

CORRELATES OF VIDEO GAME ADDICTION

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Video game addiction often leads to a tremendous burden on those afflicted with the condition, draining their time, resources, and life away until they have nothing left. To further elucidate the problem of video game addiction, the current research examines the level of video game addiction of 111 participants, along with their motivation for their addictive behaviors, the quality of life of addicted individuals, and possible relations between video game addiction and other forms of addiction. Results of the current research indicate a correlation between addictive video game use and depression, alcohol use, a desire for escapism, a need for social interaction, and lack of self-control. The results of a multiple regression indicate that, amongst the various research factors, depression is the factor with the most significant link to addictive video game use, implying a dangerous correlation between mental health and an addictive behavior that some erroneously disqualify as a true addiction.

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## TABLE OF CONTENTS

	Page
LIST OF TABLES.....	iv
Chapters	
1. INTRODUCTION .....	1
Expanding the Definition of Addiction	
Alcoholism	
Gambling Addiction	
Video Game Addiction Definition and Causes	
Need For Video Game Addiction Research	
2. METHODS .....	10
Participants	
Materials	
Design	
Procedure	
3. RESULTS.....	13
4. DISCUSSION .....	15
Research Limitations	
Future Research	
APPENDICES .....	26
BIBLIOGRAPHY.....	48

## LIST OF TABLES

	Page
1. Descriptive Data for the Research Factors .....	22
2. Correlations Between Research Factors .....	23
3. Relative Correlation with Video Game Usage .....	24
4. Comparisons of Means Between Gamers and Non-Gamers .....	25

## CHAPTER 1

### INTRODUCTION

#### Expanding the Definition of Addiction

In recent times, the idea of addiction has expanded beyond the concept of a compulsion to fulfill a chemically-driven need, and a forerunner amongst the expansionist addictions is gambling addiction. A variety of factors can influence an individual towards gambling addiction, but two factors that hold considerable sway are the individual's often impaired ability to control impulsive actions (Bogdan et al., 2009) and the variable-ratio schedule of rewards offered by gambling. Casinos have long enjoyed success due to the influential motivational power of a variable-ratio schedule of rewarding gamblers, as the individuals will disregard frequent failures and focus in on the few times where their desired goals are achieved (Johnson et al., 2009), continually returning and making the casino increasingly wealthy. Other businesses have adopted similar models, particularly branches of the video game industry (Chiu et al., 2004).

Certain video games have adopted a model of creating 'continuous gameplay' wherein the game is designed to have a built in monthly fee, and in exchange the game is continually expanded by the company in the hopes of keeping the player entertained. On the surface, it is simply a model of business designed to create endless gameplay for individuals with the desire to continue gaming in such an immersive environment (Kenneth, 2006). One unintended side effect, however, is the escalation of commitment of time that the players experience, sometimes increasing their desire to seek the rewards found through gaming while eschewing other important life responsibilities to the extent that it is debilitating to themselves and those around them, creating potentially dangerous levels of immersion (Peters, 2009).

With the newly flourishing cyber culture surrounding video games thriving, it is important to understand the impact of said culture (Jenkins, 2006), particularly any addictive behaviors taking place within it. Such behaviors can have life threatening ramifications in terms of both the use of the games themselves and other addiction-related behaviors (Fisher, 1994). In order to more fully understand a topic as specific as video game addiction, one must first examine the field of addiction as a whole.

### Alcoholism

Perhaps the most prominently discussed form of addiction is that of alcohol, a legal substance with a long history of causing problems for both families and individuals. Alcohol abuse is a condition with an often chronic course, one that requires considerable care and vigilance to minimize the destructive effects and prevent relapses. For an addicted individual, the journey through alcoholism is arduous. For a member of a family unit, it is even more so. Time and time again research shows the impact of alcoholism on a family unit, causing everything from decreased marital satisfaction to decreased quality of child-rearing techniques (Kachadourian, 2009).

There is a multitude of ways that an alcoholic parent can detrimentally impact a child's life. Alcohol is often a contributing factor in the physical, mental, and sexual abuse of a child (King, 2009). Such traumatic childhood events often have long-lasting negative effects on a child. Children with parents who are alcoholics are more at risk for engaging in risk-taking behaviors later in life, often becoming alcoholics themselves (Buu, 2009). There is also evidence that a family history of alcoholism can increase a person's risk of becoming an alcoholic,

indicating a strong genetic factor in a person's disposition towards addictive behaviors (Campbell, 2009).

Alcohol abuse can lead to not only child abuse, but spousal abuse as well (Mignone, 2009). The frequency with which intimate violence between partners occurs increases exponentially when alcoholism is added to the formula. This degradation of happiness between partners can often spill over into other areas in an individual's life, leading to everything from job loss to decreased mental wellness to jail time. This is typical with addiction related problems, as they aren't generally segregated to a single area in an addict's life. Often they will spill over and corrupt everything else, adding to the feelings of hopelessness and despair felt by the addict.

Alcoholism and problem behaviors can incite an unfortunate ouroborous of infinitely looping tragedies. Alcoholism can lead to anxiety and depression, leading to a greater need to use alcohol as a coping mechanism (Keiley, 2009). It is an unpleasant fact that addictive behaviors can often beget addictive behaviors, as the problems from each addiction compound the need to use the addiction to cope with escalating problems.

The impact that addiction can have on an individual's mental health is often nothing short of devastating. A person with any addiction is a prime candidate for a bevy of psychological maladies, from anxiety disorders to depression, not to mention an addict's increased likelihood to attempt suicide (Rosenfeld, 2006). Two of the primary reasons that individuals will turn to substance abuse are that they are simply allowing their hedonistic drives to overwhelm their logical thinking, and that they are using the drugs to relieve intensely negative feelings (Kassel, 2010).

The dark truth about addictions is that they generally are not singular in their occurrences- an individual who experiences one addiction can frequently experience another.



Often one addiction problem will become a gateway for another addiction. Perhaps an individual with alcoholism issues turns to marijuana abuse to alleviate the stress. Perhaps a cocaine addict turns to promiscuity as a way of achieving other highs. Or perhaps a person with substance abuse problems turns to gambling as a means of obtaining more money to spend on their addiction. It is not uncommon for an individual who has a problem with alcohol abuse to also have a problem with gambling as well (Lawrence, 2009).

