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Problems with the Concept of Video Game "Addiction": Some Case Study Examples

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Abstract This paper argues that the recent concerns about video game "addiction" have been based less on scientific facts and more upon media hysteria. By examining the literature, it will be demonstrated that the current criteria used for identifying this concept are both inappropriate and misleading. Furthermore, by presenting four case studies as examples it will be demonstrated how such claims of video game addiction can be inaccurately applied. It is concluded that the most likely reasons that people play video games excessively are due to either ineffective time management skills, or as a symptomatic response to other underlying problems that they are escaping from, rather than any inherent addictive properties of the actual games.

Keywords Video games · Video game addiction · Addiction definitions · Diagnostic criteria · Problem gambling · Substance abuse

Introduction

It is important to note that there is currently no such clinical criteria as video game "addiction" that has been accepted by any reputable organisation responsible for defining disorders of the mind or body (e.g., The American Psychiatric Association, The World Health Organisation etc.). However, some clinicians and academics have attempted to define video game "addiction" on the basis of their observations of some individuals who have concerns about their gaming behaviour, or in response to other people who may have concerns about an individual's behaviour (e.g., parents, partners etc.). The acceptance of this concept has been supported by popular media reports, increasing parental concerns, and a few high profile cases of troubled individuals who no doubt play video games more than is good for them.

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Where criteria have been used to label video game players as "addicts", these tend to have been adapted from DSM-IV substance abuse criteria, or, more frequently, pathological gambling screens (e.g., DSM-IV, South Oaks Gambling Screen etc.), usually, by substituting the word "gambling" for "gaming" or "video game playing." (Fisher 1994; Griffiths and Hunt 1998; Grusser et al. 2005; Gupta and Derevensky 1997; Salguero and Moran 2002; Wood et al. 2004b). Similarly, Brown's criteria for addiction have also been used by several researchers examining technological addictions, (Griffiths and Hunt 1998; Grusser et al. 2005; Salguero and Moran 2002; Wood et al. 2004b; Young 1996) and have much in common with the DSM criteria used for identifying pathological gambling (A.P.A 2000). However, recent studies of computer, video game, and internet addictions have demonstrated that classifications of this kind may not be valid because some of the criteria are referring to high levels of engagement rather than addiction per se. (Charlton 2002; Charlton and Danforth 2007). Additionally, it has been suggested that those criteria relating to high levels of engagement might be considered "peripheral" criteria for addiction (cognitive salience, tolerance, and euphoria). That is, they can not be considered as properties that identify addictive behaviour patterns, and are aspects of "normal" play. Whereas, the remaining "addiction" criteria appear to be "core" criteria (conflict, withdrawal symptoms, relapse and reinstatement, and salience). Studies using an Addiction-Engagement questionnaire (Charlton 2002; Charlton and Danforth 2007) have found that including peripheral criteria to identify video game "addiction" results in a significant overestimation of the prevalence. This is more likely to occur when polythetic classifications are used such as those employed by the DSM (i.e. classification is based on endorsement of a number of items rather than all of the items) (Charlton 2002).

Furthermore, using adapted problem gambling criteria, poses other validity problems as there are some very distinct qualitative differences between gambling and video game playing. Gambling involves the wagering of money in order to try and win back more. When a problem gambler loses money they will typically chase their losses, that is, they try to win back their money, and they invariably get deeper into debt. Occasional wins convince the problem gambler that winning back all of their money is a possibility, and the cycle of debt increases. The mounting debt leads to increased stress, and a need to gamble develops in order to alleviate that stress, and this is fuelled by the delusion that more gambling will solve the problem. Eventually, the problem gambler gambles in order to dissociate and escape from the reality of their debts (Wood and Griffiths 2007). However, no such process occurs with video game playing where money is not usually a factor in playing games, unless gamers wager on the outcome of games, at which point it then becomes gambling.

Another driver of problem gambling stems from the excitement and arousal gained by placing bets, and the need to place larger and larger bets in order to combat the tolerance that the problem gambler develops (Wood and Griffiths 2007). In other words, small bets are no longer exciting any more. It is difficult to see how the excitement of playing video games can be increased in any comparable way. Playing for longer periods or playing more frequently does not, in itself, increase the overall intensity of the gaming experience, and is more akin to the engagement criteria noted earlier. So by comparing the action of problem gambling with excessive gaming we are not comparing like with like.

