Causes and consequences of pathological gaming

Lemmens, J.S.

Publication date
2010

Citation for published version (APA):
Lemmens, J. S. (2010). *Causes and consequences of pathological gaming*. Amsterdam School of Communication Research.

Chapter 1

Introduction

Dear Mr. Lemmens,

My son Peter is diagnosed with ADD and has always been very interested in computers. He has been an avid gamer since he was young (when he was eleven, he was ranked nr 2 worldwide in Runescape). He is now in his second year of high school (Havo) and plays World of Warcraft, which has captivated him completely. But it is not just WoW, he also has a PSP and an iPod which he uses continuously, even during dinner. Because he stopped doing his homework and was failing his classes, we tried to restrict his game use. Last weekend, when my husband cut the electricity to his room, he became very violent and threatened to kill me ('Ik ga je dood maken'). At the end of my rope, I contacted the police. My whole family is suffering from his addiction, but he won't even admit he has a problem.

Is there any way you can help me?

Sincerely,

Mother of Peter

E-mail (translated) November 27, 2009
Only the name Peter has been changed for privacy reasons

Computer and video games have become the most popular form of entertainment for many children and adolescents around the world, profoundly affecting the lives of millions of people on a daily basis (e.g., Padilla-Walker, Nelson, Carroll, & Jensen, 2010). Unlike most other media, the central purpose of computer and video games is to entertain and provide its users with enjoyable experiences. However, as the distressed mother from the e-mail above illustrates, obsession with this form of entertainment can cause serious disruptions in the lives of players and their families. Peter exemplifies how some adolescents can become so captivated by these interactive mediated environments that they will seize every opportunity to play, and will not stop playing when more important matters require their attention. These recurrent gaming binges will likely lead to disruptions of personal, family, or vocational pursuits. When parents subsequently attempt to bring this obsessive and excessive behavior to an end, gamers may experience withdrawal symptoms following from abstinence after prolonged use, which could lead to irritability and hostility. This may explain why obsessive gamers like Peter behave aggressively when they are restricted from playing. If players are unable or unwilling to control their excessive gaming habits despite associated problems and conflicts, they display the core symptoms common to all sorts of pathological behaviors, dependencies and addictions (APA, 2000; LaRose, Lin, & Eastin, 2003; Mendelson & Mello, 1986). In the following dissertation, the concept of pathological involvement with computer and video games, more commonly known as game addiction, will be the focal point of thorough theoretical and empirical examination.

Based on the definition for pathological gambling from the DSM-IV-TR (APA, 2000), we defined pathological gaming as the persistent and recurrent inability to control excessive gaming habits despite associated social and/or emotional problems. Although more than 50 studies on this subject have been published, dating back to the early eighties (Soper &

Miller, 1983), there is still considerable disagreement among researchers on how to define, label, or measure this type of behavior. One issue that researchers commonly agree on is that adolescents in general, and adolescent boys in particular, are considered most susceptible to pathological involvement with games (e.g., Griffiths, Davies, & Chappell, 2004; Griffiths & Wood, 2000; Ha et al., 2007). However, very few studies have examined what causes these adolescents to become pathologically involved with computer or video games, or how pathological gaming affects the lives of these players. Therefore, the main aim of this research project was to develop a valid and reliable measurement tool for pathological gaming, and subsequently use this tool to empirically examine the causes and consequences of pathological gaming among adolescents. Although our research may not provide direct help to families burdened by pathological gaming, a validated measurement tool coupled with knowledge of its causes and consequences can provide parents, psychologists, care workers, and pathological gamers some indication of how this condition may be treated or prevented.

