

Helping parents make sense of video game addiction

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Abstract: Digital technologies, including video games, are the cause of much concern and much optimism. Many parents are concerned by reports in the popular press about the concept of video game addiction. This chapter aims to critically examine some of the most prolific concerns surrounding the concept of video game addiction and provide a discussion of the science behind such concerns. Among the concerns discussed in this chapter are 1) the idea that increasing amounts of time spend playing is a symptom of addiction, 2) the notion that video games are forms of digital substances akin to cocaine or heroin, 3) the concern that Internet descriptions of symptoms can be used for diagnostic purposes, and 4) the concern that video games necessarily have negative consequences. We argue that the term “addiction” is not well suited to describe children’s involvement with digital media.

Keywords: Gaming disorder, Internet gaming disorder, video games, addiction, children, digital media, digital games.

1. Introduction

In 2005 the number of internet users in the world was estimated at 1 billion, or just below 16% of the world population. Today, 13 years later, that number has increased to over 3 billion, or around 43% of the world population, marking an exponential increase in the number of internet users worldwide (ITU, 2017). According to recent global estimates, approximately one in three internet users is a child and child internet users now outnumber adult users in many parts of the world (Livingstone, Carr, & Byrne, 2016). It is clear at this point that access to and use of digital technology has a transformative potential for children. As former Special Rapporteur on

Freedom of Expression, Frank La Rue, stated in his address to the UN General Assembly in 2013, digital technologies such as the internet not only enhances opportunities for communication and freedom of expression, but it can also serve as a tool to help children claim their other rights, including the right to education, freedom of association and full participation in social, cultural and political life. Therefore, internet should be recognized as an indispensable tool for children.

However, amidst the optimism surrounding the proliferation of digital technology there is also growing concern that children's engagement with the internet may affect their lives and well-being negatively. Understandably, parents are increasingly concerned as children spend more and more time on digital technology, as childhood is characterized by a number of social, biological, cognitive and psychological changes that are critical for children's future development (George & Odgers, 2015). That children spend a significant amount of their time with digital technology during this critical developmental period may seem worrying to many parents, and arguments have for example been made by some academics that children these days are interacting more with their phone than each other, which causes them to miss out on important social experiences (Turkle, 2011). Indeed, many parents today feel unable to adequately support their children as they use digital technology, while at the same time recognizing the many benefits it can bring them (Kardefelt-Winther, 2017; Phyfer, Burton, & Leoschut, 2016). It is clear in this respect that parents face an increasingly difficult task as they need to parent their children in a digital age without necessarily having the confidence or perceived skills to do so.

One of the explicit purposes of this book is to make this task slightly easier, by providing an overview of research evidence regarding many of the common claims about harmful effects of digital technology, with a specific focus on video games. In this chapter, we will focus on one of the more common and persistent debates around video games: the question

of whether video games are addictive. This particular question has received plenty of attention in the scholarly community over the past several decades, resulting in a great number of published research articles, books, and new journals dedicated to this topic. However, we argue that the scholarly community involved in gaming addiction research has become too inward-looking, more concerned with producing studies for the academic community rather than engaging with the very real questions and challenges that some families experience. One example is that the research community for the past decade has focused on determining whether excessive video gaming can be considered addictive in a way similar to substances, but far less attention has been paid to the more pertinent question of whether excessive video gaming is actually harmful in the longer term (Kardefelt-Winther, 2017). This is unfortunate, as the relevance of the former question depend directly on the findings of the latter. Furthermore, it is the question of whether excessive gaming is actually harmful that parents – and in some respect wider society – grapple with on a daily basis, as they see their children spend increasing amounts of time playing video games but lack robust research to determine whether this is good or bad for them.

In a day and age where video games form an important part of children's lives, the message that video gaming is addictive can have unintended consequences. Indeed, scholars warn that immersion and engagement with video games is frequently misinterpreted as addiction (Cover, 2006; Charlton & Danforth, 2007), which might be used as an excuse to restrict access and undermine children's rights. As La Rue notes, while nobody questions the importance of protecting children from harm, too often the possible risks are overstated and used as an excuse for various restrictions (2013). In this respect, it is clear that our perspective on children's engagement with video games matter: if we believe that video gaming is potentially addictive, then we might consider professional treatment or restrictions for those who play excessively. On the other hand, if we believe that sometimes playing extensively is

part of a new way of life that adults have yet to fully understand, then restrictions might be ineffective or even harmful for children, limiting their opportunities to benefit from digital technology (for an overview of the positive effects of games see e.g., Granic et al., 2013).