Furthermore, the consequences of excessive video game playing do not compare well to other addictions either. Excessive video game players do not usually end up with huge debts, and it is unlikely that a video game player will have their house repossessed because of video game playing debts. Excessive video game players do not typically suffer severe health consequences as would a hard drug addict, and they are not usually doing anything illegal.

What then are the consequences of excessive video game playing? The primary consequence is time loss, and spending too much time on one activity can create its own problems. In a recent study of 280 video game players (Wood et al. 2007) it was found that 82% experienced time loss frequently or all the time. However, just over half of the players thought this had some positive features. Those who liked losing track of time reported that they found it a relaxing experience and a sign that the game was engaging and value for money, it provided temporary relief from the stress of everyday life. It showed that they were enjoying themselves so much that time passed quickly. Those who disliked time loss suggested that this was because it meant they missed appointments, it caused conflict with others, or they felt guilty that they could have been doing 'better things.' However, time loss was something that could be controlled and half of the players used strategies to limit how much time they spent playing, such as setting alarms, or getting someone to interrupt them after a set period of time.

So does spending a lot of time doing something define an activity as addictive or problematic? It can be argued that on it's own it does not, after all there are lots of activities that people undertake for long periods of time that we do not usually regard as inherently addictive. Watching television, reading, playing a musical instrument, training for a marathon are a few of the more socially acceptable examples. There have to be some negative consequences before we can say that the behaviour has become a problem. One such negative consequence might be that the time spent playing was causing conflict in the person's life through neglecting relationships, work, school etc.

Determining whether or not the time spent playing video games is having a negative affect is actually quite difficult to ascertain, as it is often a question of individual value judgement rather than objective measurement. However, it is frequently given as a reason for concern that a child, partner, sibling, co-worker etc. has a problem with playing video games. This concern by others, in itself, does not constitute grounds for labelling the behaviour an addiction, as it may be a question of negotiating with the individual a mutually acceptable level of play so that relationships and/or activities are not neglected. For parents, it is arguably their responsibility to ensure that their children do not play video games excessively, in the same way that they should ensure that their children do not watch television excessively, or that they do not play football excessively etc. One might even say that it is the parents' duty to teach their child how to manage their time effectively. This is not an easy task and some parents may find it easier to sometimes let their children carry on playing games longer than they should, or may not to even attempt to limit their play at all. For some parents the fact that video games keep their children entertained may lead to an over reliance on the game as a "digital babysitter." If the child has a computer or game console in their bedroom then it will be practically impossible to limit their play. Under these circumstances, it is no surprise that some parents may find it difficult to break their child's habits when they eventually decide that enough is enough.

Another consequence of excessive video game playing might be that the player wanted to cut down or stop playing but found that they could not. However, does this indicate that they are indeed "addicted" to gaming? In itself it can be argued that it does not, as there are many habitually formed behaviours that can be difficult to give up without constituting an addiction. For example, a young child may find it hard not to suck their thumb, many people find it difficult not to eat snacks between meals, limit the amount of coffee that they drink or the salt they put on meals, some may drive the car to the shop when they really should walk. This issue is compounded by the fact that some people do not want to limit or stop playing video games, even though friends or relatives are expressing concerns. It can be argued that accepting that there is a problem is the first step on a road to recovery. But it

can also be the case that sometimes concerns over another persons gaming behaviour are a consequence of misunderstanding the nature of that activity. Media hype about video game "addiction" may lead some concerned relatives to define perfectly "normal" behaviour as problematic.

However, the fact that some people play video games excessively is not in dispute, but defining the point at which the behaviour becomes problematic is far from clear. There is little doubt that some people play games too frequently and for longer periods than is good for them physically, socially, and/or psychologically. People will at times undertake all kinds of activities excessively if the activity has the capability to distract them from other issues in their lives. This is particularly true if the person concerned is having difficulty coping with other aspects of their everyday life. In such situations some individuals will distract themselves from dealing with their problems by engaging in lengthy video game playing sessions. Grusser et al. (2005) found that those adolescents identified as "addicted" to video games played primarily as a means of coping with stress. Similarly, Wood et al. (2007) found that high frequency video game players were far more likely than low frequency players to play games in order to escape from other problems in their lives. However, the use of games for relaxation and escape is not necessarily a problem in itself. Wood and Griffiths (2007) found that half of their sample of non-problematic gamers reported that they often played games as a way of relaxing and escaping from everyday stress.