### Gambling Addiction

The pattern of an abusive gambler is broken into four stages- winning, losing, desperation, and hopelessness (Rosenthal, 1992). The winning stage is where they are first experiencing the rush of a big win, and the excitement of gambling heavily for the first time. The losing stage is the point in which the shine of the activity begins to wear off, the losses begin outweighing the wins, and the individual is no longer feeling as exhilarated. The desperation stage is when the individual's losses greatly outweigh their wins, and he or she begins searching desperately for a way to 'break even,' trying to find any source of income with which they can gamble their way back to their initial status quo. Finally, the hopelessness stage is just that- the gambler's problem has become so potent that it has pared away everything in the individual's life other than a feeling of total helplessness.

This pattern of thoughts and behavior is not exclusive to gambling, however. With any form of addiction a similar progression can be tracked. The initial highs of the first usage, the eventual acclimation leading to dulled sensations, the increasing cost of the addiction, and the rock-bottom feelings of hopelessness after the individual has lost everything to the addiction. With such common features between the various types of addictions, it should come as no

surprise that there are common features between the various types of addicts' personalities and backgrounds. The most common personality trait amongst addicts is a lack of impulse control (Grant, 2010). However, impulse control is but one of many factors that can precipitate an individual towards having problems with addictive behaviors. Specific life events can push an individual towards addiction. Events such as the death of a close relation, a divorce, the birth of a child, a serious threat to the individual's health, and problems with other addictive substances- all of these issues can be factors in a person becoming an addict of any kind.

Despite the differences between seemingly disparate addictions, it's easy to see that there are common patterns to the addictions themselves, as well as common patterns in the addicts' backgrounds. All types of addictions seem to have a similar core from which they form, from well-researched substance addictions such as alcohol or marijuana abuse, to newer, less researched addictions, such as gambling or video game addiction.

### Video Game Addiction Definition and Causes

The definition of video game addiction itself has been something of a pressing point in previous literature. Fortunately, that issue has been alleviated by Salguero and Moran (2001), who have provided an objective definition for video game addiction. Basing their definition of video game addiction on the DSM's definition of gambling addiction, they state that video game addiction is a situation in which a person takes on a pattern of behavior similar to substance abuse, wherein problems arise in the person's life as a result of their intense desire to play video games.

The causes of video game addiction have been discussed from a plethora of perspectives. Although research on the issue has been conducted ever since the inception of video games as a

common media outlet in the 1980's (Egli & Meyer, 1984), only a small handful of researchers have been examining the worrisome potential for video games to become a source of addictive behavior. The reasons behind an individual turning towards video game addiction are myriad; Deeble (2008) equates addiction to the video game World of Warcraft to a search for meaning within an individual's life. It is stated in the research that often individuals will turn to a seemingly endless font of entertainment to compensate for what they interpret to be a void in their personal lives.

Gender is another correlate of video game addiction, with men being more likely to become video game addicts than women (Reiss & Cahill, 2008). This is in direct concordance with previous research regarding more well known forms of addiction, particularly gambling addiction (Steinberg, 2008). With far more men engaging in video game use than women, Reiss and Cahill's research further indicates the need for video game addiction research.

The flow of emotions of a video game addict engaging in the use of video games is similar to the flow of emotions of any other addict engaging in the use of their opiate of choice (Wan & Chiou, 2006). Those playing video games simply as a hobby will do so in order to find some satisfaction from the activity, as is the motivation for many individuals with a hobby. A video game addict, however, will often engage in video game usage not to pursue satisfaction, but rather, to alleviate dissatisfactory feelings already present. Such an emotional trend is in direct concordance with the concept of addictive 'tolerance' accumulated by drug addicts, which further deepens the argument regarding the severity of video game addiction.

At times an addict's desire to engage in their opiate of choice can surpass their capacity for rational thought. Recent findings suggest that video game addicts can engage in a similarly psychotic path of behavior (Rosenfeld, 2001) to the point that they would jeopardize their own

health or relationships or basic daily needs (Hart et al., 2009) in favor of playing video games, which all the more emphasizes the need for empirically based research regarding the phenomenon.

An individual who is a video game addict will often have an increased reliance on video games, much like an alcoholic will have an increased reliance on alcohol (Young, 2009). As their problems compound they will often spend increasing amounts of time in their virtual worlds, dissociating from real life's problems until they are simply too overwhelming to deal with (Toronto, 2009).

Like any other form of addiction, similar patterns will emerge in a video game addict's behavior (Sammis, 2008). They're drawn in by the initial feelings of exhilaration or solitude that are provided by the video game. As their time spent playing increases, the addict's willingness to engage in activities other than their addiction decreases. One of the key factors in any addiction is the ever-escalating proportion of an individual's life spent in pursuit of the addiction, to the point to which they will eschew all other things in life. As would be expected, this often leads to problems with finances, health, and interpersonal relations that are so severe the individual may abandon attempting to reconcile the issues. In fact, the reality of the situation is that the problems caused by video game addiction are severe enough that a few misguided individuals have turned to suicide, believing it to be the only option left available to them (Addicted: Suicide Over Everquest?, 2002).

The human problem of addiction is nothing new, and copious amounts of research has been conducted on the topic (Gauthier, 1959). Addiction to the immersive new cyber culture of video games is, however, a newfound and pressing issue. Video game addiction is an ever-growing phenomenon, and one that a majority of the information being gathered on it is through

sensationalistic media surveys rather than empirical research. Despite the prevalence of video games as a form of electronic entertainment there is a dearth of empirical research on the topic, which has led to the proliferation of various 'myths' regarding the behaviors surrounding video game usage (Jagodzinski, 2006.) Without properly conducted research on the topic, information regarding video game usage, particularly video game addiction, will likely become entangled with myths propagated by poorly conducted research rather than being examined carefully to provide the best foundation upon which society can build an appropriate course of response to the topic.

#### Need for Video Game Addiction Research

Research suggests that nearly 10% of all gamers suffer from some level of video game addiction (Grüsser, 2007). With the number of gamers increasing daily, this presents quite a pressing issue. Given the core similarities between patterns of addiction, and the tendency for addicts to not be limited to a singular addiction, the current research examines the relation between an individual's tendency towards video game addiction and their tendency towards addiction of other kinds. With a more robust knowledge regarding a video game addict's patterns of addictive behavior it may be better understood what the process is that leads an individual down the path towards not only video game addiction, but addictions of all kind.

Also, given the nascence of video game addiction research and the prevalence of video games as an electronic entertainment medium, it is of dire importance that a pre-emptive strike is taken on video game addiction research. Thorough research regarding a relatively minute portion of the population could prevent widespread video game addiction issues in the future.

