



September 2012

Manningham YMCA Youth Services



We build strong **PEOPLE**
strong **FAMILIES** strong **COMMUNITIES**

Steven Dupon
Chloe Godau
Josh Clarke
Nick Maroney
John Ling Yee Jung

TABLE OF CONTENTS

Executive Summary	3
1. Introduction	4
2. History	4
2.1 Games development	4
2.2 Video Games industry development	5
3. The internet and social media	5
4. What is gaming?	6
4.1 Game genres	6
4.2 Gaming apparatus	6
5. Profile of a gamer	7
6. Gaming as a positive	7
6.1 Skill development	7
6.2 Educational	7
6.3 Other Positive uses of video games	8
7. Internet addiction	8
8. Video game addiction	9
8.1 definition and symptoms	9
8.2 Prevalence	9
9. Addictive games	10
9.1 More addictive game genres	10
9.2 How are they addictive?	10
9.2.1 Similarities with gambling (Pokies)	10
9.2.2 Online multiplayer games	11
10. Co-morbidity	12
10.1 Physical health	12
10.2 Mental health	12
10.3 Online identity	14
11. Treatment	15
12. Conclusion	15
13. Recommendations	16

EXECUTIVE SUMMARY

Since its inception video games have grown from being a 1970's curiosity into a multi-billion dollar industry, overtaking both music and film industry in global revenue. This extraordinary growth in popularity is attributed to technological developments (e.g. graphics, hardware, concepts), accessibility (e.g. mobile phones, tablets) and the internet introducing a social component to video games. Video games allow players to build a virtual world, create an online identity and connect to others all over the world.

It's important to note that there has been very little research into the impact that video games may have on young people and it seems many research studies contradict each other. It is fair to say that video game playing is firmly embedded in today's culture and can have positive effects including: improved learning and cognitive skill development. However research also indicates that excessive game playing can have a negative influence on a person's life.

Despite consistent anecdotal evidence, video game addiction is not recognized by the DSM. The symptoms of excessive gaming are very similar to gambling addiction; including an inability to stop playing, craving more and more time at the computer, neglect of family and friends, eating irregularities, sleep disturbance, preoccupation with video games when not playing and lying to employers or family about playing habits. Aside from a similarity in symptoms there are more links to gambling. Social networking games (e.g. Farmville, Cityville) utilise gambling principles to hook people to the game and have a similar appearance. Many popular gambling games are now available as a mobile application and often are incorporated in other games making them much more accessible to young people.

Problem video game playing is associated with depression, anxiety, obesity and carpal tunnel syndrome. However there is no conclusive evidence to determine if the video game playing is causal to this co-morbidity or vice versa. Similarly, it cannot be proven whether violent video games cause violence in real life.

The Video Game Report concludes by formulating recommendations for the design of a prevention and early intervention community based youth program.

1. INTRODUCTION

Video games are captivating. They hold our attention like no other medium. They offer a reality in which we can forget ourselves, and our worries. They can make us happy or sad. They connect us to millions of other players who are always ready to play. No wonder nearly all young people play video games. They're fun!

But it seems video games may have a flip side. As a community based youth service we frequently receive calls from parents, teachers and young people expressing concerns about the amount of time young people spend playing video games and how this impacts on their lives. This prompted the service to seek out academic evidence that defines and clarifies the issue of excessive video game playing and its associated harms.

The intention is that the evidence will lead to recommendations that will assist in delivering a community service response.

2. HISTORY

2.1. Games development

The first video game was developed in the 1970's. It was a text-based strategy game similar to the popular real life role-playing games such as 'Dungeons and Dragons'. Soon after 'Pong', the first video game to involve graphics was introduced leading to the development of the famous title "Pacman" in the 1980's (Young, 2009) involving one person playing against a machine.

As technology improved, video games have become more advanced and complex, with realistic imagery and interactive software. A further step in complexity occurred in the 1990's with titles such as 'Doom' involving players customizing their character's appearance, creating interactive rooms and first person shooting experiences (Young, 2009). By the late 1990's more genres were appearing and

players were given the ability to create their own parts of the games. This feature has come to be known as “Modding” (short for modifying) (Young, 2009).

