Annual Review of Cybertherapy and Telemedicine

Volume 2 Year 2004 ISSN: 1554-8716

Interactive Media in Training and Therapeutic Intervention

Editors:
Brenda K. Wiederhold, PhD, MBA, BCIA
Giuseppe Riva, PhD, MS, MA
Addiction to Massively Multiplayer Online Role-Playing Games

Brian D. Ng, M.S., Peter Wiemer-Hastings, Ph.D.

School of Computer Science, Telecommunication and Information Systems
DePaul University

Abstract: As computer and Internet use become a staple of everyday life, the potential for overuse is introduced, which may lead to addiction. Applications such as online chat on Internet Relay Chat (IRC) and text-based role-playing games on Multi-User Domains (MUDS) have been extremely popular for years. Research on Internet addiction has shown these are the types of applications users become addicted to. Recently, these applications have evolved into graphically intense three-dimensional virtual worlds called Massively Multiplayer Online Role-Playing Games (MMORPGs). Addiction to the Internet shares some of the negative aspects of substance addiction and has been shown to lead to consequences such as failing school as well as familial and relationship problems. The factors surrounding these cases must be examined from an HCI perspective as they pertain to both computer usage and the impact it has on users.

BACKGROUND

Internet addiction is not yet a DSM-IV diagnosis, but its definition has been derived from DSM-IV criteria for addiction and obsession. Young18 coined the term “Internet Addiction Disorder” and listed diagnostic criteria, which many researchers refer to as a starting point. Yet there is no official DSM-IV diagnosis, and because of this, researchers of Internet addiction form their own criteria for this disorder. Of those criteria, the two most referred to are substance abuse (addiction to chemicals) or behavioral obsessions and/or compulsions. There is an ongoing debate among psychologists as to what distinguishes certain addictions from obsessive behaviors. A substance addiction is defined as something which you enjoy doing, or initially enjoyed, and eventually involves physical dependence. Researchers such as Young replace the word “substance” with “Internet” in their analysis of Internet addiction, concluding that similar symptoms such as tolerance (needing more substance or Internet for satisfaction), withdrawal (a need for the substance or Internet when one does not have it available), craving (doing more of the substance or Internet and investing more time into it), and negative life consequences (job loss, family and social problems) are present in Internet addiction as well. An obsession can be described as ideas or thoughts that dominate a person’s mind. Compulsions can be irresistible urges or repetitive behaviors (cleaning or checking something continually). It is a behavior often done in response to an obsession. Research done by Walker would label Internet addiction an obsessive and compulsive behavior, based on its similarities to gambling addiction and compulsive shopping, since all of these disorders lack chemical dependence. Still, very little is known about Internet addiction as a whole.

Early research done by Shotton,12 who researched Internet addiction in the early 1990’s, concluded that addicted computer users were mainly male introverts. These men were highly educated, had an affinity for computers, and had a constant need for intellectual stimulation. However, that data is no longer relevant. A few years later, studies by Griffiths,4,5 O’Reilly,9 and Young15-18 reached drastically different conclusions. Their results revealed that dependent users were primarily middle-aged females on home computers,16 and that anyone with Internet access could become addicted.9 This drastic shift has come about simply because there are more Internet-ready computers in homes now than in 1991. This is due to low costs and acceptance in our culture (businesses, mass media, and personal relationships all depend on the Internet). Through e-mail (for business and personal use), chat (mainly personal communication), and the World Wide Web (businesses have embraced it and the near limitless amalgam of topics available on it), the Internet has a niche for anyone who has the time to spend on it. E-mail, chat, and the web are examples of applications used on the Internet whose nature has addictive properties.17
Basically, the Internet itself is not addictive, but the services available on the Internet are. Young found that interactive “real time” services such as Internet Relay Chat (live chat with other IRC users in chat rooms, socializing and discussing common topics) and multi-user domains (MUDS – text-based virtual worlds where users meet and explore and where social interaction is required) proved to be most addictive. The use of IRC was examined by Peris, and it was found that frequent users of IRC “find, in online chats, a media for rich, intense, and interesting experiences” while “they consider online relationships as real as face to face relationships”. In another study by Moody, it was found that high Internet use (on IRC or e-mail) is associated with high emotional loneliness. Users will eventually spend all their time online and choose not to interact in real life physical social settings. Jacobson researched MUDS users and found that “users participate in rewarding activities that allow them to use their skills and knowledge in the challenges of these virtual worlds,” and that “people become absorbed in the activities and relationships that occur in them.” When examined as an addictive substance, applications such as IRC and MUDS can be used to “withdraw or escape from negative evaluations and the stress of interpersonal relationships.” This results in a loss of control over time spent on the Internet, leading to problems in school, relationships, finances, occupation, and health. Users who tried to cut back the time they spent on the Internet could not resist the urge of buying new modems to get back on the Internet. Young concluded that users do become addicted and that there is a potential for more addictive applications in the future.