The purpose of the study is to examine the association between video game addiction and other types of substance abuse, including marijuana abuse and alcohol abuse, as well as the correlation between video game addiction and quality of life of the addict, and motivation for video game addiction. Therefore, the hypotheses for the current research are as follows: firstly, those with higher levels of addictive video game usage will also have higher levels of addictive alcohol usage. Secondly, those with higher levels of addictive video game usage will also have higher levels of addictive marijuana usage.

Given the rampant documentation of the commonplace self-control issues found in addicts (Lawrence, 1996), the third hypothesis is that those with higher levels of addictive video game usage will also have lower levels of self-control. The fourth and fifth hypotheses are that those with higher levels of video game addiction will also have increased levels of depressive symptoms and decreased levels of self-reported altruistic behavior, respectively (Anderson et al., 2010).

## CHAPTER 2

### METHODS

#### Participants

A group of 111 undergraduate students, composed of 78 women and 34 men, were recruited from a pool of undergraduate psychology courses at a large southern secular university. The participants each completed the online experiment individually. The participants were enlisted through psychology courses and offered extra credit in said courses as compensation for their participation.

#### Materials

- *Alcohol Use Disorders Identification Test.* To ascertain the level of alcoholic tendencies of each participant, the AUDIT scale was used (Saunders et al., 2006.) The AUDIT consists of a 10 item survey inquiring as to the habits of alcoholic consumption of the participant (see Appendix A). Previous research on the survey found it to have a reliability of .93. Current research on the survey found it to have a reliability of .86.

- *Marijuana Problem Scale.* To ascertain the tendencies to use marijuana of each participant, the Marijuana Problem scale was used. The Marijuana Problem Scale consists of a 20 item survey inquiring as to the habits of the participant's marijuana use (see Appendix B). Previous research utilizing the scale found it to have a reliability of .85 (Stephens, Roffman, & Curtin, 2000). Current research on the survey found it to have a reliability of .89.

- *Problem Video Game Playing Scale.* To ascertain the level of video game addiction of each participant, a modified version of the Problem Video Game Playing Scale (Salguero & Moran, 2001) was used. The Problem Video Game Playing Scale consists of a 16 item survey

asking a variety of questions attempting to pinpoint the participant's level of video game addiction, as well as frequency of video game use (see Appendix C). Previous research utilizing the scale found it to have a reliability of .65. Current research on the survey found it to have a reliability of .96.

- *Tangney Trait Self-control Scale.* To ascertain the level of self-control of each participant, the Tangney Trait Self-Control Scale was used. The Tangney Trait Self-Control Scale consists of a 36 item survey asking a variety of questions attempting to pinpoint the participants' level of trait self control (see Appendix D). Previous research utilizing the scale found it to have a reliability of .89 (Tangney, Baumeister, & Boone, 2004) Current research on the survey found it to have a reliability of .88.

- *Electronic Gambling Motivation Scale.* To ascertain the motivations of video game usage of each participant, a modified version of the Electronic Gambling Motivation Scale (Thomas, Allen, & Philips, 2009) was used. The Electronic Gambling Motivation Scale was modified for use in this study, with details pertaining to gambling habits altered to implicate gaming habits rather than gambling habits. The Electronic Gambling Motivation Scale, henceforth referred to as the Electronic Gaming Motivation Scale, consists of a 19 item survey asking a variety of questions attempting to pinpoint the participant's specific motivations for video game usage, comprised of three sub-categories: escape problems, accessibility, and social environment (see Appendix E). Research utilizing the scale found it to have a reliability of .75. Current research on the modified survey found it to have a reliability of .96.

- *Quick Inventory of Depressive Symptomatology.* To ascertain the level of depressive symptoms of each participant, the Quick Inventory of Depressive Symptomatology (Bernstein et al, 2009) was used. The QIDS consists of a 16 item survey asking a variety of questions



attempting to pinpoint the participant's level of depressive symptoms (see Appendix F). Previous research utilizing the scale found it to have a reliability of .80. Current research on the survey found it to have a reliability of .82.

- *Self-Report Altruism Scale.* To ascertain the altruistic tendencies of each participant, Self-Report Altruism Scale (Rushton, Chrisjohn, and Fekken, 1981) was used. The Self-Report Altruism scale consists of an 18 item survey asking a variety of questions attempting to pinpoint the participant's altruistic tendencies (see Appendix G). Previous research utilizing the scale found it to have a reliability of .91. Current research on the survey found it to have a reliability of .90.

### Design

The study was a cross-sectional design that examined video game usage and six factors that were hypothesized to be related to video game usage: level of self control, level of marijuana usage, level of alcoholic usage, and level of depressive symptoms, level of altruistic tendencies, and motivation for video game usage.

### Procedure

All participants completed the study online. The participants first completed the AUDIT, followed by the 16 item Problem Video Game Playing scale, then the Marijuana Problem scale, the EGM, the QIDS, and the Self-Report Altruism scale. Finally, the participants were given the Tangney self-control scale.

## CHAPTER 3

### RESULTS

Descriptive statistics were calculated for the data, gathering the means and standard deviations for each of the experimental variables (see Table 1). An examination for normality of distribution was conducted, and as a result one participant was removed from the dataset because the participant had not completed all questionnaires.

A correlational analysis was conducted using the variables of video game use, video game use motivation, depression, altruism, self-control, marijuana use, and alcohol use. As can be seen in Table 2, video game use was significantly related to all three subscales of video game motivations (escapism, accessibility, and social environment), depression, self-control, and alcohol abuse. No significant correlations were obtained between video game use and altruism or marijuana use. Expected significant correlations were obtained between self-control and alcohol use, alcohol use and depression, and depression and self-control. Interestingly, there was no significant correlation between reported alcohol use and marijuana use.

Next a multiple regression was conducted to examine each factor's relative correlation to video game use. Scores from all six measures (including the three motivation subscales) and gender (coded 0=female, 1=male) were entered as predictor variables and video game use was the outcome variable. The overall model was found to be significant at  $F(8,102) = 29.34$  with  $p < .0001$  and an  $R$  squared of .69 and an adjusted  $R$  squared of .67. The results of the multiple regression indicated that depression was the only significant predictor (see Table 3). The motivational factors of desire for escapism and accessibility of video games, along with alcohol use approached significance in the multiple regression.