Around this time the internet became more accessible to people at home and video game developers incorporated the internet to enhance the gamers’ experience. ‘Online Video Games’ allow users to play one game with others who are all able to access the game from remote locations such as their homes. This has opened up the opportunity for gamers to connect and cooperate.

The turn of the century brought titles such as “Dark Age of Camelot” (2001) and “Ragnarok online” (2002). These were some of the first MMORPGs (Massively Multiplayer Online Role Playing Games) paving the way for the famous ‘World of Warcraft’, arguably the most famous and infamous MMORPG to date.

2.2. Video Games industry development

Video games have grown from being a 1970’s curiosity into a multi-billion dollar industry. By 2010, the video game industry was worth \$25.1 billion USD (ESA Annual report, 2010) and had overtaken both the movie industry (worth 10.9 billion USD) (Numbers Market research, 2010) and the Music industry (worth 6.3 billion USD in 2009) (CNNMoney.Com, 2009). The continuing globalization of video games provides ongoing inspiration for developers and as a result the industry continues to grow and evolve.

3. THE INTERNET AND SOCIAL MEDIA

The rise of the internet and video games go hand in hand. The internet allows video game players to connect and play together, introducing a social aspect to video games. Gamers say that the only difference between a video game and a board game is that the players don’t physically sit around the same table.

Online social media like Facebook, Myspace, Tumblr elevated this social aspect and have embedded it firmly in today’s culture. Its impacts on social life are argued from

both sides. On the one hand social networking may be beneficial to one's social life because of the ability to continuously stay in contact with friends and relatives. On the other hand it can cause increased antisocial tendencies because people are not directly communicating with each other. Regardless of its social impact, Facebook has 955 million monthly active users and is widely used.

Video game developers use these social media websites as a platform for people to play online video games together. These games are known as social networking games. These games typically feature competitive or cooperative goals and are amongst the most popular games played worldwide. Several of these games contain tens of millions of players each such as "Farmville" and "Mob Wars".

4. WHAT IS GAMING?

A video game is an electronic game that involves human interaction with a user interface to generate visual feedback on a gaming apparatus.

4.1. Game Genres

Video games are categorized into genres. These genres are based on method of game play, type of overarching goals and art (graphic design, style). Some well-established genres are: action, shooters, adventure, role-playing, simulations, sports and strategy games with each genre often containing more specific subgenres.

4.2 Gaming apparatus

Originally video games were played on computers and arcade machines. More recent platforms include consoles such as Nintendo, Playstation and Xbox which extend the gaming options through purpose built controllers and powerful gaming machines. Handheld mobile devices like Gameboy, Ipad Touch and tablets allow the user to play video games away from home. Mobile phones and in particular smartphones make video games more accessible and enable constant internet connectivity to social games and social networking sites.

5. PROFILE OF A GAMER

Video games have become a mainstream source of entertainment. Currently the average age of a gamer is 30 years (ESA) with 68% of gamers being 18 years or older. 94% of children aged 6 – 15 years are playing games regularly. In addition 47% of all players are women with women over 18 years becoming one of the industry's fastest growing demographics. A typical gamer spends an average of seven and a half hours per week playing video games (ESA).

6. GAMING AS A POSITIVE

6.1 Skill development

Developments in technology have seen video games become so realistic and powerful that they can have real life applications. According to New York's Beth Israel Medical Center, surgeons who played video games three hours a week made 37 percent fewer errors than non-players in laparoscopic surgery simulations which involve joystick controls. In addition, professional race car drivers consider the video game representation of 22 race tracks in the Nextel Cup Series so accurate that they often perform virtual test runs in the days leading up to races.

6.2. Educational

Video games have also been found to be beneficial in delivering information and teaching new skills. Researchers such as education Professor Dr. James Paul Gee, of the University of Wisconsin has found that video games combine instruction and demonstration, making it an effective learning technique.

According to a recent study conducted by researchers at the University of Michigan, video puzzle games that exercise children's working memories can also improve their abstract reasoning and problem-solving skills,. Furthermore, a study conducted by scientists at the University of Rochester found that video games can improve players' vision, attention and certain cognitive skills. Participants in this particular

study performed better than non-gamers on tests of speed, accuracy and multitasking.