In the following sections, we outline three concerns that are commonly voiced by parents who worry that video gaming might be addictive and harmful for their children. We then present research evidence that can shed some light on the relevance of these concerns. Our position is that the evidence base in support of gaming addiction as a concept and as a mental disorder similar to alcohol and substance use disorders is considerable in size but severely lacking in terms of theoretical quality and methodological rigor. We will expand on our position in the next sections.

2. Common concerns

“My children spend all of their time playing video games. Clearly this is addictive behavior!”

It makes intuitive sense that children who play video games a lot do so at the expense of other activities; after all, there are only so many hours in a day. This might lead to the concern that children who play computer games fail to engage in other activities which are needed in order to become well-formed individuals. However, this common-sense conclusion might not hold true. In an early study, Kevin Durkin and Bonnie Barber (2002), in a sample of 16-year-old high school students, found no evidence of negative effects of computer game play. To the contrary, they found that computer game playing high school students scored higher on measures of positive psychological development than did their non-playing peers. Since this study was correlational in nature it impossible to say whether well-adjusted students are drawn to computer games or whether playing computer games contributes to making students more

well-adjusted. For the purposes of the study, the researchers divided students into three groups: those who never play computer games, those who play a little, and those who play a lot. The striking result was that the two groups of students that played computer games, when compared to their non-playing counterparts, appeared to be closer with their families, more involved in social activities, more engaged with school, had stronger ties to friends, used less psychoactive substances, held better self-concepts, and were less disobedient. This research, and more like it, are examples of evidence that goes against the commonly held beliefs that video games make people less active, socially inept, and overweight. Similarly, Przybylski (2014) found in a study of 10-15 year olds that playing video games for less than an hour every day was associated with many benefits, such as higher life satisfaction and prosocial behavior, but lower levels of conduct problems, hyperactivity, peer-problems and emotional problems. These results are in line with a recent large-scale, pre-registered study with 120,000 15-year old British children by Przybylski and Weinstein (2017), who found that children who spent a moderate amount of time playing video games every day had higher mental well-being than children who did not play at all. However, it's worth noting that the positive effect of playing a moderate amount of video games was weak. Overall, gaming appears to have little relationship with well-being, whether positive or negative.

Durkin and Barber (2002) argue that computer games may play a positive role in youth development because they offer unique opportunities to engage with intrinsically motivating challenges, which follows on Przybylski's (2014) suggestion that computer games may function similarly to traditional forms of play. To achieve a different understanding of video games, parents might try to talk to their children about how video games provide similar experiences as activities they themselves are more familiar with; we would argue that video games to some extent can have the same positive influence on the younger generations that

older generations more commonly associate with being in a band, playing sports on an athletic team, or playing chess (which, of course, many in the younger generation still do!).

No activity is healthy in excess, of course, and any activity can evolve to become an obsession. The question is whether or not an activity or substance is harmful in and of itself. While we are not trying to promote excessive behavior of any kind, we do maintain that there is little evidence to support the claim that extensive video gaming is inherently harmful for children's well-being (see Kardefelt-Winther, 2017 for a review). This is not to say that future research will not find negative effects of some kind, only that the evidence as yet is not good enough, which we will illustrate further in the next section. As this question receives increasing attention, we recommend researchers to focus on whether excessive behaviors in general are the cause of a problem or a symptom of an underlying problem (see e.g. Bean, Nielsen, Rooij, & Ferguson, 2017; Kardefelt-Winther et al., 2017), as this determines how we might best help children achieve a good life balance (Kardefelt-Winther, 2017).

“Playing video games is unhealthy. It does not matter whether they are addictive or not, children should play as little as possible and preferably not at all.”

Most research on video game addiction does not follow their subjects over time; research articles usually take the form of a questionnaire study that probes physical and psychological well-being as well as gaming behavior. Some of these studies find a correlation between playing video games and negative psychological states. Others fail to find such a correlation. Very few longitudinal studies (i.e. studies that follow people over a period of time) exist. One such study from the United Kingdom investigated whether time spent watching TV and playing video games at age five predicts psychosocial adjustment at age seven (Parkes, Sweeting, Wight, & Henderson, 2013). The study found that children who watched TV for three hours a day or more at age five were slightly more likely to exhibit conduct problems at age seven than those who

watched less than an hour of TV, although this effect was very small. The study did not find any such correlation for playing electronic games. Neither TV nor electronic games were associated with changes in hyperactivity, inattention, emotional symptoms, peer relation problems or prosocial behavior. Of course, all such studies come with limitations, but it does indicate that electronic games may not play a causal role the mental health of children.