MUDS introduced interactive online role-playing games to the Internet, but as technology advanced, so did this genre of games. With the availability of 3D graphics in games, it became possible to build three-dimensional (3D) visual representations of the once text-only MUDS. Now users are able to see and interact with others in their 3D virtual worlds. These massively multiplayer online role-playing games (MMORPG’s) such as “Everquest,” “Ultima Online,” and “Diablo II” have been categorized as “heroinware” by many of their users, as they contain all of the addictive elements of IRC and MUDS. MMORPGs, which are run in real time, feature social and competitive aspects, making devotion to the game mandatory. If you are not playing online, you are probably falling behind. While traditional videogames end at some point or become repetitive and boring, MMORPGs are endless, because the main feature of MMORPGs is their system of goals and achievements. As you play, your character advances by gaining experience points, “leveling up” from one level to the next, while collecting valuables and weapons, thus becoming wealthier and stronger. This system creates an online “life” for your character and if you die, the penalty is a deduction of experience points. Social interaction in MMORPGs is highly essential, as you must collaborate with other players in the game to succeed in more complex goals. Eventually, a player must join a “guild” or “clan” of other players to advance further in the game. Finding other players in the game “Everquest” is not hard, as there are 433,445 active players worldwide including the 12,000 new players every month, each paying $12-$40 a month for access to the game. Everquest (or Evercrack, as many players have nicknamed it) is a fantasy game based on concepts similar to the work of Tolkien’s Middle Earth and Dungeons and Dragons, and is the most popular of all MMORPGs. Because of its popularity, Everquest has received the most press and the most blame for MMORPG addiction. In a recent News.com article, one recovering Everquest player was quoted as saying, “The game almost ruined my life, it was my life. I ceased being me; I became Madrid, the Great Shaman of the North. Thinking of it now, I almost cringe; it’s so sad.” The same article describes players who have lost their jobs and even marriages due to overuse of Everquest. Another player explained his addiction, “I’d say the most addictive part for me was definitely the gain of power and status, the way in which as you progressively gain power you become more of an object of awe to other players... each new skill isn’t enough.” In a Time article, Denise Dituri, a mother of three, who had no interest in fantasy games, became an 18-hour a day player in Everquest. But instead of ruining her family, the game has seemingly brought them closer together. Denise and her husband Gary play Everquest with their three
children, viewing the game as an activity of the mind, and as an alternative to television. Gary confesses that he has learned more about his son than ever before while playing Everquest. Even the topic of dinner conversation in the Dituri household is over what happened while they were in Everquest.