It seems that video games can be used as a means of escape in order to cope with a range of issues from everyday stress relief to complete avoidance of daily responsibilities. To what extent then does it make sense to blame video games for this phenomenon? If people cannot deal with their problems, and choose instead to immerse themselves in a game, then surely their gaming behaviour is actually a symptom rather than the specific cause of their problem.

To what extent then, can video game playing, in and of itself, constitute a problem for someone with no underlying issues? To understand this we need to ask two key questions. First of all is there something about video games that makes playing them problematic for people who are not having other difficulties in coping with their lives? So far there are no studies that the author is aware of that have addressed this issue. Secondly, are a high proportion of video game players experiencing problems such that we should be concerned? This second question is also difficult to ascertain as we need to separate out (usually retrospectively) the people that had problems in the first place. In addition, some people may be falsely labelled, by others, as having problems due to the frequency of their play. Consequently, there is not enough evidence to currently make any claims about cause and effect.

However, given that video games are such a popular form of entertainment, and now surpass television as the main leisure pursuit for some demographics (ELSPA 2003), we would expect there to be huge numbers of people experiencing problems if video games were inherently addictive. There are, again, some difficulties in ascertaining levels of problems on these activities, as the media hype surrounding video games has led some people to assume that video games are the cause of some behavioural problems (e.g., delinquent teenage behaviour). These figures are also compounded by the use of inappropriate "addiction" screens or "addiction" criteria, as noted earlier, to classify people as video game "addicts."

However, despite the panic that has ensued we should not forget that millions of people play video games and only a tiny minority appear to experience any kind of problem, whatever the cause. For example, the game *World of Warcraft* is now played by over 8 million people world wide, which is more than the entire population of Denmark. Out of a sample of that size (and that is just one game) it is inevitable that there will be some people

with problems (generally), and they may find that playing games helps them to avoid those problems. Whilst this may not healthy for them in the long run, the case that their game playing is the actual "problem" is by no means proven. Unless it can be shown that the inherent structural characteristics of video games can, in themselves, *cause* problems for relatively large numbers of people, then there is no firm basis on which claims about the "addictive" properties of video games can be made. Wood et al. (2004a) outlined the structural characteristics of video games, and did not identify any which would be regarded as inherently problematic. By contrast, a number of studies have identified the structural characteristics in gambling activities that are associated with patterns of problem gambling behaviour (Dickerson and Baron 2000; Griffiths 1993; Ladouceur and Sevigny 2005; Reid 1986; Strickland and Grote 1967).

To date, there is very little objective evidence that video games are inherently "addictive." At the same time there have been increasing media reports of individuals who appear to be experiencing problems with their game playing behaviour. In response to this concern, video game addiction clinics have begun appearing across Europe and North America. The following four case studies are examples of how this popular view of video game "addiction" can both define and perpetuate a misunderstanding of what constitutes video game "addiction." The following cases were selected as typical of many that the author collected over a period of eight months. Each case has been given a pseudonym and a demographic description (i.e., age, gender, nationality), and details are provided about the origin and source of each case presented. Each case is accompanied by a brief commentary.

Martin

Demographic profile: 11-year-old British male; source of account: author contacted by subject who had seen author talking about video games on a national television programme.

Martin is an only child who did not have many friends, at least not in the "real" world and he spent most of his spare time playing the massively multiplayer online role playing game (MMORPG) *World of Warcraft*. Martin enjoyed playing his game and explained how he enjoyed the various adventures that he was involved in with his gaming friends. Martin was concerned that his parents were trying to stop him from playing as they thought he was "addicted" to the game. He admitted that he did play as much as he could and was happiest when he was playing. However, Martin confided that he was being bullied at school and hated going there. His game playing was his way of coping with the experience, and it allowed him to socialise without going outside and possibly being bullied again. He had not told anyone else about the bullying. His parents noticed his reluctance to go to school, that his teachers were concerned about his performance, and that he was spending so much time on his own in his room playing his game. They believed that the game was the cause of his problems and were threatening to take it away from him. Martin was distraught, not only was he getting bullied, his only escape from the reality of his existence was being threatened. If Martin could not play online with his friends he felt that he would have nothing enjoyable left in his life.

