In Search of Factors to Online Game Addiction and its Implications

Yangil Park
University of Wisconsin-La Crosse

Jeng-Chung V. Chen
National Chung Cheng University, Taiwan

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ABSTRACT

Research has explored online users who are hooked on Internet applications such as chat rooms, web surfing, and interactive games. Online game addiction is one of the problems arisen from the use of the Internet. This study is motivated by a causal connection found from previous research of computer game addiction. The study describes two typical types of online games and looks further into the causes of the addiction by using two main theories. We also propose research hypotheses and discuss possible implications of online game addiction.

INTRODUCTION

People increasingly spend more time on computers and IT products (Sampson and Hulet, 2003), such as Internet and computer games. People use the Internet not only as a tool for their jobs, but also for their own business such as online auctions (Bracker & Smith, 2004; Kuo et al., 2004). One of the problems arisen from the use of the Internet is Internet addiction. Research explores online users who are hooked on Internet applications such as chat rooms, web surfing, and interactive games. Online games are one of the most popular online services. Pew Internet & American Life Project's (http://www.pewinternet.org/pdfs/PIP_Generations_Memo.pdf, 2005) report finds that forty-seven percent of online users stay on-line more than one hour a day. The same study reports the percentages of teens and adults who play online games are 81 and 32 respectively.

Young (1999) suggests that there are negative consequences of addictive use of the Internet. Accompanying the increase of time spent online, the symptoms of addiction to Internet or online games include personal and serious social problems. A student who obsessively plays online games takes away from valuable study time resulting in poor academic performance (Young 2004). Violent behaviors are also symptoms that addicted users may acquire from online games. Extreme examples of online game addiction are reported on different occasions; 1) an addicted man took own life after long hours of online game (http://www.jsonline.com/news/state/mar02/31536.asp, 2002) 2) another young man collapsed and died after playing an online game for 50 hours (www.bbc.co.uk, 2005).

This study is also motivated by a causal connection found from previous research of online game addiction. Many researchers use Use and Gratification Theory as the grounded theory in studies on the Internet (December, 1996; Morris & Ogan, 1996). Based on Use and Gratification theory, addicted behaviors could result from entertainment, information, convenience, or social interaction (Ko et al, 2005). Flow theory, though not originally designed as an explanation of media, could explain a phenomenon that users devote a lot of time which in turn would be harmful to their everyday life.

Thus, we describe two typical types of online games and look further into the causes of the addiction by using two main theories. We also propose research hypotheses and discuss possible implications of online game addiction.

MASSIVE MULTI-USER ONLINE GAMES (MMOG) AND FLOW THEORY

One of the leading MMOGs today is the Sony online game, EverQuest. Griffiths (2004) states that a choice of role playing character affects the style of play and the reception of the character in the game directly. Consequently, each character can be played as good or evil, as a member of a friendly or unfriendly race, and as exercising a profession that makes the character a team player or more of a loner. The players can either play group or solo in the virtual world.

The main cause of Internet addiction is socialization. "Since the aspects of the Internet, where people are spending a great amount of time online, have to do with social interactions, it would appear that socialization is what makes the Internet so addicting (Grohol, 2003, p.4)." For instance, going on-line is one of the easiest ways to interact with new people who share a common interest, without any physical barriers and, also, has low risk. Thus, people are easily attracted to the Internet.

Yee (2002) defined three main attraction factors that make people invest more time on MMOG (especially EverQuest). The first attraction factor is reward which can be achieved by group collaboration (Yee, 2002). The second is the network of relationship which encourages both a higher level of personal attachment and time investment (Yee, 2002). The third factor is the immersive nature of virtual environments which possibly enchant you with fantasy and makes you feel you are part of something grand and extraordinary (Yee, 2002).

Csikszentmihalyi (1975) proposed the Flow Theory which theorizes that people will be entering into a state of flow when they can be totally concentrated and immersed while performing certain activities. Though flow is a temporary and subjective experience, it is also the underlying cause that people continue performing certain activities (Csikszentmihalyi, 1975).

Flow Theory has been used in the field of leisure management (Jones et al., 2000; Moneta, 2004). Jones et al (2000) base on the Flow theory to validate why people enjoy kayaking. They found for those more difficult stages of a whitewater trip tourists would be more frequently feeling anxious and flow while for other easier stages tourists tend to feel more frequently bored or apathetic. The findings supported the hypotheses driven by the Flow theory.