Young\textsuperscript{17} provided research that certain users become addicted to specific applications used on the Internet. Griffiths\textsuperscript{4} concluded the same, with results showing that addicts are usually addicted to online chat or fantasy role-playing games (MUDS). Griffiths also emphasized that these applications allowed users an anonymity allowing them to create their own social identities, raising the users’ self-esteem. It is this anonymity that gives those with low self-confidence and sub-par social skills the desire to create a virtual life for themselves on the Internet. In these cases, the Internet becomes a substitute for real life social interaction, providing the user with an escape from reality.\textsuperscript{18} In the early 1990’s the Internet addict was stereotyped as a male computer hobbyist, but recent research proves that anyone can become addicted, as it is a combination of personality type and Internet application that causes the overuse that leads to addiction.

**MATERIALS AND METHODS**

In this study, a comparison will be made between online MMORPG game users and offline video game users, to find elements that differentiate the two types of users and factors that contribute to overuse. It is proposed that factors which cause Internet overuse are similar to those that cause MMORPG overuse.

The evaluations took place online in the form of two surveys which served to compare the two types of users. The surveys are based on a survey developed in 1999 by Pratarelli et al. in their paper “The bits and bytes of computer/Internet addiction: A factor analytic approach.”\textsuperscript{9} Pratarelli’s survey focused on variables indicative of both computer and Internet use and was devised to gather data on the behavioral patterns of heavy Internet users. This survey has been modified to explore the individuals who are primarily MMORPG or video game players (online and offline game players, respectively). To facilitate the comparison study, the same survey was used for the testing of both user groups, with the exception of the terms “MMORPG” and “video games.” These two terms were replaced in the context of its respective test; this preserved the questions yet changed the context. The survey questions were collected anonymously through an online survey which was advertised on various gaming forums hosted on the well-known gaming sites eqvault.ign.com, www.everlore.com, and www.fohguild.org. After 10 days, the surveys were taken offline. No rewards were offered to those who volunteered to participate. Questions are generalized so that any sample user from the general population who has played MMORPG’s or video games can answer. If a user was primarily a MMORPG player, he or she was asked to complete the MMORPG survey, and similarly for video game users.

Individual survey items gathered data on demographic information, game usage patterns, social behaviors of users, and the user’s game purchasing habits. Demographic information collected was gender, educational level, professional level, hours per week spent playing games, and time of day spent playing. All remaining questions were Likert-scaled responses; users were asked to rank their agreement or disagreement to each question on a scale from 1 to 5. Game usage questions focused on how much time users were spending on games, how long a typical session would last, if usage time affected their daily schedules, and measured for indications of spending too much time using games. Social behavior questions collected data on dependence, companionship, self-image, and attitude of the user while gaming. Lastly, users answered questions about their game purchasing habits.

**RESULTS**

The MMORPG survey demographics had a total of 91 responses. 88% of respondents were male, 44% had a high school degree, and 29% had a bachelor’s degree. 37% were students while 53% worked as full-time employees. When asked how many hours a week they spent on MMORPG’s, 13% spent between 7-10 hours, 25% spent 11-20 hours, 34% spent 21-40 hours and 11% spent 40+ hours playing a week. 82% played during the hours of 6pm-11pm.
Demographic data for video game users was quite similar to MMORPG users, as expected. 48 responses were reported, and of those, 71% were male. 25% had a high school degree and 54% had a bachelor’s degree. 29% were students and 71% were full-time employees. In contrast to the hours spent playing per week, video game users spent significantly less time playing their games per week. 38% played for 1-2 hours a week, 35% spent 3-6 hours and 6% spent 7-10 hours a week. 87% played during the hours of 6pm-11pm, which was similar to the MMORPG players.

Likert-scaled questions on game usage patterns, social behaviors of users, and game purchasing habits were analyzed with an unpaired t-test for significance between the two groups. According to the data on game usage patterns, six of the questions on showed a high significance (P=0.0001), two showed some significance and two did not have any significance. MMOPRG players had the tendency to play for eight continuous hours, lose sleep because of playing, and had been told they spent too much time playing. All questions which suggested heavy overuse were dominated by the MMOPRG users. Social behaviors of users varied for the two groups, as significance was found in 50% of the questions in this category. In general, MMOPRG users would rather spend time in the game than with friends, have more fun with in-game friends than people they know, find it easier to converse with people while in-game, did not find social relationships as important, and felt happier when in the game than anywhere else. Offline game users had at times sought out video games to alleviate depression, while MMORPG users didn’t. However, neither group used games as a diversion from loneliness or to gain self-confidence. Spending on games between both groups showed no significance, as neither group had any monetary issues associated with gaming.