6.3. Other positive uses of video games

There is some evidence that suggests that video games have positive effects for those experiencing psychopathology such as depression. A New Zealand research group developed a fantasy game called “SPARX” or “Smart, Positive, Active Realistic X-Factor” as a means of delivering cognitive behavioral therapy to combat depression in teens. Players controlled their customizable avatar to defeat “GNATS” or “Gloomy Negative Automatic Thoughts”. The results of the experiment suggested that playing this game was as effective, if not more so, than usual counseling (Healthland time.com; The Atlantic Newspaper.com; News.com.au). While controlled levels of video gaming have been proven to produce positive benefits for users, some gamers experience symptoms of addiction.

7. INTERNET ADDICTION

As computers and internet use becomes a normal part of daily life in the developed world, problematic use has been found to lead to what some refer to as Internet Addiction. Although Internet Addiction is not yet a recognized disorder by the Diagnostic and Statistical Manual of Mental Disorders (DSM), it has acquired a wide range of professional and academic support as a clinical disorder that requires treatment. As internet addiction is not yet a DSM diagnosis, it has no official definition but symptoms and behaviours certainly fit with the DSM-IV criteria for addiction and obsession. Researchers such as Young (2009) found that internet addiction share many similarities with substance addition such as withdrawal, cravings and negative life consequences.

There are academics who argue that internet addiction should not be included in the DSM, stating that internet addiction is not a true addiction and may in fact be a symptom of an existing disorder. They support their argument with evidence that suggests approximately 86% of Internet addiction cases have been linked to another DSM-IV

diagnosis (Block, 2008). Although the counter argument could be that dual diagnosis is common, in particular the correlation between drug and alcohol addiction and a range of mental health conditions.

The issue is still highly debated and more research on the issue will need to be conducted before reaching a conclusion.

8. VIDEO GAME ADDICTION

8.1. Definition and symptoms

Similar to Internet addiction, there is no agreed upon definition for gaming addiction due to it not yet being recognised as a disorder by the DSM. However it is generally accepted that video game addicts suffer from extreme usage of computer and video games that interferes with their daily life and has negative social consequences.

Video game addicts may exhibit symptoms similar to drug addicts or other behavioural addictions such as gambling. Examples of symptoms are an inability to stop playing, craving more and more time at the computer, neglect of family and friends, eating irregularities, sleep disturbance, change in sleep pattern, preoccupation with video games when not playing and lying to employers or family about playing habits.

8.2. Prevalence

In a survey of 4028 adolescents (Desai, Krishnan-Sarin, Cavallo & Potenza, 2010) , 51.2% (2062 adolescents) reported that they played video games and of those, 4.9% (101 adolescents) reported that they have problems with gaming such as trying to cut back and experiencing an irresistible urge to play. The survey found that males are more likely to report these problems (5.8%) than females (3.0%).

In an article written by Hagedorn and Young (2011), they stated that 90% of American youths play video and/or online games, with approximately 10-15%

meeting criteria for addiction, the majority of whom are male (Chak & Leung, 2004; Griffiths & Hunt; Grusser, et al.; Khan as cited by Hagedorn & Young, 2011).

9. ADDICTIVE GAMES

9.1. More addictive game genres

There are two genres that are undeniably more addictive than the other genres and they are Massively Multiplayer Online Role Playing Games (MMORPGs) and Casual Games often played on Social Networking sites.

MMORPGS are games which are run continuously in real time and feature social and competitive aspects, making devotion to the game mandatory. Traditional video games would end at some point or become repetitive and boring, whereas MMORPGS are endless, featuring a continuous system of goals and achievements. Players experience feelings of reward and success when their characters “level up” from one level to the next while collecting valuables and weapons making them stronger and more skilful.

Casual Games are games that can be played through web browsers on social networking sites or mobile platforms such as iPads or mobile phones. They are similar to MMORPGS in that there are social and have competitive aspects but unlike MMORPGS, they’re cheaper, easier to play and are designed to be played casually with minimal effort.

9.2. How are they addictive?

9.2.1. Similarities with gambling (Pokies)

It has been argued that video games and gambling have more inherent similarities than differences, enhancing the evidence and providing evidence based examples of another non-substance behavioural addiction. One researcher has described video gaming as a “non financial form of gambling, playing for points instead of money” (Griffiths, 1991, 2005d). This is why many

researchers have adapted gambling screening measures and have applied them directly to video game addiction. An example of this are players who are addicted to Farmville and would keep on playing it to gain a higher rank as well as spend real money to obtain virtual money to buy in-game items.