Finally, Item 16 on the problem video game playing scale regarding frequency of video game use was employed as a categorizing factor in the data. Participants who marked a usage of 0-5 hours of video games per week were labeled as 'non-gamers' and were analyzed as such. Participants citing greater video game usage than 5 hours per week were labeled as 'gamers' and analyzed as such. A comparison of means between both of the two groups' scores on the research factors was conducted (see Table 4). Only 30 participants qualified as 'non-gamers' using this division, so statistical power was limited. The overall patterns of correlation between problematic video game use and the other research factors kept a pattern of outcome consistent with the previous analyses.

To further examine the usefulness and versatility of the problematic video game use portion of the Problem Video Game Playing Scale (Items 1-15), a factor analysis was conducted. The results of the analysis indicated that the problem video game playing scale was composed of only a single factor, problematic video game usage. The factor analysis also indicated that problematic video game usage was highly correlated with the 16th item regarding frequency of video game usage.

## CHAPTER 4

### DISCUSSION

The first primary hypothesis—that those who were higher in video game usage would be higher in alcohol usage—was supported by the data. The second primary hypothesis—that those who were higher in video game usage would be higher in marijuana usage—was not supported by the data. The third hypothesis—that those who were higher in video game usage would be lower in self-control—was supported by the data. The fourth hypothesis—that those who were higher in video game usage would be higher in depression—was supported by the data. The fifth and final hypothesis—that those who were higher in video game usage would be lower in altruistic behavior—was not supported by the data.

The results of the multiple regression (see Table 3) illuminate an interesting point regarding the data. Several factors have a significant weight when examined alone in correlation with video game usage – self-control, alcohol use, etc. However, when all of the predictor variables were used to predict video game use, only depression was significant. Thus the correlations between video game use and self-control and alcohol abuse are not significant when depression is also considered in the model. Like many other addictions, perhaps depressed individuals are more likely to turn to video game usage as a means of finding solace. Conversely, perhaps individuals confronted with the staggering toll on their lives that video game addiction has taken will slip deep into depression. Depression seems to be a key component to video game addiction, and future video game addiction researchers would do well to take that into consideration in their research.

The implications regarding the significance of the first primary hypothesis merit further research concerning the correlation between problem video game usage and problem alcohol

usage and ties back to the idea of an addictive personality type (Welberg, 2007). Further research could explore not only the connection between alcohol use and problem video game usage, but the order of causation between the two factors. An examination of a potential pattern of problem video game usage and problematic overindulgence of other behaviors, particularly gambling and sexual addiction, would also be useful research. Another direction for future research would be to examine the potential for the diminished considerations for the gravity of risk-taking behaviors, as exemplified by the pathological gambler's decreased tendency to weigh risk of losses against the probability of reward.

The lack of significance of the second hypothesis, that those high in marijuana usage would be high in video game usage, may be due to a number of factors. The overall lack of marijuana use is unusual for a collegiate population (Rabon, 2010), however, several factors within the study may have influenced the level of marijuana usage reported. Females are significantly less likely to engage in marijuana usage, and given that the sample population was approximately 75% female this may be a contributing factor to the lack of marijuana use of the participants. Also, since that marijuana usage is an illegal activity, many participants may have been uncomfortable answering truthfully in a university research study. Another possibility exists that there simply isn't a significant correlation between video game usage and marijuana usage. Due to a lack of variability in marijuana usage scores, the current study is limited in its ability to explore a possible relationship between marijuana use and video game use.

The significance of the third hypothesis, that video game usage would correlate with a lack of self-control, is indicative of either an over-arching pattern of behavior that governs not only an individual's lack of control over video game use, but lack of control in general, or that excessive video game use engenders a decrease of self-control. Future treatment techniques

would do well to focus on the lack of control prevalent in video game addicts, as well as treating the addictive behavior directly. Lack of self-control has found to correlate with a number of negative outcomes, including higher levels of alcohol use, anger management problems, lower GPA, poorer adjustment skills - the list goes on (Tangney, Baumeister & Boone, 2004). The current finding that lack of self-control correlates with video game addiction seems to indicate that individuals with a lack of self-control are not only at risk for 'traditional' addictions, such as alcohol abuse, but 'non-traditional' addictions, such as video game abuse.

The correlations between the video game use motivation subscales can be a strong point for future video game addiction researcher. The three motivation subscales not only correlated strongly with one another, they also correlated with high video game use, low self-control, high depression and high alcohol use. It is unsurprising that these three video game motivation subscales correlate so highly with a number of negative factors, as these same negative factors correlate with the motivations for other, similar addictive behaviors, such as gambling. An individual who is engaging in healthy, non-addictive video game use is unlikely to be doing so because of a dearth of social interaction in his or her life, or because of an intense desire to escape mundane real-life issues. A video game addict, however, is going to be considerably more likely to have such motivations. The negative aspects in their life correlated with their video game abuse, such as the increased likelihood of alcohol abuse or depression, are going to take their toll on the individual and increase his or her desire to escape and surround themselves with other people similar to themselves and likely deepening their depression. With the prevalence of video games as a medium of entertainment, the high degree of accessibility becomes an issue as well. With some addictions, individuals can distance themselves from the addiction in order to resist the temptation to engage in the addictive behavior. With the growing accessibility of video

games, it becomes considerably more difficult for an addict to achieve that desired distance, causing relapses that in turn lead to depression.

With the myriad number of problems that can arise in an individual's life due to video game addiction, it is no surprise that the fourth hypothesis, that higher video game use would correlate with higher levels of depression, indicated significance. Results indicated that the more individuals play video games, the more of a problem it is in their lives,  $r(111) = .75, p < .001$ . Depression is a common response to the addict's increasingly out of control life centered around addiction. The correlation between depression and lack of self-control is similarly unsurprising. Depressed individuals often feel out of control of many aspects of their lives and will thusly turn towards behaviors that they feel they are in control over. Worse yet is when those behaviors themselves become out of control, and the individual is forced into increasing patterns of usage in order to maintain feelings of normalcy. A reverse pattern of causality is also common; often an individual will begin engaging in a behavior because of its intrinsic value. As time progresses, the individual loses control over the frequency and intensity of usage and ultimately spirals into depression as a result of said control loss. In regards to future research in this area, it would be beneficial to examine not only the video game addict's tendency towards depression, but other outcome measures. Decrease in real-world contacts, financial troubles, school and occupational issues- all are strong possibilities for future study.