Montgomery et al. (2004) developed a questionnaire trying to find out how the flow experience is related to engagement modes that have different mode dimensions for people to use IT. Their findings are in line with other studies presuming that flow is determined by perceived control and challenge, which in turn direct users to a state that they have never experienced. Hence IT users will pursue next possibilities for continued flow. Finneran and Zhang (2003) integrated a person-artifact-task (PAT) model and flow to propose nine propositions. "The task in the PAT model could somehow relate to the difficulty (level) of the Flow theory; the person in the PAT model could somehow relate to the skill of the Flow theory; the artifact in the model could relate to any activities that users are performing" (Finneran and Zhang, 2003). The researchers thus integrated the two reasonably and proposed propositions that could be applied to online games. For example, Finneran and Zhang (2003) proposed that assuming everything else be the same, a person is more likely to experience flow if the artifact has certain characteristics leading to telepresence, such as vividness and responsiveness. Another proposition is, assuming everything else is the same, a person is more likely to experience flow if the task is more goal-oriented, autonomous, enables more variety, and is at the appropriate level of complexity (Finneran and Zhang, 2003).

Sherry's (2004) comparisons with Csikszentmihalyi's (1993) explication of activities that are most likely to create the flow state with the videogames provide a very good direction as to why people are addicted to the online games. Because the players of online games who have experiences of flow would keep trying to challenge to the next higher difficulty level of the game, players would devote a lot of time which in turn would be harmful to their everyday life (Sherry, 2004; Chen and Park, 2005). Given the attributes of MMOG and Flow theory, a proposition is as follows.

> *Proposition 1: MMOG addicts seek for specific flow state in which game's difficulty level and their skills fit when they play any MMOG games.*

MULTI-USER DIMENSION (MUD) AND USE AND GRATIFICATION THEORY

A MUD is "a multi-player computer game that combines elements of role-playing games, hack-and-slash style computer games, and social Internet Relay Chat channels" (MUD, Wikipedia.org). Traditional MUDs implement a fantasy world with players being able to take on any number of roles, including warriors, magicians, priests, thieves, druids, etc. The object of these games is to slay monsters and explore a world rich in adventure and fantasy to complete MUD quests (Wikipedia.org, 2006).

MUDs are unlike virtual realities in that one usually hears about it in three important ways (Curtis & Nichols, 1993, p.1): "First of all, MUDs do not employ fancy graphics or special position-sensing hardware to immerse the user in a sensually vivid virtual environment; rather, they rely entirely on plain, unformatted text to communicate with the users. Second, MUDs are extensible from within. Using an embedded programming language, MUD users can add new rooms and other objects to the database to give those objects unique virtual behavior. Third, MUDs generally have many users connected at the same time."

There are a number of information systems such as the World Wide Web (WWW), Instant Messaging (IM), Bulletin Board Systems (BBS), and MUD that are widely used by people from all over the world. These systems successfully serve the people in online groups that are formed out of a variety of purposes. Wilson and Peterson (2002) classify a broad variety of online groups, each with their own specific characteristics, purposes, and scales.

Many researchers use Use and Gratification Theory as the grounded theory in studies on Internet and other new communication technologies (December, 1996; Morris & Ogan, 1996). Use and Gratification Theory explains why the audience is interested in certain new communication media. The theory also explains that the audience becomes rational and finds how to choose specific media for his or her needs.

Several studies investigated the sub-dimensions of Use and Gratification in order to better understand how it affects the use or abuse of Internet (Song et al., 2004; Ko, et al., 2005). Social interaction is found as one of the important factors that causes the duration of time on a Web site (Ko et al., 2005). Song et al (2004) also found that relationship maintenance loaded as one of the largest seven factors in Internet use. Another researcher uses Use and Gratification theory to study the virtual community success (Sangwan, 2005). The findings again supported previous research findings.

Based on the previous introduction on MUD, it is evident that MUD is an online game that focuses more on the player's intrinsic motivation. After all, without audio and video richness of those of MMOG, MUD players must resort to other non-multimedia features to get the relaxation or escape feelings. For those who are addicted to MUD games, the addicted behaviors could result from things not in MMOG.

One observational factor is that many MUD players habitually visit certain MUD rooms to passively join with their virtual friends (Simkova & Cincera, 2004). Thus, based on the above discussion, the following is the second proposition.

Proposition 2: MUD addicts seek for social interactions when they play any MUD games.

