content: instrumental or ritualized motivations?

It has also been established that individuals play online games for various reasons. Features of online games from social interaction with other players (Chan & Vorderer), to gender swapping (Hussain & Griffiths), to the larger component of achievement (Yee) all contribute to individual's motives for playing these types of games. Understanding these motives is important to understanding enjoyment and customer loyalty as well as recall and attitudes towards in-game content. Certain features and aspects of online games are likely to garner more attention from individuals based upon their reasons for playing at that time. Furthermore, another motivation that may often

be overlooked is that individuals play online games to purchase virtual objects or commodities (Natkin). Thus, utilitarian motivations related to the outcome of purchasing goods or services (new armor, weapons, clothing, etc…) such as in an increase in respect or advancement within that online game should be considered as a motivation.

This "commodity" motivation may bring up questions related to in-game recall of content related to product placements within virtual environments. Online games certainly have more than enough capabilities to incorporate features of product placements and virtual billboards. However, this should be warranted with caution, as Nelsen (2002) did find evidence to suggest that even though individuals thought brand placements within in a video game increased its realism, participants also suggested that this highly depends upon the context and story of the game. For instance, players suggested that if the placement of the advertisements within the game did *not* match real-life instances that it highly "deterred" from the overall gaming experience (Nelsen, p. 87). Thus, it could be suggested that an overload of gaudy advertising is likely to backfire in poor player evaluations of the game itself and lower player recall of content. Products within the game need to be more subtly presented to players/consumers in order for it to a) add to the realism of the game, b) not deter from the gaming experience, and c) increase recall of the content related to that product or service. Perhaps product placement might better serve in online games because it may not be so overt as a large virtual billboard in the Silvermoon City of the Eastern Kingdom! (*World of WarCraft*).

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