A Question of Terminology

Over the past decades many different terms have been applied to describe pathological involvement with computer or video games, including: excessive gaming (Grüsser, Thalemann, & Griffiths 2007), problematic gaming (Salguero & Moran, 2002), compulsive gaming (Meerkerk, Van den Eijnden & Garretsen, 2006), obsessive gaming (Przybylski, Weinstein, Ryan, & Rigby, 2008), and game dependency (Griffiths & Hunt, 1998). A close examination of the available literature indicated that the terms *internet addiction* (e.g., Pratarelli, Browne, & Johnson, 1999) and *game addiction* (e.g., Charlton & Danforth, 2007) are the two most prevalent terms among scholars. Because internet addiction is described as a psychological dependency on the internet regardless of

the type of activity once logged on, the term covers a wide range of addictive behaviors, such as sex addiction, gambling addiction and game addiction (e.g., Caplan, 2002; Young, 1996). Therefore, several researchers have labeled pathological use of *online* games as internet addiction (e.g., Lu & Wang, 2008; Pratarelli et al., 1999).

Although recent studies have shown that pathological gaming is more prevalent among players of online games than among players of offline games (Ko et al., 2009; Ng & Wiemer-Hastings, 2005; Seo, Kang & Yom, 2009; Smyth, 2007; Tsitsika et al., 2009), pathological gaming is not limited to online games, as it has been associated with all types of computer and video games (e.g., Fisher, 1994; Griffiths & Hunt, 1995; 1998). Furthermore, studies on game addiction have been published years before online games existed [1] (e.g., Shotton, 1989; Soper & Miller, 1983). In light of these arguments, some researchers have suggested that individuals who are pathologically involved with online games should not be classified as addicted to the internet because the internet is merely one of the places where pathological involvement with games can manifest itself (Griffiths & Davies, 2005). Thus, because internet addiction is considered too indistinctive in its broad range of pathological behaviors, and at the same time too limited by excluding offline games, we decided not to use this term when addressing pathological involvement with computer or video games.

To date, game addiction is still the most prevalent term to describe pathological involvement with games (see chapter 2 for a list of studies). Because of its prevalence among researchers, we also initially adopted the term game addiction. However popular, this term is also considered problematic as both players and game-developers use the term 'addictive'

---

[1] *Quake* (iD, 1996) is generally considered one of the first games to popularize online gaming.

as a positive adjective, indicating enduring playability of a game, not the game's potential to cause pathological behavior (Adams, 2002).

Furthermore, most studies on game addiction have adapted the definition and criteria for pathological *gambling* from the DSM (APA, 2000), thereby essentially measuring pathological *gaming*. Considering the theoretical and conceptual similarities with pathological gambling, and the problems associated with the term addiction, pathological gaming (e.g., Chiou & Wan, 2007; Gentile, 2009; Johansson & Gotestam, 2004; Keepers, 1990) seems best suited to describe this type of involvement with computer and video games. Thus, apart from chapter 2, pathological gaming will be used throughout this dissertation unless the referenced articles specifically state an alternate terminology.

Pathological Gaming and Problematic Behavior

Pathological gaming among adolescents has been associated with various problematic behaviors, including: truancy from school to play games (Batthyany, Muller, Benker & Wölfling, 2009; Griffiths & Hunt, 1998), neglecting homework (Cummings & Vandewater, 2007), failing at school (Chiu, Lee, & Huang, 2004; Gentile, 2009; Skoric, Teo, & Neo, 2009), sleep deprivation (Charlton, 2002; Kim, Namkoong, Ku, & Kim, 2008) and sacrificing real-life social activities (Ng & Wiemer-Hastings, 2005). To a certain degree, the occurrence of such problematic and disruptive behavior is considered a crucial feature in distinguishing addictions from habits (e.g., LaRose, Lin, & Eastin, 2003). Therefore, survey studies on pathological gaming have generally operationalized the construct with items that focused on various problems and conflicts arising from excessive gaming habits (e.g., Charlton & Danforth, 2007; Salguero & Moran, 2002). However, this does not mean that all types of problematic behavior or negative emotional states are inherently associated with this type of addictive behavior. For instance, researchers generally consider low psychosocial

well-being as an antecedent of pathological gaming (e.g., Lo, Wang & Fang, 2005; Seay & Kraut, 2007), whereas aggressive behavior is generally considered a consequence of pathological gaming (Caplan, Williams, & Yee, 2009; Grüsser et al., 2007).