It may be, as one study has shown (Przybylski, Weinstein, Ryan, & Rigby, 2009), that high amounts of time spent playing is only associated with negative psychological outcomes for players who play obsessively because of low levels of need satisfaction in their off-screen life; not for players who play for high amounts of time due to harmonious passion. A large scale longitudinal study found that, not only did none of the respondents who met a diagnostic threshold for “Internet gaming disorder” meet those criteria six months later, but also that meeting that diagnostic threshold did not predict lower levels of health at the time of the follow-up (Weinstein, Przybylski, & Murayama, 2017). The study also found that those who exhibited more symptoms of being addicted to video games at the beginning of the study did not report changes in the levels of social or physical activity at the end of the study. These, perhaps surprising results from an American sample, are in line with those of a large longitudinal study of a German sample that could not link ‘problematic gaming’ with differences in life satisfaction (Scharnow, Festl, & Quandt, 2014). Weinstein and colleagues (2017) argue that video games only indirectly affect mental and physical health if they undermine basic psychological needs. This pattern was found also in a cross-sectional study of online gamers and online gamblers, suggesting that problematic online engagement in general may occur because individuals are looking to compensate for something, or as a form of self-medication (Kardefelt-Winther 2014a, 2014b). We carefully suggest that one reason for why studies fail to find direct correlations between ‘video game addiction’ and poor health may be because video games, unlike most substances, are not harmful in and of themselves. A qualitative study

of the experiences of ‘pathological video game players’ found evidence to suggest that playing *World of Warcraft* (Blizzard Entertainment, 2004) can be experienced as a successful coping strategy to deal with anxiety (Nielsen, 2015). It is clear that video games, like drugs, can be used as tools for coping with psychosocial challenges. But unlike drugs, video games do not seem to be harmful in and of themselves, even though some people under some circumstances may exhibit somewhat excessive and possibly unhealthy usage patterns. In this sense, video games appear to be no different than other interests or hobbies. It has yet to be demonstrated by rigorous research that games cause more problems than other leisure pursuits (van Rooij et al., 2018). This is one reason why some researchers prefer not to use the label of ‘addiction’ for video games, reserving it for substances that have a direct negative physiological impact on the body.

Looking at the scientific literature on the subject as a whole, we can determine that claims about negative long-term consequences of video game playing are not well substantiated. Partly this is because of the lack of longitudinal studies, but also because some studies find an association between poor mental and physical health and high levels of playing while others do not. Given the evidence at hand we tend to agree with Kowert and colleagues (2015) who argue that that online games do not have negative effects on the psychosocial wellbeing of their players. They find that individuals play online games to compensate for preexisting difficulties and may in some cases lead to problematic outcomes, but they may also experience a net benefit. Taken together, we suggest that parents should concern themselves with the overall well-being of their children rather than focusing only on the time they spend on video games. For parents of children who seemingly spend an excessive amount of time playing, we suggest that they first talk to their children about their lives in general, initially leaving their concerns about video games aside.

“I took an online test that shows that my child is addicted to video games!”

It is easy to find online tests, questionnaires or even apps that offer laypeople a way to quickly figure out if they, or someone they know, are addicted to video games. These web resources give the false impression that video game addiction is an officially recognized disorder. However, this is only a half truth. While video game addiction is officially recognized as a disorder in some Eastern countries, such as China, according to the American Psychiatric Association (2013), it is still not recognized as a mental disorder in the West. The only officially recognized behavioral addiction is gambling. Though people often claim to be addicted to sex, work, food, exercise etc. these are not officially recognized disorders. Indeed, the claim that behaviors might be addictive is “a highly controversial topic” even according to the researchers who created the category for these “behavioral addictions” (Petry & O’Brien, 2013, p. 1187). We fear that creating such categories and diagnoses without strong evidence will become self-fulfilling prophecies. We, and other scholars, have argued that applying diagnostic criteria from substance use disorders (or chemical addictions, in layman’s terms) is an inappropriate way to investigate a new phenomenon as it is confirmatory rather than exploratory in nature (Aarseth et al., 2016; Bean et al., 2017; Kardefelt-Winther et al., 2017; van Rooij et al., 2018). The World Health Organization (WHO) is set to publish the 11th edition of the International Classification of Diseases (ICD-11) in 2018. The ICD is a manual that describes all currently recognized disorders. The current draft includes two categories related to video games an addictive disorder called “gaming disorder” and a category for people who are at-risk called “hazardous gaming” (World Health Organization, n.d.). This has spawned considerable debate in the scientific community, with some researchers opposed to, and others in favor of, this new diagnostic category. Those who are in favour of the diagnostic category argue that it will reduce stigma around excessive gaming and benefit patients because it makes them eligible for insurance and financial support for treatment services. Those who argue against the disorder point to the lack