Commentary

Martin clearly had some problems and was playing video games a means of dealing with those problems. In this case the bullying was the real issue, and the game playing was symptomatic of a need to escape from his reality. Whether or not his game playing behaviour was a problem

in itself is not clear, but Martin's parents were making the situation worse by focusing entirely on his game playing. This is a typical reaction of many parents who are concerned about their child's game playing habits. They may not appreciate that game playing itself can be a social activity, and as in this case, may be unaware of other circumstances. Media hype and a lack of understanding about video games has created a fear in parents that games are causing a variety of problems in their children. This is particularly true for parents of teenagers who are having a difficult time, as a lot of teenagers do, and may blame video game playing habits for the difficulties they are experiencing rather than focusing on the wider issues.

Helen

Demographic profile: 32-year-old British female; source of account: author contacted by subject's mother who had seen the author talking about video games on a national television programme.

Helen is a qualified medical doctor who was working in a temporary research position. She was an only child and had always been very close to her mother. However, recently their relationship had broken down and now she appeared to be spending most of her time playing the MMORPG *Final Fantasy* alone in her flat. She had taken several weeks off work, and she refused to see anyone most of the time. Her mother had confronted Helen about her game playing and told her that she should stop playing, which led to a big argument and now Helen refused to see her mother. Through further correspondence it became apparent that Helen had recently gone through a bad break up with a long term partner who had subsequently threatened to commit suicide. Her ex partner blamed Helen's game playing for the breakdown in their relationship.

Helen's mother agreed to try not to focus on the game playing when she talked to Helen as this was causing confrontation. Gradually, the relationship with her mother improved and they began to talk openly again. Helen's mother even went around to her flat and watched Helen play her game. Helen confided that she had been very unhappy in her relationship and that she had begun playing the game as a means of avoiding dealing with her ex partner. She was also very unhappy with her job and was feeling pressure to write research papers which she did not want to write. Playing her game had provided a means by which to cope with everything that was going on in her life, including the confrontation with her mother.

Commentary

In this case the video game was again not the cause of the problem but was instead being used a means of coping with a difficult period in the person's life. By understanding the real reasons for her problems Helen's mother was able to rebuild their relationship and help Helen to come to terms with her issues. By accepting her game playing and through talking to Helen about her life generally, her mother was able to understand Helen's situation, and help her to make practical plans for the future. This case demonstrates that the fear of video game addiction is not just limited to children but can also apply to adults as well.

Bruce

Demographic profile: 42-year-old American male; source of account: author contacted by subject who had read an interview with the author about video games in a national newspaper.

Bruce was concerned about his own video game playing behaviour after seeing news articles about video game "addiction" and wanted to know how he could tell if he had a problem. His wife had suggested to him that he might be addicted due to the amount of time he spent playing his games and the family conflict that it was causing. However Bruce enjoyed playing his MMORPG *Everquest* and did not feel that he wanted to stop playing all together. He did not feel as though there were any other problems in his life other than some conflict with his wife caused by his lengthy gaming sessions. Bruce eventually sat down with his wife and talked about how they could work out a mutually acceptable schedule for game playing that would allow him an appropriate amount of time to spend with his family. Bruce reported back some time later that the new schedule was working out very well and his family relationship had improved dramatically. Both Bruce and his wife no longer had any concerns about his gaming behaviour.

Commentary

This is a classic case of initial bad time management combined with a fear of video game addiction generated by media reports. Bruce and his wife had failed to communicate with each other and the issue of video game "addiction" had caused conflict between them. By openly communicating with each other, and by negotiating a strategy that allowed Bruce to play his game at suitable times, the fear of "addiction" vanished.

Alex

Demographic profile: 10-year-old American boy; source of account: online discussion forum run by parents who were concerned about the effects of video games on their children.

Alex was an only child who had plenty of friends and liked going to school. He had a good relationship with both of his parents and was generally well behaved. His father was a member of the armed forces and was sent to Iraq on a tour of duty for several months. This was the first time that he had been away from Alex for such a long period of time and he bought Alex a PlayStation 2 console before he went away.

Shortly after his father had left Alex's behaviour changed quite dramatically. He become disobedient, was rude to his mother, and began getting into trouble at school. All he seemed to want to do was to play (various) games on his game console. When Alex's mother tried to stop him from playing he became hysterical and she was concerned that he had become "addicted" to playing games after reading an Online article about video game "addiction." This went on for some time until Alex's father returned back, and after hearing about what had happened, took the game console away. Within a short period of time Alex's behaviour had improved again and everything seemed back to normal again. Consequently, Alex's mother was warning other parents of the dangers of letting children play video games.