**DISCUSSION**

The findings confirm the background research that has been presented and highlights the differences between the two groups. It is clear that MMORPG users have a tendency to spend many more hours devoted to their game and find the social aspects of the in-game world more pleasant and satisfying than what occurs in the real world. However, MMORPG users don’t seek self-confidence in-game, would find fun elsewhere if MMORPG’s didn’t exist, and would not feel irritated if they didn’t have the chance to play for one day. This would suggest that as much as MMORPG users enjoy the time they spend in-game, even more so than real life activities with friends, they are not addicted. I would propose that MMOPRG users have a different perspective on social life, which could be labeled as anti-social or introverted by most, and as such choose to spend their social time and energy in-game rather than socializing in the real world. It is the social aspects inherent in MMORPG’s that draw in the “hard-core” players who show patterns of addiction. For most users it would seem that MMORPG’s are an alternative to other forms of social entertainment. If MMORPG’s weren’t available or didn’t exist, these same users wouldn’t seek friends or social situations such as parties, bars or clubs, but perhaps other forms of socializing online in the form of e-mails, chat rooms or instant messenger. Since it is apparent that most users are not addicted, but rather choosing to spend their time on MMORPG’s, determining how they spend their time in-game could explain their attraction to the games. For future study, these social aspects and in-game activities could be explored in-depth. In conclusion, it is the social aspects that exist in-game that draw users into MMORPG’s. Much like users who are addicted to the Internet, they seek social experiences which are not available elsewhere in their lives. Even with high usage times, MMORPG users cannot be categorized as addicted because they do not exhibit the behaviors of addicts.

**REFERENCES**

N
G
E
T
A
L.

101

chology and the Internet: Intrapersonal, inter-
personal, and transpersonal implications.

5. Jacobson D. Presence revisited: Imagina-
tion, competence, and activity in text-based
virtual worlds. CyberPsychology & Behavior
2001; 4: 653-673.

6. Moody E. Internet use and its relationship to
loneliness. CyberPsychology & Behavior
2001; 4: 393-401.

7. O'Reilly M. Internet addiction: A new disorder
enters the medical lexicon. Canadian Medi-

8. Peris R. Online chat rooms: Virtual spaces of
interaction for socially oriented people. Cy-

9. Pratarelli M, Browne B, Johnson K. The bits
and bytes of computer/Internet addiction: A
factor analytic approach. Behavior Research
Methods, Instruments and Computers 1999;
31(2): 305-314.

10. Shotton MA. The costs and benefits of
“computer addiction.” Behavior Information

159(21).

12. Walker MB. Some problems with the concept
of “Gambling Addiction:” Should theories of
addiction be generalized to include exces-
sive gambling. Journal of Gambling Behavior

addictive: Potential explanations for patho-
logical Internet use. Presented at the 105th
Annual Conference of the American Psycho-
logical Association, Chicago.

14. Young K. Psychology of computer use: XL.
Addictive use of the internet: A case that
breaks the stereotype. Psychological Re-

15. Young K. Internet Addiction: The emergence
of a new clinical disorder. CyberPsychology
& Behavior 1996; 1: 237-244.

recognize the signs of Internet addiction —
and a winning strategy for recovery. New
York: John Wiley & Sons.

CONTACT

Brian David Ng
School of Computer Science, Telecommunica-
tions, and Information Systems
DePaul University
468 West 26th Place
Chicago, IL 60616 USA
Ph: (312) 362-5736
Fax: (312) 362-6116
Email: bng2@depaul.edu

Submitted: October 31, 2003
Accepted: May 28, 3004