of evidence that the disorder classification is accurate and meaningful, as well as caution against pathologizing a popular hobby as this may increase stigmatization of millions of regular gamers. The debate is still ongoing and seems difficult to resolve, as the two camps tend to prioritize different aspects of the debate. This polarization is not new. In fact, research on video game addiction has been controversial from the beginning. Research started from the premise that video game addiction existed and that it could be measured using questionnaires developed for substance and gambling addiction. In other words, initial research started by trying to confirm that some people in the population exhibited certain symptoms that they assumed would represent video game addiction, rather than exploring which symptoms a video game addict might experience. Many researchers since have argued that this approach was entirely inappropriate for exploring a new mental disorder (Billieux, Schimmenti, Khazaal, Maurage, & Heeren, 2015; Kardefelt-Winther, 2017). Screening or diagnosing people for behavioral addictions using diagnostic criteria alone is ill-advised because it will without a doubt result in false positives (i.e. labelling people who are not sick as being sick). This is because there are other requirements that have to be met in order for something to be classified as a disorder. According to the DSM-5, a mental disorder is characterized by clinically significant disturbance in the way an individual thinks, regulate their emotions, or behaves. This disturbance needs to be a reflection of psychological, biological, or developmental dysfunction, which is not easily captured outside of a formal clinical interview. Furthermore, mental disorders are usually associated with significant distress in social, occupational, or other important activities. Importantly, an expectable or culturally approved response to a common stressor or loss, such as the death of a loved one, is not a mental disorder: “Socially deviant behavior (e.g., political, religious, or sexual) and conflicts that are primarily between the individual and society are not mental disorders unless the deviance or conflict results from a dysfunction in the individual, as described above” (American Psychiatric Association, 2013, p. 20).

Therefore, while some researchers believe that video game addiction exists and that the evidence behind the disorder is sound, others claim that most of the existing evidence stands on such shaky grounds that it should not be used to inform policy or treatment, or even be used as a starting point for future research. In our view, what has been lacking in the field from the beginning are qualitative investigations with regular and excessive gamers and their families focused on their lived experiences, which is necessary to draw out an accurate description of the concept of video game addiction. We are only aware of one such study, which found that people who are passionate about games are easily mislabeled as addicts (Nielsen, 2015). This suggests that online questionnaires or diagnostic apps directed at the public are unreliable, and also influences negatively the validity of most researcher-led population-based surveys. For this reason, some researchers have criticized the field for basing too many of its assumptions on unreliable survey data and argue that the existing evidence base is flawed (Billieux et al., 2015; Kardefelt-Winther et al., 2017; van Rooij & Kardefelt-Winther, 2017).

“Video games are digital cocaine. They hi-jack the brain’s reward system (actually the dopamine system), so they are addictive by design.”

Modern science’s interest in the neurological underpinnings of pleasure can trace its roots back to the 1950’s and an accidental discovery made by two young psychologists, James Olds and Peter Milner (Gade, 2002). Olds and Milner stumbled on what Olds would later call ‘pleasure centers in the brain’ (Berridge & Kringelbach, 2015) when they accidentally inserted an electrode into the wrong area of a rat’s brain. Given the ability to stimulate itself, a hungry rat would choose electrical stimulation over food (Berridge & Kringelbach, 2015) and some would continue to the brink of death from exhaustion. The areas of the rat brain that elicits this type of behavior are areas where electrical stimulation causes surges of dopamine release. Dopamine is also released in the human brain when stimulants such as cocaine are ingested. The parallel

between rats who push levers in order to get electrical stimulation and people who give up everything they have for drugs was too obvious to ignore. For many years it was believed that the psychological experience of pleasure was mediated through dopamine release. When researchers demonstrated that dopamine was released when people play video game to earn money (Koepp et al., 1998) many researchers took this as evidence of the mechanism that causes video game addiction. It seemed obvious that a link should exist between the euphoric rush of drugs and drug addiction to the euphoric rush of playing video games and video game addiction. For many years, dopamine was the prime candidate for such a neurobiological link. Textbooks were written describing dopamine as the pleasure hormone. However, those textbooks now have to be rewritten.