Commentary

What is particularly interesting about this case is that the parents automatically assumed that the video game was the cause of their son's change in behaviour. Another explanation that was not considered is that their son might have been upset about his father leaving him for a long period of time. The fact that the game console was given to Alex by his father before he went away may also have made it seem more appealing, as a reminder of him.

When his father returned Alex's behaviour subsequently improved. Of course, it is difficult to know what the real reasons for Alex's decline in behaviour were, but the fact that his father leaving was not even considered says much about how the reputation of video games makes them a focal concern for some parents to the exclusion of considering other explanations for their children's behaviour.

General Discussion

These four cases exemplify four groups of people who were labelled as video game "addicts" either by concerned relatives or by themselves. Given the lack of appropriate screening criteria available, it is conceivable that some, or all, of these cases could also have been diagnosed by some clinicians as well. These particular case studies were chosen from many similar examples, because they represent four important factors that need to be considered in the current debate about video game "addiction", these being:

1. That some people are being labelled "addicts" by concerned parents, partners or others, when they have no problems with their game playing behaviour.
2. That some people who have other underlying problems may choose to play games to avoid dealing with those problems.
3. That some people who are concerned about their own behaviour because of either 1 or 2 above end up labelling themselves as video game "addicts."
4. That some people are not very good at managing how much time they spend playing video games.

Theories on addiction are increasingly moving away from a focus on the activity or substance as a causal factor, and are instead suggesting that addiction concerns the interaction between the individual, their culture and their environment. In particular, the notion that activities, or substances, themselves are inherently addictive is being challenged. Instead it is being suggested that addiction is the result of a process (Krivanek 1988), that it involves a complex system of bio-psychosocial factors concerning the individual, their actions, and their culture (Griffiths and Larkin 2004; Larkin et al. 2006), this has also been referred to as a syndrome with multiple opportunistic expressions (Shaffer et al. 2004). This is supported by the finding that there is often a great deal of comorbidity between addictions, and frequently people are often "addicted" to more than one substance or activity (Baker 2000; Black and Moyer 1998; Christenson et al. 1994; Feigelman et al. 1998; Shaffer et al. 2004; Wood et al. 2004). Such findings question the extent to which it is useful to focus on addiction as a property of a substance or activity, when individual bio-psychosocial factors appear to be the key drivers of such behaviour. In other words, by describing different types of addiction all we are actually doing is describing different symptoms (manifested behaviours) of a more underlying problem. This fits with a growing body of evidence that suggests addiction is the manifestation of poor coping abilities, either for dealing with traumatic events (e.g., abuse) or in coping with the stress of everyday life (Gupta and Derevensky 2001; Nower et al. 2004; Scannell et al. 2000; Wood and Griffiths 2007).

Clearly more research is needed to define what the "problem" is, and whether or not we should have any major concerns about video game playing as an inherently problematic activity. However, until this happens clinicians and researchers should be wary of classifying anyone as "addicted" to video games. This is particularly true given the confusion and distress that this can cause parents, partners, friends, teachers etc. There can be life changing consequences for individuals if these people act upon this information.

Nevertheless, it is important to accept that a minority of people do play games excessively, and that this can have negative consequences for them and/or others around them. The evidence so far suggests that genuinely excessive players are likely to have other underlying problems, and/or have inadequate time management skills. Excessive video game playing is therefore likely to be a symptom and not the cause of their problem. Teaching strategies for managing time and providing therapy to address underlying problems could be beneficial for helping some of these people. However, labelling people as video game "addicts" on the basis of inconclusive research findings, does not appear to be a useful way of addressing such problems, and is likely to result in unnecessary misunderstanding and fear. Therefore, raising awareness of these issues is important for helping individuals to more fully understand both the nature of their own game playing, and the gaming behaviour of others.

References

A.P.A. (2000). *American Psychiatric Association, Diagnostic and statistical manual of mental disorders* (4th edn.). Washington DC: American Psychiatric Association.

Baker, A. (ed.) (2000). *Serious Shopping: Essays in Psychotherapy and Consumerism*. London: Free Association Books.

Black, W. B., & Moyer, T. (1998). Clinical features and psychiatric comorbidity of subjects with pathological gambling behaviour. *Psychiatric Services, 49*, 1434–1439.