USER INTERACTION: A COMMON FACTOR

So far we have exemplified that MUD and MMOG are different because of different theories: Use and Gratification theory and Flow theory. The two kinds of games, however, have one very common factor which makes them become online games. It is interaction that brings the two close together.

Researchers have suggested that interaction is an important feature of computer games to result in a user's optimal experience (Lewinski, 2000; Mithra, 1998). Such interaction can be found in both MUD and MMOG games. It is not surprising then that game developers try very hard to provide new interaction features in the game (Johnson, 1998; Gillespie, 1997). As cited above, Csikszentmihalyi (1993) thinks that for a person to be most likely immersed the conducting activities that person must have specific goals, adjustable opportunities, feedbacks provided, and

noise-screening. The components in personal interaction are exactly the same as the first three conditions mentioned by Csikszentmihalyi (1993). Goal, operation, and feedback, in other words, are important components of personal interaction for gamers to have the optimal experience.

From the discussion on MMOG and Flow, the personal interaction components facilitate MMOG gamers to experience flow given the difficulty level of task and the gamers' skills match. MUD also has the feature of interaction as being a kind of online game. The interaction includes both personal and social interaction. But the personal interaction components included are not at the same level of those in MMOGs.

The following propositions are derived from the feature differences on goal, operation, and feedback between MMOG and MUD.

> *Proposition 3: MMOG players are more likely to have optimal experience (flow state) than MUD players because MMOG's goal is more specific.*

> *Proposition 4: MMOG players are more likely to have optimal experience (flow state) than MUD players because MMOG has more options for operation.*

> *Proposition 5: MMOG players are more likely to have optimal experience (flow state) than MUD players because MMOG provides more feedback.*

POTENTIAL EFFECTS OF MUD AND MMOG ADDICTIONS

Previous propositions state that MUD players become addicted because of social interaction and MMOG players become addicted because of flow state. Besides recognizing the causes of two different game addictions, this study also categorized the impacts of the two different addictions. Impacts for each addiction are discussed as follows.

While the main cause of MUD addiction is social interactions, the impacts of MUD addictions are observed as follows.

1. Players experience social relationships in MUDs using their keyboarding skill.
2. MUDs could provide an opportunity for socially inhibited people to overcome their difficulty in association with others.
3. MUDs have not been fully marketed by advertising industries on the Internet.

Possible impacts of MMOG addictions due to flow experience are discussed as follows.

1. The main tactic of MMOG is to collect as many of the number or functions of the treasures as possible, which in turn would probably result in some unethical conducts such as stealing others' treasures.
2. MMOG players tend to care more about "experience value" they obtained than intrinsic values or common interests, which are important basis in making friendship in MUD.
3. MMOG players would like to maximize their total scores won, which in turn would probably result in developing or purchasing cheats to automatically raise their scores. Many online gamers use these cheating tools.

CONCLUSIONS

With the growing use of computers and the Internet, inappropriate computer use behaviors, especially the issue of online game addictions, have been widely concerned among teachers, parents, students, and researchers in different fields (Young, 1999; 2004; Keith and Perreault, 2006). For example, in the field of public health, because this is a new and often laughed about addiction, individuals fear that clinicians may not take their complaints seriously (Young, 2004). It is advised that the health community should offer effective recovery programs that minimize the impact to addicts (Young, 2004).

This study contributes in three ways. First, this study investigates online games with two different types in searching for the right causes of addictions. Previous studies treat online game addictions the same or they focus on either Flow Theory or Use and Gratification Theory. Second, we suggested hypotheses based on theories to further understand why addictions are occurring. This will help to extend the addictions for future study. Third, from the suggested causes of the addictions, possible implications are discussed.

This study also contributes to school and family education by presenting possible causes and remedies of addictions. Most teachers probably know that those students, if addicted, would have symptoms of bad academic performance or absence but probably do not know what makes them addicted. This study could help teachers to identify which kinds of games their students are addicted to and try to cure them by supporting comparable cause factors. For example, if a teacher finds one student is addicted to an MUD game, social interactions in the student's real life shall be provided in every possible way. If a student is addicted to an MMOG, then the parents or teachers shall direct him/her to activities that could easily become flow states.

However, preventing such addictions is a more effective way to deal with younger students. A local educational community should be able to provide counseling services for potential game addictions. The counseling sessions can offer alternative recreation programs and group therapy to ease addictive compulsions. Conducting a survey on potentially vulnerable students would be another way to prevent such addictions.

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