Several studies have shown that low psychosocial well-being is related to pathological use of computer and video games. In general, psychosocial well-being can be defined as a wide array of constructs that reflect the quality of intrapersonal and interpersonal functioning (Lent, 2004). Many of these underlying constructs have been associated with pathological gaming. For instance, studies have shown that pathological gamers show less satisfaction with daily life (Wang, Chen, Lin & Wang, 2008), less self-esteem (Ko et al., 2005), less social competence (Lo, Wang & Fang, 2005), and more loneliness (Seay & Kraut, 2007) when compared with non-pathological gamers. Playing a game, especially an online game, is essentially a social activity that encourages or even requires players to interact with each other (e.g., Cole & Griffiths, 2007; Ducheneaut & Moore, 2005). Therefore, it is assumed that individuals who suffer from psychosocial problems tend to have a stronger preference for alternative forms of social interaction (e.g., online games) as a means to compensate for their real-life social deficiencies. Thus, researchers generally assume that low psychosocial well-being is more likely to be an antecedent than a consequence of pathological gaming (e.g., Caplan et al., 2009; Seay & Kraut, 2007).

Conversely, previous research has shown that pathological involvement with online games discourages adolescents from maintaining and developing real relationships (e.g., Ng & Wiemer- Hastings, 2005), which could indicate that pathological gaming may cause, or possibly exacerbate, psychosocial problems. Thus, there is no conclusive evidence that demonstrates whether low well-being is a cause or a consequence of pathological gaming. Similarly, studies that found a relation between

aggressive behavior and pathological gaming generally assume that the increase in aggressive behavior is a consequence of pathological involvement (Caplan, Williams, & Yee, 2009; Grüsser et al., 2007; Kim et al., 2008). However, because there longitudinal research on pathological gaming is extremely scarce, the causal relations between pathological gaming, aggressive behavior and low psychosocial well-being necessitate further empirical examination which will be the focus of the last two studies of this dissertation.

Dissertation Outline

This dissertation consists of four studies. Each study shall be described in a separate chapter. The studies in this dissertation followed a predetermined course; meaning that we started with the development of a scale to measure pathological gaming, then we validated this scale, and finally we used this scale in a longitudinal study to examine the causes and consequences. Each chapter is self-contained, with its own abstract, introduction, discussion, and reference list. All studies presented in this dissertation are either published, awaiting publication, or submitted for publication. After all studies have been presented (chapters 2-5) a general summary of our findings and the main conclusion will follow in chapter 6. The following table provides an overview of the studies and chapters in this dissertation.

Overview of the Studies and Chapters in this Research Project

	Chapter 2		Chapter 3	Chapter 4	Chapter 5
Design	Cross-sectional Survey	Cross-sectional Survey	Behavioral Response Tasks	Longitudinal Survey	Longitudinal Survey
Date	May 2007	May 2008	November 2008	December 2008 & June 2009	December 2008 & June 2009
Participants	Adolescents (12-18)	Adolescents (12-18)	Adolescent males (12-18)	Adolescents (12-17)	Adolescents (12-17)
Number of Participants	$N = 644$ 352 gamers	$N = 573$ 369 gamers	$N = 92$ 92 gamers	$N = 851$ 543 gamers	$N = 851$ 540 gamers
Main Aim	Scale Development	Scale Validation	Behavioral Validation	Psychosocial Causality	Aggression Causality

Note: gamers are participants that had played at least one game in the last month

References

Adams, E. (2002, July). *Designer's Notebook: Stop Calling Games "Addictive".* Retrieved March 20, 2010, from www.designersnotebook.com/Columns/046_ Stop_ Calling_ Games_Addicti/046_stop_calling_games_addicti.htm

APA (American Psychiatric Association) (2000). *Diagnostic and Statistical Manual of Mental Disorders, 4th edition, Text Revision*. Washington, DC: American Psychiatric Association.

Batthyany, D., Müller, K.W., Benker, F., & Wölfling, K. (2009). Computerspielverhalten: Klinische Merkmale von Abhängigkeit und Missbrauch bei Kindern und Jugendlichen. *Wiener Klinische Wochenschrift, 121,* 502–509.