Video games have been compared to gambling in a number of studies in reference to the psychological mechanisms used to draw in users. Both have also proven to be used as a means of coping with real life problems by immersing one's self in either gambling or gaming as a means of escapism.

One of the theories surrounding problematic gambling suggests that people can be naturally under stimulated. This is a consequence of excessive levels in Norepanephrine and potential shortages in Serotonin and/or Dopamine. This can result in the person needing more of a "buzz" in their life and the thrill of gambling can offer this, the same applies for video games. Physiologically gaming and gambling have been said to attract those that are more vulnerable and sensitive to rewards that stimulate excessive levels of dopamine, thus making players more likely to chase rewards or gamblers to continue betting.

Further similarities include the intervals of reinforcement, such as the spacing of rewards in both gambling and gaming. Gambling like gaming employs other strategies outside of instant gratification; rewards are also given in small amounts at such a pace to keep the user interested and not feeling their efforts are futile.

9.2.2. Online multiplayer games

As mentioned earlier, online multiplayer games such as MMORPGS are one of the most addictive forms of games today. In a standard MMORPG, there is no ending and the concept of "randomized loot" has been found to enhance its enticing effect. Randomized loot is when defeated monsters "drop" a random item that only one type of character can use and requires all players to continue playing for a chance to get what they desire. This is argued to be a gambling mechanism due to the continued time investment and uncertain outcome. The most popular MMORPG is World of Warcraft (WOW) with over 11 million paying

subscribers worldwide and even Blizzard Entertainment, the company that made WOW, recognises the potential addictive qualities of its game. In 2007, they posted warnings about gaming excessively within the game itself such as 'Take everything in moderation (even World of Warcraft)' and 'Bring your friends to Azeroth, (Azeroth being the name of the world within the game) but don't forget to go outside of Azeroth with them as well'.

10. CO-MORBIDITY

10.1. Physical health

There is a significant correlation between video game addiction and physical health issues as a direct result of prolonged excessive use. Studies have found that as screen time tends to increase, so do levels of obesity due to constant snacking and low levels of physical activity (He, et al, 2009). Excessive play can result in sleep deprivation due to time spent by the user attempting to advance further in the game or to continue socialising with other users. In addition to sleep deprivation (insomnia is a common symptom) and obesity, joint and back problems such as carpal tunnel syndrome or knee problems from inactivity or poor ergonomic practices.

As gaming becomes a significant priority in the users life there are associated social and mental health ramifications. Addicts tend to withdraw socially and there is often an associated impact on the individual's performance at work or school.

10.2. Mental Health

Video game addiction has been found to be linked to several types of psychopathology, including depression, anxiety and social anxiety. There is conflicting evidence as to the direction of the relationship between video game addiction and mental health, none the less there is a strong association. Similar to the correlation between mental health and drug or alcohol addiction, it is often difficult to differentiate or even determine if one caused the other.

There is evidence to suggest that a person who is depressed, lonely or socially anxious uses video games to cope with these problems. For the socially anxious, it is a means for them to interact with others where they can control and edit what they say rather than having to think on the spot, where they can't be judged on non-verbal behaviour or can log off if they begin to feel anxious. For the depressed, it is a means of distracting them from major life issues. If you feel that you are not accepted by others or fail to achieve goals in real life, then video games offer an outlet where you can create a character that allows you to achieve all of this inside the game (Yee, 2002). Finally, for the social isolated (lonely), video games offer a means of interacting with others and a platform to build relationships even if they are not face to face, they can be who they want to be online without fear of judgement.

Considering the evidence it may be suggested that psychopathology is a strong catalyst for excessive video game use. Furthermore, there is suggesting that as the amount of time spent playing video games increases, so do symptoms of psychopathology. This is suggested to be due to a lack of interaction with others therefore increasing feelings of social anxiety when confronted with reality. Users have experienced feelings of depression when being forced to be separated from the game which often continues to escalate as the individual becomes more detached and they neglect their lives outside of gaming. Evidence suggests that users tend to invest significantly more time and effort into maintaining their relationships online than in the real world. As a consequence of this, when users are separated from these meaningful online relationships they have a heightened sense of social isolation.