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

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*(3), 1531–1548.

Christenson, G. A., Faber, R. J., de Zwaan, M., et al. (1994). Compulsive buying: Descriptive characteristics and psychiatric comorbidity. *Journal of Clinical Psychiatry, 55*, 5–11.

Dickerson, M., & Baron, E. (2000). Contemporary issues and future directions for research into pathological gambling. *Addiction, 95*, 1145–1159.

ELSPA (2003). *The cultural life of computer and video games: A cross industry study.* London: ELSPA White Paper.

Feigelman, W., Wallisch, L. S., & Lesieur, H. R. (1998). Problem gamblers, problem substance users, and dual problem individuals: An epidemiological study. *American Journal of Public Health, 88*, 467–470.

Fisher, S. E. (1994). Identifying video game addiction in children and adolescents. *Addictive Behaviors, 19* (5), 545–553.

Griffiths, M. D. (1993). Fruit machine gambling: The importance of structural characteristics. *Journal of Gambling Studies, 9*, 101–120.

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

Griffiths, M. D., & Larkin, M. (2004). Conceptualizing addiction: The case for a 'complex systems' account. *Addiction Research and Theory, 12*, 99–102.

Grusser, S. M., Thalemann, R., Albrecht, U., & Thalemann, C. N. (2005). Excessive computer usage in adolescents—a psychometric evaluation. *Wiener Klinische Wochenschrift, 117*,5–6, 188–195.

Gupta, R., & Derevensky, J. L. (1997). The relationship between gambling and video-game playing behavior in children and adolescents. *Journal of Gambling Studies, 12*, 375–394.

Gupta, R., & Derevensky, L. (2001). *An examination of differential coping styles of adolescents with gambling problems*. Report presented to the Ministry of Health and Long-Term Care, Ontario, Canada.

Krivanek, J. (1988). *Addictions*. London: Allen and Unwin.

Ladouceur, R., & Sévigny, S. (2005). Structural characteristics of video lotteries: Effects of a stopping device on the illusion of control and gambling persistence. *Journal of Gambling Studies, 21*, 117–131.

Larkin, M., Wood, R. T. A., & Griffiths, M. D. (2006). Editorial: Towards addiction as relationship. *Addiction Research and Theory, 14*, 3.

Nower, L., Derevensky, J., & Gupta, R. (2004). The relationship of impulsivity, sensation seeking, coping and substance use in youth gamblers. *Psychology of Addictive Behaviors, 18*, 49–55.

Reid, R. L. (1986). The psychology of the near miss. *Journal of Gambling Behavior, 2*, 32–39.

Salguero, R. A. T., & Morán, R. M. B. (2002). Measuring problem video game playing in adolescents. *Addiction, 12*, 1601–1606.

Scannell, E. D., Quirk, M. M., Smith, K., Maddern, R., & Dickerson, M. (2000). Females' coping styles and control over poker machine gambling. *Journal of Gambling Studies, 16*, 417–432.

Shaffer, H. J., LaPlante, D. A., LaBrie, R. A., Kidman, R. C., Donato, A. N., & Stanton, M. V. (2004). Toward a syndrome model of addiction: Multiple expressions, common etiology. *Harvard Review of Psychiatry, 12*, 367–374.

Strickland, L. H., & Grote, F. W. (1967). Temporal presentation of winning symbols and slot machine playing. *Journal of Experimental Psychology, 74*, 10–13.

Wood, R. T. A., & Griffiths, M. D. (2007). A qualitative investigation of problem gambling as an escape-based coping strategy. *Psychology and Psychotherapy: Theory, Research and Practise, 80*(1), 107–125.

Wood, R. T. A., Griffiths, M. D., Chappell, D., & Davies, M. N. O. (2004a).The structural characteristics of video games: A psycho-structural analysis. *Cyberpsychology and Behavior, 7*, 1–10.

Wood, R. T. A., Griffiths, M. D., & Parke, A. (2007). Experiences of time loss among videogame players: An empirical study. *Cyberpsychology and Behavior, 10*(1), 38–44.

Wood, R. T. A., Gupta, R., Derevensky, J. L., & Griffiths M. D. (2004b).Video game playing and gambling in adolescents. *Journal of Child and Adolescent Substance Abuse, 14*, 77–100.

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.