Finally, the lack of significance of the fifth hypothesis, that excess video game usage would correlate with decreased altruistic behaviors, is interesting in that previous research conducted by Anderson et al. (2010) indicated that a higher frequency of video game usage correlated with decreased reports of altruistic behaviors. However, in Anderson's study aggressive and violent video games were the primary focus. The focus of this study is directed

towards general video game usage rather than a specific sub-type of video games, perhaps accounting for the difference in self-reported altruistic behaviors.

### Research Limitations

There were limitations of the research that should be considered in the formulation of future video game addiction research. Firstly, the research was based on data collected only on college students. Inclusion of non-collegiate individuals would help garner a more profound understanding of the video game addict population. Secondly, with the dearth of video game addiction research there is likewise a dearth of research regarding the efficacy of video game addiction research measures. Perhaps there are more reliable video game addiction research measures that have yet to be discovered, and with more field research on the topic itself there will be the simultaneous benefit of more field research on the measures being used. Thirdly, the participant group was primarily composed of female participants. Perhaps a gender bias exists that is unclear based on the data. Finally, the study was correlational in nature. Experimental research in this area would be highly beneficial in illuminating possible causation.

With a topic as nubile as video game addiction research, there are going to be numerous future research options to consider. With the current study being limited to a college population, a broadening of the sample population would be useful. Though college students represent a strong proportion of the video game user population, individuals who have already dropped out of college due to addiction issues are not included in the study. It is that subset of individuals that would be one of the most beneficial to examine, given the topic.



## Future Research

Future video game addiction researchers may also want to consider the examination of various video game addiction treatment options. Given the similarities between video game addiction and gambling addiction, perhaps it would be of benefit to examine the effectiveness of video game addiction treatment options that employ similar tactics to gambling addiction treatment options. If depression is a causal factor in video game addiction, therapies such as cognitive behavior therapy may be an effective technique to treat this form of addiction.

A further examination of both the demographic information regarding video game addicts and the psychosocial factors that can lead to an individual's addiction to video games would also be of great use. With the similarities in the patterns of addictive behaviors between video game addicts and addicts of other kinds it is plausible to postulate that a similar pattern of precipitating factors would exist. It is important to consider every possible aspect regarding video game addiction, as the condition is one that should merit grave concern, given the severity of the condition and the growing presence of video games in younger generations and the time they spend with this medium.

An exploration of the research factors as correlated causal factors would be a useful direction for future research. Depression is a highly correlated outcome of any addiction, and video game addiction seems to be similar in that regard. Conversely, depression can often lead individuals towards addiction as a means to escape their negative feelings. One addiction can often lead into another addiction as a means of escaping the troubles associated with the first addiction. Perhaps those who abuse alcohol are more likely to abuse video game usage, or vice-versa. Certainly it could be argued that a lack of self-control would be an influencing factor in an individual's spiral towards addiction, but without future research focused on pinpointing the

existence and direction of causation between any of these factors, these postulations are merely conjecture.

One thing seems to be clear regarding video game addiction- individuals engaged in addictive video game usage are leading unhappy lives. Whether their video game usage begets their feelings of depression or their depression causes them to use video games as a coping mechanism, video game addicts are a troubled and relatively unknown population. Video games are an increasingly present form of entertainment in modern society. Without more in-depth research into the factors surrounding excessive video game usage there could be an onslaught of individuals suffering a debilitating and avoidable condition.

Table 1

*Descriptive Data for the Research Factors*

	Mean	Std. Deviation	Possible Range of Scores	Minimum	Maximum
Video Game Use	24.56	13.10	15- 75	15	68
Motivation- Escapism	5.66	6.91	0- 30	0	27
Motivation- Accessibility	8.12	7.66	0- 40	0	30
Motivation- Social	3.4	4.72	0- 25	0	23
Depression	6.72	4.37	0 - 48	0	21
Altruism	46.7	12.63	18- 90	23	76
Self-control	72.81	16.24	40- 180	40	120
Marijuana	2.31	4.86	0 - 40	0	19
Alcohol	6.43	4.37	0 - 40	0	21

Table 2

*Correlations Between the Research Factors*

	Video Game	Escapism	Accessibility	Social environment	Depression	Altruism	Self- Control	Marijuana	Alcohol
Video Game	xxxxx	.75**	.70**	.73**	.70**	.10	.45**	.09	.54**
Escapism		xxxxx	.85**	.85**	.60**	.11	.42**	.07	.42**
Accessibility			xxxxx	.81**	.54**	.12	.43**	.06	.38**
Social				xxxxx	.59**	.19*	.41**	.07	.49**
Depression					xxxxx	.17	.57**	.08	.64**
Altruism						xxxxx	.39**	.10	.10
Self- Control							xxxxx	.07	.43**
Marijuana								xxxxx	.04
Alcohol									xxxxx

\* Correlation is significant at the .05 level (2-tailed). \*\* Correlation is significant at the .01 level (2-tailed).

Table 3

*Relative Correlation with Video Game Usage*

Variable	DF	Parameter Estimate	Standard Error	t value	P	Standardized Estimate
Intercept	1	11.27	3.9	2.89	.01	0
Gender	1	-2.09	1.64	1.27	.21	-.07
Escapism	1	.42	.23	1.82	.07	.22
Accessibility	1	.31	.19	1.7	.09	.18
Social Environment	1	.42	.3	1.37	.17	.15
Altruism	1	-.03	.06	-.64	.52	.03
Self-Control	1	.01	.05	.01	.99	.01
Marijuana	1	.07	.17	.47	.63	.02
Alcohol	1	.36	.19	1.89	.06	.13
Depression	1	.91	.25	3.63	.01	.30

Table 4

*Comparison of Means Between Gamers and Non-gamers*

	Mean and Standard Deviation (Gamers)	Mean and Standard Deviation (Non-gamer)	<i>t</i>	<i>df</i>
PVPS	20.10 (8.00)	36.7 (16.20)	5.36***	34.4
Escapism	11.40 (11.19)	3.53 (4.86)	4.88***	36.6
Accessibility	14.16 (10.1)	5.88 (6.16)	5.74***	109
Social Environment	7.2 (8.3)	1.98 (3.08)	4.41***	34.4
Altruism	50.10 (15.73)	45.44 (15.14)	1.74	109
Self-control	82.5 (25.15)	69.23 (16.22)	3.55**	41.1
Marijuana	3.26 (8.01)	1.96 (4.21)	1.13	37
Alcohol	8.88 (8.83)	5.56 (4.40)	2.61**	36.1
Depression	7.77 (7.39)	5.56 (3.81)	4.00***	36.6

\* Correlation is significant at the .05 level (2-tailed).