As with other known addictions distinguishing between heavy usage and addiction becomes apparent when considering the impact on the individual. To illustrate this, Griffiths (2010) examined two case studies: both subjects were gaming for the same excessive amount of time, but while one case had some of the typical symptoms of gaming excessively, such as marriage breakdown, depression and

most importantly an inability to stop. None of these were present in the other case (Griffiths, 2010).

Due to problematic gaming being an evolving and relatively new area of research it has not yet been recognised by the DSM as an official psychiatric disorder, although the current research certainly suggests that the symptoms, causes, consequences and behaviours are incredibly similar to other addictions such as gambling.

10.3. Online identity

An online identity or internet persona is a social identity that an internet user establishes in online communities and websites. Particularly multiplayer games require an online persona and often players invest months into building their persona's skills and attributes. Video game players often get emotionally attached to their online persona and grieve when this is lost.

The concept of the personal self is subject of research in fields such as psychology and sociology. The online disinhibition effect is a notable example, referring to a concept of unwise and uninhibited behaviour on the internet, arising as a result of anonymity and audience gratification. Furthermore, escaping from real-life problems can be further achieved by immersing one's self in the typically rich and deep stories/background that surrounds video games (especially MMORPGs).

Forming social relationships over the internet or through video games is considered easy due to the absence of immediate feedback, body language and eye contact from the other person. One may wonder about the impact on young people's social skills development when more and more young people connect online and not in real-life.

Online identities are usually anonymous which can lead to social experimentation. This can be positive for minority groups to find likeminded people: e.g. the gay community. It can also lead to abuse, misrepresentation and generally asocial behaviours.

11. TREATMENT

There has been little research into treatment for video game addiction with some methods more practical than others. Of the research that has been undertaken, Cognitive Behaviour Therapy has been found to be the most effective on a practical level, however, these are very controlled experiments thus it is difficult to generalise the results. Han, Hwang and Renshaw (2011) examined the effects of Bupropin, a neurochemical that slightly inhibits dopamine release, and found that it was very effective in controlling video game cravings. While this may be effective it is not practical, or arguably ethical to release a drug on the market to control gaming addiction. King and Delfabbro (2009) found self-empowerment is essential to break the addiction to increase self-esteem and self-worth and to alleviate feelings of depression that may underpin the addiction. In addition, they suggested a sense of belonging can help break reliance on video games. This could be due to nullifying the effects of self-anxiety or loneliness that can cause the addiction in the first place.

12. CONCLUSION

There is mixed evidence as to whether video games are constructive or destructive. This paper contends that video games are not inherently harmful to users, but become so as a result of them being used as a coping mechanism. Similar arguments have been found with other non-inherently addictive, or damning activities that have been recognised as addictions (sex, exercise, coffee, food to name a few). Video games are now one of the leading forms of popular media today with projections showing ongoing growth and uptake. Both the positive and negative impacts of gaming cannot be ignored, an early intervention approach is suggested in order to obtain the best long term benefits for those showing symptoms of video game addiction.

13. RECOMMENDATIONS

- **Youth Workers to increase their understanding of the online video gaming platform and the risks associated with excessive gaming.**
 - o *90% of young people play video games and the gaming industry continues to grow exponentially. Video games have become an integral part of youth culture.*
- **To maintain a positive dialog with young people when talking about video games and online interactions**
 - o *There is conflicting research on whether video games are 'good or bad' making it important for youth workers to embrace gaming rather than diabolise it. Ultimately youth workers need to engage young people who socially isolate themselves and so a positive approach will be paramount.*
- **Utilise online platforms to form relationships with young gamers.**
 - o *Instead of forcing young people out of their comfort zone, i.e. the online world, youth workers need to operate where the young person is most likely to engage with the youth worker. These online platforms can be: websites, forums, interactive multiplayer games, MMORPG's, social media sites like facebook, youtube, pinterest, foursquare.*
- **Increase social connections and real-life interactions when a young person plays games excessively, i.e. when gaming has a negative impact in their life.**
 - o *There is a high prevalence of co-morbidity amongst young people who game excessively. To effectively support young people with their mental health issues the youth worker should endeavour to increase real-life social connections and links to appropriate support services. Successful relationship building on the online platforms will be a crucial factor in achieving this.*
- **In case of gaming addiction, refer to a health professional experienced in Cognitive Behavioural Therapy and familiar with addictive behaviours.**