Caplan, S. E. (2002). Problematic Internet use and psychosocial well-being: Development of a theory based cognitive-behavioral measurement instrument. *Computers in Human Behavior, 18,* 553–575.

Caplan, S., Williams, D., & Yee, N. (2009). Problematic Internet use and psychosocial well-being among MMO players. *Computers in Human Behavior, 25,* 1312-1319.

Charlton, J. P., & Danforth, I. D. W. (2007). Distinguishing addiction and high engagement in the context of online game playing. *Computers in Human Behavior, 23,* 1531-1548.

Charlton, J. P. (2002). A factor-analytic investigation of computer 'addiction' and engagement. *British Journal of Psychology, 93,* 329–344.

Chiou, W., & Wan, C. (2007). Using cognitive dissonance to induce adolescents' escaping from the claw of online gaming: The roles of personal responsibility and justification of cost. *CyberPsychology & Behavior, 10,* 663-670.

Chiu, S., Lee, J., & Huang, D. (2004). Video game addiction in children and teenagers in Taiwan. *CyberPsychology & Behavior, 7,* 571–581.

Cole, H., & Griffiths, M. D. (2007). Social Interactions in Massively
      Multiplayer Online
      Role-Playing Gamers. *CyberPsychology & Behavior, 10,* 575–583.

Cummings, H. M., & Vandewater, E. A. (2007). Game time: How does
      adolescent video game play relate to time spent in other activities?
      Archives of Pediatric and Adolescent Medicine, 161, 684–689.

Ducheneaut, N., & Moore, R. J. (2005). More than just 'XP': Learning social
      skills in massively multiplayer online games. *Interactive Technology
      and Smart Education, 2,* 89-100.

Fisher, S. E. (1994). Identifying video game addiction in children and
      adolescents. *Addictive Behaviours*, *19,* 545–553.

Gentile, D. A. (2009). Pathological video game use among youth 8 to 18: A
      national study. *Psychological Science, 20,* 594-602.

Griffiths, M. D. & Davies, M. N. O. (2005). Videogame addiction: Does it
      exist? In J. Goldstein and J. Raessens (Eds.), *Handbook of Computer
      Game Studies* (pp. 359-368). Boston: MIT Press.

Griffiths, M. D., & Hunt, N. (1995). Computer games playing in adolescence:
      Prevalence and demographic indicators*. Journal of Community and
      Applied Social Psychology, 5,* 189-193.

Griffiths, M. D., & Hunt, N. (1998). Dependence on computer games by
      adolescents. *Psychological Reports, 82*, 475-480.

Griffiths, M., & Wood, R. (2000). Risk factors in adolescence: The case of
      gambling, videogame playing, and the internet. *Journal of Gambling
      Studies, 16,* 199-225**.**

Griffiths, M. D., Davies, M. N. O., & Chappell, D. (2003). Breaking the
      stereotype: The case of online gaming. *CyberPsychology and
      Behavior, 6,* 81–91.

Grüsser, S. M., Thalemann, R., & Griffiths, M. D. (2007). Excessive computer
      game playing: Evidence for addiction and aggression?
      CyberPsychology & Behavior, 10, 290-292.

Ha, J. H., Kim, S. Y., Bae, S. C., Bae, S., Kim, H., Sim, M., et al. (2007).
    Depression and internet addiction in adolescents. *Psychopathology,
    40,* 424–430.

Johansson, A., & Gotestam, K. G. (2004). Problems with computer games
    without monetary reward: Similarity to pathological gambling.
    Psychological Reports, 95, 641-650.

Keepers, G. A. (1990). Pathological preoccupation with video games.
    *Journal of the American Academy of Child & Adolescent Psychiatry,
    29*, 49-50.

Kim, E. J., Namkoong, K., Ku, T., & Kim, S. J. (2008). The relationship
    between online game addiction and aggression, self-control and
    narcissistic personality traits. *European Psychiatry, 23,* 212-218.

Ko, C., Yen, J., Chen, C., Chen, S., & Yen, C. (2005). Gender differences and
    related factors affecting online gaming addiction among Taiwanese
    adolescents. *The Journal of Nervous and Mental Disease, 193,* 273-
    277.