\*\* Correlation is significant at the .01 level (2-tailed).

\*\*\*Correlation is significant at the .001 level (2-tailed).

APPENDIX A  
ALCOHOL USE DISORDERS IDENTIFICATION TEST

Please circle the answer that is correct for you.

	0	1	2	3	4
1. How often do you have a drink containing alcohol?	Never	Monthly or Less	Two to four times a month	Two to three times per week	Four or more times a week
2. How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2	3 or 4	5 or 6	7 to 9	10 or more
3. How often do you have six or more drinks on one occasion?	Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
4. How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
5. How often during the last year have you failed to do what was normally expected from you because of drinking?	Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week



6.	How often during the last year have you needed a drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
7.	How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
8.	How often during the last year have you been unable to remember what happened the night before because you had been drinking?	Never	Less than monthly	Monthly	Two to three times per week	Four or more times a week
9.	Have you or someone else been injured as a result of your drinking?	No		Yes, but not in the last year	Yes, during the last year	

10. Has a relative or friend, or a doctor or other health worker, been concerned about your drinking or suggested you cut down?	No	Yes, but not in the last year	Yes, during the last year
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APPENDIX B

MARIJUANA PROBLEMS SCALE

Following are different types of problems you may have experienced as a result of smoking marijuana. Please circle the number that indicates whether this has been a problem for you in the **past 3 months**. If the statement does not apply to you, please fill in “0” for “No Problem.”

<b>Has Marijuana use caused you:</b>	<b>No Problem</b>	<b>Minor Problem</b>	<b>Serious Problem</b>
1. Problems between you and your partner	0	1	2
2. Problems in your family	0	1	2
3. To neglect your family	0	1	2
4. Problems between you and your friends	0	1	2
5. To miss days at work or miss classes	0	1	2
6. To lose a job	0	1	2
7. To have lower productivity	0	1	2
8. Medical problems	0	1	2
9. Withdrawal symptoms	0	1	2
10. Blackouts or flashbacks	0	1	2
11. Memory loss	0	1	2
12. Difficulty sleeping	0	1	2
13. Financial difficulties	0	1	2
14. Legal problems	0	1	2
15. To have lower energy level	0	1	2
16. To feel bad about your use	0	1	2
17. Lowered self-esteem	0	1	2

19. To lack self-confidence	0	1	2
20. Cravings	0	1	2

APPENDIX C

PROBLEM VIDEO GAME PLAYING SCALE

Please answer the following questions with a number ranging from 1 to 5,  
matching the range of statements below.

1 This does not describe me at all

2 This describes me a little

3 This describes me somewhat

4 This is a fairly accurate depiction of me

5- This is an extremely accurate depiction of me.

1. When I am not playing video games, I keep thinking about them, i.e. remembering games, planning the next game, etc.
2. I spend an increasing amount of time playing video games
3. Because of the video game playing I have reduced my homework, or schoolwork, or I have not eaten, or I have gone to bed late, or I spent less time with my friends and family
4. In order to play video games I have skipped classes or work, or lied, or stolen, or had an argument or a fight with someone
5. I have misled friends and family members to conceal extent of my gaming.
6. When I feel bad, e.g. nervous, sad, or angry, or when I have problems, I play video games more often
7. When I can't play video games I get restless or irritable
8. When I lose in a game or I have not obtained the desired results, I need to play again to achieve my target

9. I have tried to control, cut back or stop playing, or I usually play with the video games over a longer period than I intended

10. I enjoy gaming in moderation

11. I prioritize gaming over most other things in life.

12. I need to play online games with increasing amounts of time in order to achieve the desired excitement.

13. I'll often pop in a game when I really feel the need to get away from it all

14. I would describe myself as a 'hardcore' gamer

15. I enjoy playing video games over all other forms of entertainment.

How many hours a week do you normally spend playing video games?

- 0-5
- 6-10
- 11-15
- 16-20
- 20+



APPENDIX D

TANGNEY SELF-CONTROL SCALE

Please answer the following items as they apply to you. There are no right or wrong answers. Please choose a number, 1 through 5, that best represents what you believe to be true about yourself for each question. Use the following scale to refer to how much each question is true about you.

Not at all like me 1

A little like me 2

Sometimes like me 3

Often like me 4

Very much like me 5

1. I have a hard time breaking bad habits.
2. I am lazy.
3. I say inappropriate things.
4. I never allow myself to lose control.
5. I do certain things that are bad for me, if they are fun.
6. People can count on me to keep on schedule.
7. Getting up in the morning is hard for me.
8. I have trouble saying no.
9. I change my mind fairly often.
10. I blurt out whatever is on my mind.
11. People would describe me as impulsive.
12. I refuse things that are bad for me.
13. I spend too much money.
14. I keep everything neat.
15. I am self-indulgent at times.
16. I wish I had more self-discipline.

17. I am good at resisting temptation.
18. I get carried away by my feelings.
19. I do many things on the spur of the moment.
20. I don't keep secrets very well.
21. People would say that I have iron self-discipline.
22. I have worked or studied all night at the last minute.
23. I'm not easily discouraged.
24. I'd be better off if I stopped to think before acting.
25. I engage in healthy practices.
26. I eat healthy foods.
27. Pleasure and fun sometimes keep me from getting work done.
28. I have trouble concentrating.
29. I am able to work effectively toward long-term goals.
30. Sometimes I can't stop myself from doing something, even if I know it's wrong.
31. I often act without thinking through all the alternatives.
32. I lose my temper too easily.
33. I often interrupt people.
34. I sometimes drink or use drugs to excess.
35. I am always on time.
36. I am reliable.

APPENDIX E  
ELECTRONIC GAMING MOTIVATION SCALE

*People have many reasons for playing video games. Below is a list of reasons people sometimes give for gaming. Using the scale provided, please rate each statement in terms of how much it applies to your video game habits.*

<b>0</b> <b>Doesn't apply to me</b>	<b>1</b> <b>Occasionally applies to me</b>	<b>2</b> <b>Applies to me sometimes</b>	<b>3</b> <b>Applies to me often</b>	<b>4</b> <b>Applies to me most of the time</b>	<b>5</b> <b>Applies to me almost always</b>
--	---	--	--	---	--

1. When I'm playing I don't have to think about the problems in my life (eg work hassles, family issues, bad memories).
2. It's something to do when I have nothing else to do
3. I play to be around other people
4. Gaming allows me time out from worrying about things
5. If I pass a game I like to play a round or two
6. I can meet new people while gaming.
7. When I game I stop feeling bored
8. Gaming gives me something to focus on, so nothing else worries me
9. I like to play when I've got some time to spare
10. I can game and talk to someone new
11. It's something I can do to escape for a while, with no one around
12. Games are always available to play
13. There is a warm, welcoming atmosphere
14. It's something you can do that's better than other activities
15. I can log on and no one knows I'm there
16. There's always something to play close by
17. This is something I can do and feel safe
18. It's something I can do alone
19. If I need to be around people who understand me, I can log on and play

APPENDIX F

QUICK INVENTORY OF DEPRESSIVE SYMPTOMATOLOGY

Please check the one response to each item that best describes how you have felt for the past seven days.