The idea, that dopamine is the brain's pleasure mechanism, is known as the "dopamine hedonia" or "dopamine pleasure" hypothesis (Berridge & Kringelbach, 2015, p. 15) and was put forward by Roy Wise in the 1980's. By the mid 1990's, however, Wise had already abandoned the hypothesis and no longer believed that the amount of experienced pleasure was proportional with the amount dopamine secreted in the brain. With Wise, the field of neuroscience has all but completely abandoned the idea that dopamine release alone causes pleasure (Berridge & Kringelbach, 2015). In a recent review of 40 years of research on the dopamine theory of addiction, Nutt and colleagues (2015) confirmed that the release of dopamine was unlikely to be solely responsible for the euphoric feeling of taking drugs. However, even if dopamine was solely responsible for substance addiction, video game play does not cause a dopamine release as strong as cocaine or methamphetamine. Rather, it is on par with other pleasurable behaviors, which means that if the dopamine theory of addiction holds for video games, it would also apply to all other behaviors we find pleasurable. Clearly, this is an unreasonable proposition. The field of video game addiction research has still not

caught on with these new developments, and many studies still point to dopamine as the reason why video games are rewarding and also why they are addictive.

There is a larger issue to be discussed in relation to the neuroscience of video games, namely the ontological status of video games. Or in other words: the question of whether human experiences in video games are ‘real’ or ‘artificial’. Psychoactive drugs are generally considered to be alluring because they offer rewards that activate the same neurological pathways as ‘natural’ rewards such as sex, food, and social interaction. For people to completely eschew natural rewards and focus solely on drugs is obviously detrimental to their psychosocial well-being, not to mention their ability to sustain life. When it comes to video games a central question is an ontological one: are the experiences of friendship and love that people experience with and in games (see e.g. Enevold & MacCallum-Stewart, 2015) ‘natural rewards’ or ‘unnatural’ substitutes? We would argue that friendships formed online are no less real than those that are formed offline. In fact, the distinction between offline and online friendships seems arbitrary and unhelpful as because the two categories in some cases overlap completely (see e.g. Nielsen, 2015).

3. Conclusions

We argue here that the term ‘addiction’ is not well-suited to describe the complex interaction that most children have with digital technologies, even when their engagement seems excessive. As the United Nations Children’s Fund (UNICEF) stated in a recent report (2017), “Applying clinical concepts to children’s everyday behaviour does not help support them in developing healthy screen time habits.”

In the psychiatric vocabulary, the word 'addiction' usually refers to a chronic disease state, which is caused by dysfunction and that has severe negative effects. Video game addiction has not yet been shown to cause negative effects that are comparable to those of other addictions. As we have discussed in this chapter many studies not only fail to find a causal relationship, but also fail to find a simple association. The term video game addiction, which is perhaps practical in terms of conveying a point, does not seem well suited to describe children's everyday interaction with video games simply because there is little evidence of long-term harm.¹ Work addiction, exercise addiction, food addiction, sex addiction, etc. are not currently recognized as addictions, presumably because all of these activities are part of most people's daily lives, and mostly beneficial (if not instrumental) for human flourishing, and do not necessarily cause problems. We would argue that video games, just like the above-mentioned activities, are everyday activities which should not be unduly problematized and stigmatized. They may constitute a problem for some people under some circumstances, but this seems likely to have more to do with the individual and the social circumstances rather than the activity of gaming or a specific game.

We would argue that if we, in the scientific community, want to understand excessive or problematic use of video games better, then the phenomenon needs to be explored in its own right and not forced into a framework of addiction. We believe that contemporary research into video game addiction is marred by confirmation bias because screening tools used to measure game addiction lack validity (Kardefelt-Winther, 2014; Nielsen, 2015). One researcher has proposed that we should talk not of problem gaming, because we do not know if it is actually a problem; rather we should call it problematized gaming, because all we know is that it is

¹ Unless, of course we adopt the thinking that addictions can be either positive or negative as some authors have done (Glasser, 1976). In such a framework, one early theoretician describes "gaming and simulation" as an addiction that might best be understood as a "Mixed Blessing Addiction" (Brown, 1991, p. 112).

perceived to be a problem (Brus, 2015). As a starting point, rigorous, pre-registered longitudinal studies of children's engagement with video games would be helpful.

We believe that negative stereotypes about gamers in general and the social stigma applied to individual gamers do far more damage to the psychological development of young people than video games ever could on their own. Until evidence exists of a direct link between video games and harmful outcomes, such stigmatization should be avoided.

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