Ko, C., Yen, J., Chen, C., Yeh, Y., & Yen, C. (2009). Predictive values of
    psychiatric symptoms for Internet addiction in adolescents: a 2-
    year prospective study. *Archives of Pediatric Adolescent Medicine,
    163,* 937-943.

LaRose, R., Lin, C.A., & Eastin, M.S. (2003). Unregulated internet usage:
    Addiction, habit, or deficient self-regulation. *Media Psychology, 5*,
    225-253.

Lent, R. W. (2004). Toward a unifying theoretical and practical perspective
    on well-being and psychological adjustment. *Journal of Counseling
    Psychology, 51*, 482–509.

Lo, S., Wang, C., & Fang, W. (2005). Physical interpersonal relationships and
    social anxiety among online game players. *CyberPsychology &
    Behavior, 8*, 15-20.

Lu, H. P., & Wang, S. M. (2008). The role of Internet addiction in online

game loyalty: an exploratory study. *Internet Research, 18,* 499-519.

Meerkerk, G., Van den Eijnden, R. J. J. M., & Garretsen, H. F. L. (2006). Predicting compulsive Internet use: It's all about sex!. *Cyberpsychology & Behavior, 9,* 95–103.

Mendelson, J., & Mello, N. (1986). *The addictive personality.* New York: Chelsea House.

Ng, B. D., & Wiemer-Hastings, P. (2005). Addiction to the internet and online gaming. *CyberPsychology and Behavior*, *8,* 110–113.

Padilla-Walker, L. M., Nelson, L. J., Carroll, J. S., & Jensen, A. C. (2010). More than just a game: Video game and internet use during emerging adulthood*. Journal of Youth and Adolescence, 39,* 103-113,

Pratarelli, M. E., Browne, B. L., Johnson, K. (1999). The bits and bytes of computer/internet addiction: A factor analytic approach. *Behavior Research Methods, Instruments, & Computers, 31,* 305-314.

Przybylski, A., Weinstein, N., Ryan, R., & Rigby, C. S. (2009). Having to versus wanting to play: Background and consequences of harmonious versus obsessive engagement in video games. *CyberPsychology & Behavior, 12,* 485–492.

Salguero, R. A. T., & Moran, R. M. B. (2002). Measuring problem video game playing in adolescents. *Addiction, 97,* 1601-1606.

Seay, A. F., & Kraut, R. E. (2007). Project massive: Self-regulation and problematic use of online gaming. In *CHI 2007: Proceedings of the ACM conference on human factors in computing systems* (pp. 829 - 838). New York: ACM Press.

Seo, M., Kang, H. S., & Yom, Y. H. (2009). Internet addiction and interpersonal problems in Korean adolescents. *Computers, Informatics, Nursing, 27,* 226-233.

Shotton, M. A. (1989). *Computer Addiction? A study of computer dependency.* New York: Taylor & Francis.

Skoric, M. M., Teo, L. C. T., & Neo, R. L. (2009). Children and video games:

Addiction, engagement, and scholastic achievement . *CyberPsychology and Behavior, 12,* 567-572.

Smyth, J. (2007). Beyond self-selection in video game play: An experimental examination of the consequences of massively multiplayer online role-playing game play. *CyberPsychology & Behavior*, *10,* 717–21.

Soper, W. B., & Miller, M. J. (1983). Junk-time junkies: An emerging addiction among students. *School Counselor, 31,* 40-43.

Tsitsika, A., Critselis, E., Kormas G., Filippopoulou, A., Tounissidou, D., Freskou, A. et al. (2009). Internet use and misuse: a multivariate regression analysis of the predictive factors of internet use among Greek adolescents. *European Journal of Pediatrics, 168*, 655–665.

Wang, E. S., Chen, L, S., Lin, J. Y., & Wang, M. C. (2008) The relationship between leisure satisfaction and life satisfaction of adolescents concerning online games. *Adolescence, 43,* 177-184.

Young, K. S. (1996). Internet addiction: The emergence of a new clinical disorder**.** Paper presented at the 104th annual meeting of the American Psychological Association, Toronto, Canada.