1. Falling Asleep:

- I never take longer than 30 minutes to fall asleep
- I take at least 30 minutes to fall asleep, less than half the time
- I take at least 30 minutes to fall asleep, more than half the time
- I take at least 60 minutes to fall asleep, more than half the time

2. Sleep During the Night:

- I do not wake up at night
- I have a restless, light sleep with a few brief awakenings each night
- I wake up at least once a night, but I go back to sleep easily
- I awaken more than once a night and stay awake for 20 minutes or more, more than half the time

3. Waking Up Too Early:

- Most of the time, I awaken no more than 30 minutes before I need to get up
- More than half the time, I awaken more than 30 minutes before I need to get up
- I almost always awaken at least one hour or so before I need to, but I go back to sleep eventually
- I awaken at least one hour before I need to, and can't go back to sleep

4. Sleeping Too Much:

- I sleep no longer than 7-8 hours/night, without napping during the day
- I sleep no longer than 10 hours in a 24 hour period including naps
- I sleep no longer than 12 hours in a 24-hour period including naps
- I sleep longer than 12 hours in a 24-hour period including naps

5. Feeling Sad:

- I do not feel sad
- I feel sad less than half the time
- I feel sad more than half the time
- I feel sad nearly all the time

6. Decreased Appetite:

- My usual appetite has not decreased
- I eat somewhat less often or lesser amounts of food than usual
- I eat much less than usual and only with personal effort
- I rarely eat within a 24-hour period, and only with extreme personal effort or when others persuade me to eat

7. Increased Appetite:

- My usual appetite has not increased
- I feel a need to eat more frequently than usual
- I regularly eat more often and/or greater amounts of food than usual
- I feel driven to overeat both at mealtime and between meals

8. Decreased Weight (Within the Last Two Weeks):

- My weight has not decreased
- I feel as if I've had a slight weight loss
- I have lost 2 pounds or more
- I have lost 5 pounds or more

9. Increased Weight (Within the Last Two Weeks):

- My weight has not increased
- I feel as if I've had a slight weight gain
- I have gained 2 pounds or more
- I have gained 5 pounds or more

10. Concentration/Decision Making:

- There is no change in my usual capacity to concentrate or make decisions
- I occasionally feel indecisive or find that my attention wanders
- Most of the time, I struggle to focus my attention or to make decisions
- I cannot concentrate well enough to read or cannot make even minor decisions

11. View of Myself:

- I see myself as equally worthwhile and deserving as other people
- I am more self-blaming than usual
- I largely believe that I cause problems for others



- I think almost constantly about major and minor defects in myself

12. Thoughts of Death or Suicide:

- I do not think of suicide or death
- I feel that life is empty or wonder if it's worth living
- I think of suicide or death several times a week for several minutes
- I think of suicide or death several times a day in some detail, or have actually tried to take my life

13. General Interest:

- There is no change from usual in how interested I am in other people or activities
- I notice that I am less interested in people or activities
- I find I have interest in only one or two of my formerly pursued activities
- I have virtually no interest in formerly pursued activities

14. Energy Level:

- There is no change in my usual level of energy
- I get tired more easily than usual
- I have to make a big effort to start or finish my usual daily activities (for example, shopping, homework, cooking or going to work)
- I really cannot carry out most of my usual daily activities because I just don't have the energy

15. Feeling slowed down:

- I think, speak, and move at my usual rate of speed
- I find that my thinking is slowed down or my voice sounds dull or flat
- It takes me several seconds to respond to most questions and I'm sure my thinking is slowed
- I am often unable to respond to questions without extreme effort

16. Feeling Restless:

- I do not feel restless
- I'm often fidgety, wringing my hands, or need to shift how I am sitting
- I have impulses to move about and am quite restless
- At times, I am unable to stay seated and need to pace around

APPENDIX G

SELF-REPORT ALTRUISM SCALE

Please indicate the number of times in the past month you have performed the following actions  
by typing the correct number in front of each item. Use the following scale:

- 1 = Never
- 2 = Once
- 3 = More than Once
- 4 = Often
- 5 = Very Often

1. I have assisted someone experiencing car trouble (changing a tire, calling a mechanic, pushing a stalled or stuck car, etc.).  
 1  2  3  4  5
2. I have given someone directions.  
 1  2  3  4  5
3. I have made change for someone.  
 1  2  3  4  5
4. I have given money to someone who needed it (or asked for it).  
 1  2  3  4  5
5. I have done volunteer work for charity.  
 1  2  3  4  5
6. I find it sometimes amusing to upset the dignity of teachers, judges, and "cultured" people.  
 1  2  3  4  5
7. I have donated blood.  
 1  2  3  4  5
8. I have helped carry another person's belongings (books, parcels, etc.).  
 1  2  3  4  5
9. I have delayed an elevator and held the door open for another.  
 1  2  3  4  5
10. I have allowed someone to go ahead of me in a line (in a supermarket, during registration, etc.).  
 1  2  3  4  5
11. I have given another a ride in my car.  
 1  2  3  4  5

12. I have pointed out a clerk's error (in a bank, at the supermarket, etc.) in undercharging me for an item.  
 1  2  3  4  5
13. I have let someone borrow an item of some value to me (clothes, jewelry, stereo, etc.).  
 1  2  3  4  5
14. I have helped another with a homework assignment when my knowledge was greater than his or hers.  
 1  2  3  4  5
15. I have voluntarily looked after another's plants, pets, house, or children without being paid for it.  
 1  2  3  4  5
16. I have offered my seat in a crowded room or on a train or bus to someone who was standing.  
 1  2  3  4  5
17. I have helped another to move his or her possessions to another room, apartment, or house.  
 1  2  3  4  5
18. I have retrieved an item dropped by another for him or her (pencil, book, packages, etc.).  
 1  2  3  4  5