- Treatment for video game addiction is similar to treatment for gambling addiction. Unless the Youth Worker has the qualifications to do so, it is best to leave treatment to specialists.
- **Raise awareness and provide education to young people and their families about the potential dangers of online interactions and gaming.**
 - We need to raise awareness about:
 - Games that groom young people to gambling, others use the principles of gambling to 'hook' their players.
 - Online personas and the disinhibition effect and how this affects young people, their psychological development and the interactions they have online.
 - The relationship between screentime and obesity
 - Managing a healthy lifestyle that includes video games, but also identifies possible addictive behaviours
 - Increase understanding of parents and carers about video games to achieve better communication between them and their children.

Reference List

The Atlantic newspaper; <http://www.theatlantic.com/health/archive/2012/04/a-video-game-designed-to-treat-depression-worked-better-than-counseling/256324/>; Retrieved 25/06/2012

Block, 2008, *Issues for DSM-V: Internet Addiction*, Am j Psychiatry, 165;3.

CNN Money (2009);

http://money.cnn.com/2010/02/02/news/companies/napster_music_industry/; Retrieved 25/06/2012

[Desai RA](#), [Krishnan-Sarin S](#), [Cavallo D](#), [Potenza MN](#), 2010, *Video Gaming amongst high school students: Health correlates, gender differences, and problematic gaming*, Pediatrics,;126(6)

The Electronic Software Association; <http://www.theesa.com/facts/index.asp>. Retrieved on 25/06/2012

The Electronic Software Association; <http://www.theesa.com/games-improving-what-matters/education.asp>; Retrieved on 25/06/2012

Global Post; <http://www.globalpost.com/dispatch/news/health/120731/sparx-new-video-game-designed-help-combat-teen-depression>; Retrieved 31/7/2012

Griffiths, M. D. (1991), *Amusement machine playing in childhood and adolescence: A comparative analysis of video games and fruit machines*. Journal of Adolescence, 14, 53–73.

Griffiths, M. D. (2005), *A “components” model of addiction within a biopsychosocial framework*. Journal of Substance Use, 10, 191–197.

Griffiths, M.D. (2010), *The Role of Context in Online Gaming Excess and Addiction: Some Case Study Evidence*, International Journal of Mental Health and Addiction, 8:119–125

Han D.H, Hwang, J.W., Renshaw P.F, (2011) Bupropion sustained release treatment decreases craving for video games and cue-induced brain activity in patients with internet video game addiction, Psychology of popular media culture, Vol. 1, P 108 - 117

He M, Piche L, Beyon C, Harris S, (2009) *Screen-related Sedentry behaviours: Children and parent’s attitudes, motivations and practices*, Journal of Nutrition, Education and Behavior, 42;1. Pg 17-25

Health land Time; <http://healthland.time.com/2012/04/20/study-playing-a-video-game-helps-teens-beat-depression/>; Retrieved 25/06/2012

Hagedorn and Young, 2011, *Identifying and intervening with students exhibiting signs of gaming addiction and other additive behaviors: Implication for professional school counsellors*, American School Counselor Association, 14:4

King D., Delfabbro P., Understanding and assisting excessive players of video games: A community Psychology perspective, The Australian Community Psychologist, 21;1, P 62 - 74

Nash Information Services; <http://www.the-numbers.com/market/>, Retrieved on 25/06/2012.

Yee, N (2002) *Ariadne – Understanding MMORPG Addiction* ,<http://www.nickyee.com/hub/addiction/home.html>. Retrieved 25/06/2012

Young, K., (2009) *Understanding Online Gaming Addiction and Treatment Issues for Adolescents*, The American Journal of Family Therapy, Vol 37, P 355 – 372

CONTACT

If you wish to receive more information around video games and its impact on young people, or wish to stay up to date on the prevention and early intervention program please contact:

Steven Dupon

Manager Manningham YMCA Youth Services

Manningham YMCA Youth Services

Suite 8, Level 2 Manningham City Square MC²

687 Doncaster Road, Doncaster VIC 3108

Ph: 039848 5400 Fax: 039848 7455

Email: steven.dupon@ymca.org.au

Web: www.manninghamymcayouthservices.org.au



This report was made possible through a community development grant of Manningham City Council.