## REFERENCES

- Addicted: Suicide over Everquest?* (2002) Retrieved November 17, 2009.  
<http://www.cbsnews.com/stories/2002/10/17/48hours/main525965.shtml>
- Anderson, C., Ihori, N., Bushman, B., Rothstein, H., Shibuya, A., Swing, E., Sakamoto, A., Saleem, M. (2010) Violent video game effects on aggression, empathy, and prosocial behavior in Eastern and Western countries: A meta-analytic review. *Psychological Bulletin*, 136, 151-173.
- Bainbridge, W. (2007). The scientific research potential of virtual worlds. *Science*, 317, 472-476.
- Barlett, C., Branch, O., Rodeheffer, C., Harris, R.. (2009). How long do the short-term effects of violent video games last? *Aggressive Behavior*, 35(3), 225-236.
- Barnes, S., Poindexter, P. (1997). Virtual culture: Identity and community in cybersociety. *Journalism & Mass Communications Quarterly*, 74, 907-908.
- Barry, D., Steinberg, M., Wu, R., Potenza, M. (2008). Characteristics of black and white callers to a gambling helpline. *Psychiatric Services*, 59(11), 1347-1350.
- Bessiere, K., Seay, A., Kiesler, S. (2007). The ideal elf: Identity exploration in World of Warcraft. *Cyberpsychology & Behavior*, 10, 530-535.
- Bernstein, I., Wendt, B., Naar, S., & Rush, J. (2009). Screening for major depression in private practice. *Journal of Psychiatric Practice*, 15, 87-94.
- Bogdan, N., Clark, L., Lawrence, A., Luty, J., Sahakian, B. (2009). Impulsivity and response inhibition in alcohol dependence and problem gambling. *Psychopharmacology*, 207, 163-172.
- Chiu, S., Lee, J., Huang, D. (2004). The impact of the internet, multimedia and virtual reality on behavior and society. *Cyberpsychology & Behavior*, 7, 571-581.

- Davis, K., Gardner, H., Seider, S. (2008). When false representations ring true (and when they don't). *Psychology and Behavioral Sciences Collection*, 75, 1085-1108.
- Deeble, L. (2008). Problematic internet use and the 'World of Warcraft'--addiction linked to a quest for meaning. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, 69(3), 1949.
- Egli, E., Meyers, L. (1984). The role of video game playing in adolescent life: Is there reason to be concerned? *Bulletin of the Psychonomic Society*, 22(4), 309-312.
- Fisher, S. (1994). Identifying video game addictions in children and adolescents. *Addictive Behaviors*, 19, 545-53.
- Gauthier, J.W. & Thimann, J. (1959). The management of depression in alcoholism and drug addiction. *Journal of Clinical & Experimental Psychopathology*, 20, 320-325.
- Hagedorn, B. (2009). Sexual addiction counseling competencies: Empirically-based tools for preparing clinicians to recognize, assess, and treat sexual addiction. *Sexual Addiction & Compulsivity*, 16(3), 190-209.
- Hart, G., Johnson, B., Stamm, B., Angers, N., Robinson, A., Lally, T., Fagley, W. (2009). Effects of video games on adolescents and adults. *CyberPsychology & Behavior*, 12(1), 63-65.
- Jagodzinski, J. (2006). Video game cybersubjects, the ethics of violence and addiction: A psychoanalytic approach. *Psychoanalysis, Culture & Society*, 11, 282-303
- Johnson, P., Madden, G., Petry, N. (2009). Pathological gamblers discount probabilistic rewards less steeply than matched controls. *Experimental and Clinical Pharmacology*, 17(5), 283-290.
- Jenkins, Henry. (2006). *Convergence culture: Where old and new media collide*. New York: New York University Press.

- Kenneth, L. (2007). Massively multiplayer online game virtual environments: A potential locale for intercultural training. *Humanities and Social Sciences*, 68(5-A), 1780.
- Lawrence, P., Rutgers, U. (1996) Does it take a gun to the head to assess the problem of volition? *Psychological Inquiry*, 7, 72-74.
- Levene, R. (2008). Sex-related invariance across cultures in an online role-playing game. *Journal of Evolutionary Psychology*, 6(2), 141-148.
- Peters, C., & Malasky, J. (2008). Problematic usage among highly-engaged players of massively multiplayer online role playing games. *Cyberpsychology & Behavior*, 11, 481-484.
- Reiss, A., & Cahill, L. (2008). Got game? *Science*, 319, 881-881.
- Rabon, J. (2010). College student sexual behaviors, marijuana use, and alcohol use: Perceptions and co-morbidity. *Dissertations Abstracts International: Section B: The Sciences and Engineering*, 70, 51-81
- Rosenfeld, D. (2001). Psychotic addiction to video games. Williams, Paul (Ed)., *A language for psychosis: Psychoanalysis of psychotic states* (pp. 149-174.) Philadelphia, PA, US: Whurr Publishers.
- Rosenfeld, D. (2006). *The soul, the mind, and the psychoanalyst*. Philadelphia, PA, US: Karnac books
- Rushton, P., Chrisjohn, R., & Fekken, C. (1981). The altruistic personality and the self-report altruism scale. *Personality and Individual Differences*, 2, 293-302.
- Salguero, R., & Moran, R. (2001). Measuring problem video game playing in adolescents. *Society for the Study of Addiction to Alcohol and Other Drugs*, 97, 1601-1606.

- Saunders, J., Aasland, O., Babor, T., De La Fuente, J. (2006). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction*, 88, 791-804.
- Stephens, R. S., Roffman, R. A., & Curtin, L. (2000). Comparison of extended versus brief treatments for marijuana use. *Journal of Consulting and Clinical Psychology*, 68, 898-908.
- Tangney, J. P., Baumeister, R. F., & Boone, A. L. (2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality*, 72(2), 271-322.
- Thomas, A., Allen, A., Phillips, J. (2009). Electronic gaming machine gambling: Measuring motivation. *Journal of Gambling Studies*, 25, 343-355.
- Tiffany, S., and Wray, J. (2009). The continuing continuum of craving. *Addiction*, 104(10), 1618-1619
- Wan, C., & Chiou, W. (2006) Psychological motives and online games addiction: A test of flow theory and humanistic needs theory for Taiwanese adolescents. *CyberPsychology & Behavior*, 9, 317-324.
- Welberg, L. (2007). Addictive personalities. *Nature Reviews Neuroscience*, 8(4), 246-246.